Fleet Efficiency Review

Submitted by

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Fleet Services

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Contents

1 Executive Summary

CST Fleet Services was engaged by the State of Oklahoma's Office of Management & Enterprise Services (OMES) in February 2013 to perform a fleet efficiency review of all the approximately 12,000 vehicle assets owned and operated by the state. The short 12-week project discovery consisted of on-site interviews, wide collection of data, site visits and on-site meetings as needed. The scope and timeframe of the study has yielded some opportunities for efficiency improvements and cost savings which are summarized in this report.

CST throughout the project has modeled and analyzed the data, made recommendations and estimated the savings and financial impact of our key recommendations. The source of all modeling and forecasting has been provided to OMES as a "tool" upon which the state can refine variables that affect the scenario modeling and forecasts.

The scope of this work is inclusive of six primary areas:

1. Best Practice Evaluation
2. Comparative Metrics Review (Metrics and Models)
3. Facilities Review
4. Policies, Procedures and State Statutes Review
5. Assessments, Conjectures and Recommendations
6. Savings Potential

The report shows that, while not all are quantifiable at this point, the state does have savings opportunities both short term and long term in managing its fleet assets.

Based upon our study, CST is making three short-term recommendations and two long-term recommendations as follows:

The short-term recommendations would allow the state to achieve quick savings that could be used for other projects while building the basis required in implementing long-term opportunities that would potentially offer even bigger savings.

- Conduct full Life-Cycle, Right-Sizing and Right-Typing Study
- Implement a single FMS system (M5) across all non-ODOT fleets
- Conduct a Comprehensive Fleet Cost Comparison Analysis

Based on the data available, the state should be able to save over $1.5 million with a first level right-sizing implementation and $150,000 a year by implementing a new lifecycle model for the pursuit fleet. These are examples of the types of savings the state can expect to see for roughly half of the fleet. Implementing like programs on the rest of the fleet, especially DOC and ODOT, would generate equal or greater savings.

The long-term recommendations will require work not only within the fleet departments but throughout the using agencies. These long-term recommendations address multiple issues relative to controlling the overall costs of the state's fleet. Issues relative to internal maintenance costs, avoidable maintenance due to driver neglect (or abuse) of the vehicle, and underutilized internal facilities would be addressed with the following:

- Implement policies, procedures and chargeback systems for vehicle maintenance in all shops
- Investigate and implement more extensive shared services across fleet departments

Summary:

Based upon the experience of CST, and the limited work herein, we are making the following conjectures:

- The state vehicle assets value is estimated to be between $200 and $250 million.
- The state does not know the annual operating (maintenance and fuel) costs for its vehicle asset fleet; however CST estimates this to be between $100 and $120 million.

- CST feels that if the short- and long-term recommendations stated above are implemented, the annual impact will yield between 5 percent and 8 percent savings, ongoing.

2 Current Fleet Best Practices

Over the years of working with fleets, CST has developed tables of practices which are recognized among the top government fleets in the country. Through comparing the State of Oklahoma fleets to these tables of "industry best practices," we can determine areas where the fleets are "in balance" with recognized best fleet attributes and where management practices and enhancements need to be developed. Very often this work with best practice analysis will point and indicate areas where the practices yield costs which are either "in line" and/or areas where the lack of the practices may lead to higher costs. All this work, when combined with the cost data will move the state toward significant savings.

The industry best practices do not always apply to fleets in the same manner. For the state, clearly the categories of detailed industry best practices apply to the seven fleets which operate maintenance and fueling facilities for about 90 percent of the state's vehicle assets. The agencies that these apply to are:

- Fleet Management Division (FMD)
- Oklahoma Department of Transportation (ODOT)
- Department of Public Safety (DPS)
- Department of Human Services (DHS)
- Department of Corrections (DOC)
- Oklahoma State University (OSU)
- University of Oklahoma (OU)

2.1 Best Practices Matrix

There are approximately 135 line items of best practices upon which we interview and query. They appear in one of the following 18 categories:

Best Practice Application Category
Fleet Business Model
Fuel Management
Emissions
Fuel Dispensing
Parts Management
Reporting and Metrics
Shop Floor Diagnostics
Shop Floor General
Shop – Labor Management
Shop – Vendor Services and Relations
Preventive Maintenance
Shop – Road calls
Fleet Customer Relations
Asset Management
Motor Pool
Warranty Management
Tire Management
Operator/Shop Safety

See Appendix 2 for Best Practice Matrix showing the results for each agency.

2.2 Summary Best Practice Assessment

The following summary best practices were seen at some or all of the fleets:

- Preventive Maintenance Programs: Followed across the state for internally maintained vehicles. (Less clear if same schedules are actually met in the field offices.)

- Alternative Fuel Initiatives: Active Alternative Fuel initiatives especially involving CNG.
- DOC shops visited are very efficient for amount of resources available.
- OSU and OU: Life-cycle/replacement models in place and effective.
- AVL Technology is used to gain operational efficiencies.
- Trip Optimizer (developed by FMD): According to statements made by agencies during the interviews, the agencies using it are saving money.
- FMD: Chargebacks in place for maintenance service.
- Fleet Management System: FMD leading way toward single fleet management system (Assetworks M5).
- NAPA IBS solution implemented at OU to manage costs related to parts availability issues.
- State contracts in place and used for parts purchasing.
- Fuel purchases managed and reported for both bulk and POS.

In addition to Best Practices observed, the following observations were made which lead to opportunities for improvement.

- Service Level Agreements (SLA) are not in place and maintenance expectations on both sides are not well defined.
- Multiple Fleet Management Systems being used causing common reporting to be difficult, less accurate and time consuming.
- Maintenance Charge Back needed in multiple agency fleets.
- Drivers in general not held accountable for abuse of vehicles.
- Lease programs are inconsistent for like leases across fleets.
- Internal Maintenance Costs: Either not accurately tracked or too high relative to industry standards.

- Parts: Availability and inventory levels are not optimized for multiple maintenance departments.
- Costs for FMD Lease and Maintenance programs not understood and deemed too high by using agencies.
- Maintenance Costs purchased on the Comdata fleet cards are difficult to manage.
- The right types of vehicles are not being used in all cases. We saw both undersized vehicles (usually leads to shorter life cycles and increased maintenance) and oversized vehicles (higher overall operating costs) being used across multiple agencies. A specific example is in the case where ODOT still has some 5-ton dump trucks in applications better suited for 10-ton trucks.
- According to multiple agencies, discussions of how and where CNG vehicles will fit into their mission need to be held with the agencies' operation departments before additional CNG vehicles are placed in the field.

3 Metrics and Models

CST reviewed the fleet based on industry standards when compared to fleet age, utilization and life cycles. In addition, we provide a Carbon Footprint Baseline that the state can use going forward as it continues to "green" the fleet.

This section shows that the state's fleets in general are much older and have higher mileage than what we typically see. In fact, many of the fleet managers recognized that they are running older equipment; they have been limited in their ability to turn over the fleets either by senior leadership practices, previous practices within their department or limited capital budgets for replacements.

The impact of an older fleet has increased overall costs due to higher maintenance costs and reduced value of the vehicles once they are sold.

For this analysis, the fleets are divided into a Light Duty fleet which consist of sedans, vans, SUV's and ¾-ton pickups or smaller and a Heavy Duty fleet which includes all trucks above ¾-ton and off-road equipment. In addition, for analysis we have defined a General Fleet for the state consisting of those vehicles not owned by OSU, OU, DPS or ODOT.

In some cases, there are vehicle counts showing "no data" for specific data points such as age or utilization. This is a common problem when reviewing data for large and dispersed fleets, especially when multiple methods of data collection are used.

3.1 Data Collection for Modeling

Comparing fleets with different missions is always difficult. The first issue in the state is that the major fleets use different systems to collect data. They also do not collect all data alike therefore comparing true costs of one fleet to another is very difficult.

The table below shows the major fleets and the system each uses to collect its fleet's data. These departments maintain almost 8,400 of the state's approximate 12,000 vehicles with the other vehicles spread across the rest of the state agencies.

Agency	Fleet Management System / Data Source	Vehicle Count
Fleet Management Division	AssetWorks M5*	1,200
Department of Transportation	Agile	2,944
Department of Correction	Homegrown (Different Types at Each Division)	1,084
Department of Human Services	Homegrown	584
Department of Public Safety	Homegrown	1,200
Oklahoma State University	Squarerigger FMS	954
University of Oklahoma	CCGS Faster	420
Total for the Seven Agencies		**8,386**

*The state is currently paying for the licenses for all vehicles to be managed using AssetWorks M5. This cost is being passed to the leasing customers. A Fair Share Cost spread across all of the agencies based on vehicles owned could mitigate this expense.

The other agencies in the state are using various spreadsheets and databases to maintain the data for their fleets. These different systems are not all designed or configured to collect like data. However, there is a process in place to collect maintenance, fuel and utilization data from these fleets on a monthly basis which is then reported to FMD.

These agencies and the total vehicle counts are shown below (as of 3/5/2013).

Row Labels	Vehicles
ABLE Commission	38
Agriculture, Food & Forestry Department	365
Ardmore Higher Education Center	1
Boll Weevil Eradication	16
Bureau of Investigation - OSBI	163
Cameron University	55
Career and Technology Education	12
CompSource Oklahoma	7
Conservation Commission	13
Council on Law Enforcement Education & Training - CLEET	23
Department of Mental Health and Substance Abuse Services	327
District Attorneys Council	166
Eastern Oklahoma State College	38
Education Department	17
Educational Television Authority	3
Environmental Quality Department	1
Grand River Dam Authority	242
Health Department	3
Historical Society	9
Horse Racing Commission	2
J.D. McCarty Center	9
Labor Department	5
Military Department, Oklahoma	112
Mines Department	16
Municipal Power Authority	9
Narcotics & Dangerous Drugs Control	148
Northern Oklahoma College	64
Office of Juvenile Affairs	183
Regents for Higher Education	15
Rehabilitation Services	23
Rose State College	28
Scenic Rivers Commission	14
SOSU - Southeastern Oklahoma St. University	66
Tax Commission	6
Tourism & Recreation Department	366
Turnpike Authority	329
University of Science & Arts of Oklahoma	34
Veterans Affair Department	102
Wildlife Conservation	387
Grand Total	**3,447**

It must be pointed out that the data used for the analysis below was fragmented but does demonstrate the relative age and utilization issues described above.

3.2 Fleet Age and Utilization

The objectives of the age and utilization metrics are twofold:

- First, to determine the relative "age" of the fleet. This is based upon the date in service, model year and current odometer. (This will help to lay the foundation for "capital planning" as well as point to "safety or critical" replacement of "worn" assets.)
- Second, to determine the degree to which the asset is utilized in its function operationally, that is, the amount of incremental mileage being put on the vehicle each day, week, month or year.

Typically Light Duty vehicles (non-pursuit) have life cycles in the area of seven years/100,000 miles while their pursuit counterparts might run a four-year/80,000 mile cycles. Heavy Duty vehicles are usually kept much longer (12 – 15 years) and up to 20 years for specialty uses.

The mission of the fleet has to be taken into account when analyzing age information. For instance, a primarily light duty fleet of sedans, pickups, passenger vans and SUVs running on average 12,000 miles will have an average age much older than highway patrol fleet averaging over 25,000 miles per year. Likewise, a DOT fleet consisting of a higher percentage of heavy duty equipment will be expected to have an older fleet. With that in mind, when we reviewed the fleet data we found that the general light duty fleets and the ODOT fleets to be "old" compared to industry best practices.

3.2.1 Age of the Fleet

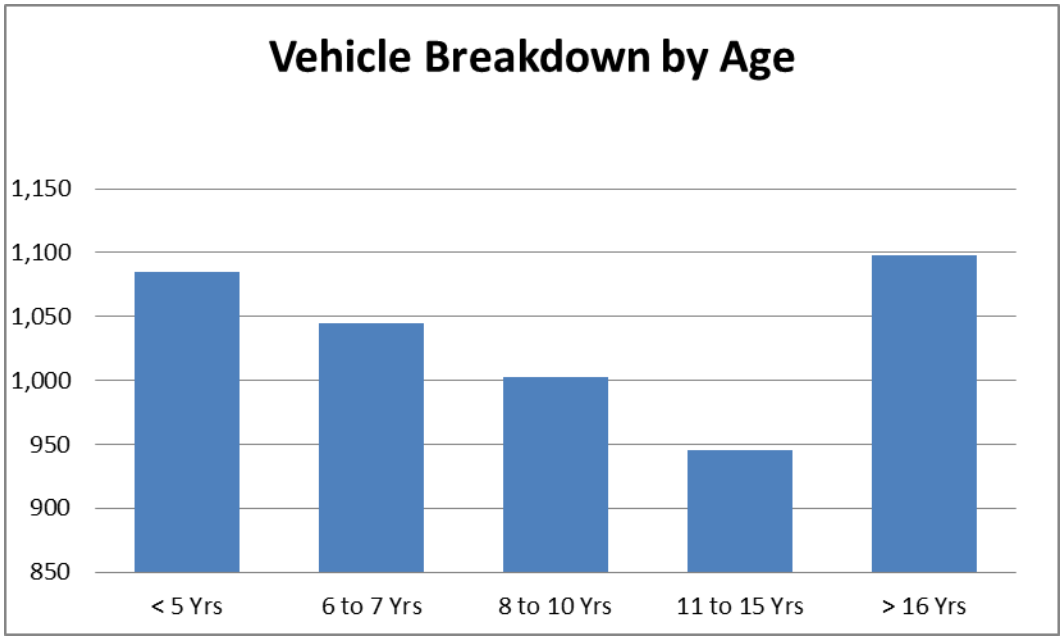
The following contains the age of the state's primarily light duty fleet excluding the universities, DPS and ODOT. The universities, OU and OSU, both have life cycle models in place in keeping with industry best practices with vehicles averaging less than five years of age.

General Fleet

Below is a graph showing the age of the state's standard light duty fleet.

Summary of Vehicle LTD Mileage	Number of Vehicles	Percent of Fleet
No Mileage Data	5	0.1%
< 5 Years	1,085	20.9%
6 to 7 Years	1,045	20.2%
8 to 10 Years	1,003	19.4%
11 to 15 Years	945	18.2%
> 16 Years	1,098	21.2%
Totals	**5,181**	**100.0%**

This data is shown in the bar chart below.



Age is just one component of deciding how to review, but we can draw a couple of conclusions about the general fleet.

- Based on industry standards of keeping light duty vehicles no more than on a 10-year lifecycle, 39.4 percent or 2,043 of these vehicles need to be reviewed for replacement.

- In addition, 19.4 percent or 1,003 of the vehicles are also reaching the age of retirement now and will need to be reviewed for replacement soon.

ODOT Fleet

The ODOT fleet consists of a much larger percentage of Heavy Duty equipment which will typically have a much longer life cycle than a Light Duty fleet. With that in mind, the ODOT age is broken down into two sets of analysis, Light Duty vs. Heavy Duty.

ODOT Light Duty Age Breakdown

Summary of Vehicle LTD Mileage	Number of Vehicles	Percent of Fleet
< 5 Years	447	38.3%
6 to 7 Years	193	16.6%
8 to 10 Years	173	14.8%
11 to 15 Years	231	19.8%
> 16 Years	122	10.5%
Totals	**1,166**	**100.0%**

ODOT Heavy Duty Age Breakdown

Summary of Vehicle LTD Mileage	Number of Vehicles	Percent of Fleet
< 5 Years	676	38.0%
6 to 7 Years	168	9.4%
8 to 10 Years	169	9.5%
11 to 15 Years	277	15.6%
> 16 Years	488	27.4%
Totals	**1,778**	**100.0%**

When comparing these, the light duty fleet has 30.3 percent of the fleet in need of review for replacement while the heavy duty fleet has 27.4 percent that need to be reviewed at this time.

3.2.2 Utilization Analysis

In the following tables we attempt to calibrate the average annual utilization for the state's fleet. As with the Age of Fleet, we have broken the Utilization into two distinct fleets, recognizing the ODOT fleet as a separate fleet.

Because we do not have consistency on vehicle type or class among the fleet users, we have also run this analysis by the fuel type of the vehicle – which is an attempt to segregate the light duty and heavy duty segments of the fleet. In this manner we can see which segments of the fleet are the best candidates for "right-sizing."

The tables below shed light on the need for the high priority given to right-sizing the fleet – which might entail changing segments of the fleet to rental/lease and/or expansion of the state's shared fleet.

As with the age analysis of the fleet, we have separated the fleet into general usage and ODOT due to the nature of their businesses. Utilization, especially with a Heavy Duty fleet, is based more on hours of usage than by mileage. However, for this analysis, we did not have hours data and have performed the utilization analysis based on mileage.

3.2.2.1 General Fleet

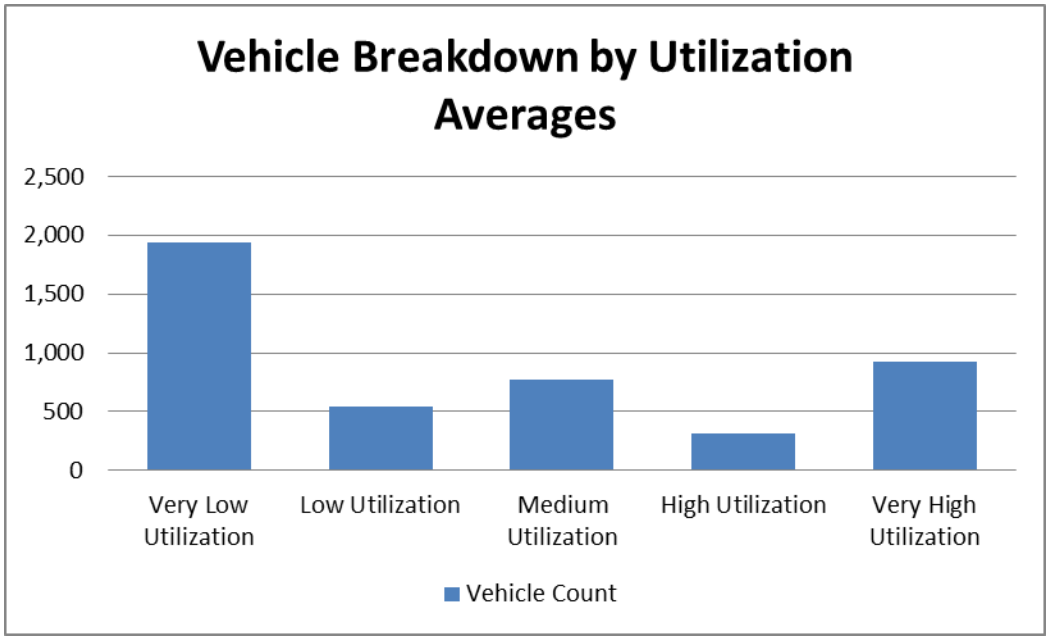
The criteria used for the utilization analysis is as follows:

Criteria for Utilization

Miles per Year (Min to Max in Range)			Utilization Category
0	to	6,000	Very Low Utilization
6,001	to	9,000	Low Utilization
9,001	to	15,000	Medium Utilization
15,001	to	18,000	High Utilization
18,001	and	ABOVE	Very High Utilization

Note: The highlighted fields are variables that can modified in the models that we have provided with this review; Appendix 1, CST Models. These values are based on the state's threshold of a vehicle being driven at least 12,000 miles per year. In addition,

the 9,000 mile threshold is a typical break-even point when comparing paying an employee mileage for using a personal car verses the state assigning that employee a state owned vehicle for that use. With that in mind, the used vehicles driven less than 9,000 miles should be reviewed to determine the best option for providing that service.



The analysis leading to the utilization chart above and table shown on the next page are the first steps in being able to conduct a right-sizing program for the fleet. Based on our experience, the demographics of the State of Oklahoma and the operations interviews we conducted, the following right-sizing analysis was done for the fleets that have the majority of underutilized vehicles across the fleet.

Summary of vehicle Utilization by mileage	Number of Vehicles	Savings per Vehicle per Year	Savings per Year
No Utilization Data	701	NA	NA
Very Low Utilization	1,939	$2,000	$1,163,400
Low Utilization	540	$1,000	$162,000
Medium Utilization	769		$0
High Utilization	312		$0
Very High Utilization	920		$0
Totals	**5,181**		**$1,325,400**

Percent that can Actually be Reduced 30%

This sample right-sizing table provides insight into how the state could save over $1.3 million per year by reducing the number of underutilized vehicles by 30 percent. The $2,000 savings for a "Very Low Utilization" unit is mainly due to depreciated cost savings for each vehicle that does not need to be purchased and/or reduced maintenance costs as the overall age and condition of the fleet are improved. For the "Low Utilization" units, we have factored in the fact that the additional miles across the vehicles left in the fleet would slightly modify their lifecycles and reduce the overall savings. These savings can be expected during the first phase of a three-phase approach.

3.2.2.2 ODOT Utilization

The Utilization Models for both the ODOT Heavy Duty and Light Duty fleets are shown below. Included with both models are the highlighted criteria used in the models to designate the utilization categories.

ODOT Heavy Duty Fleet Utilization

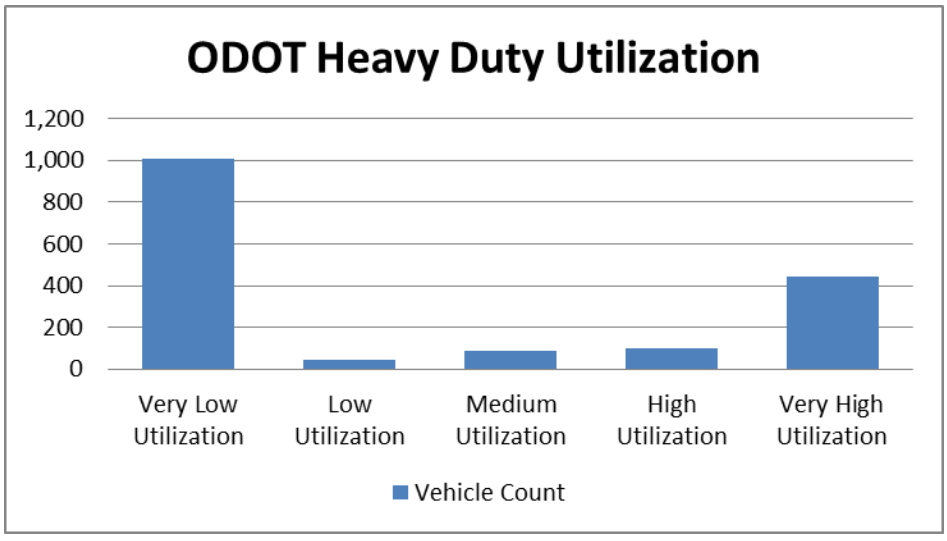
Miles per Year (Min to Max in Range)				Utilization Category
0	to	1,500		Very Low Utilization
1,501	to	3,000		Low Utilization
3,001	to	6,000		Medium Utilization
6,001	to	9,000		High Utilization
9,001	and	above		Very High Utilization

Summary of vehicle Utilization by mileage	Number of Vehicles
No Utilization Data	102
Very Low Utilization	1,006
Low Utilization	46
Medium Utilization	86
High Utilization	97
Very High Utilization	441
	1,778

Reporting no utilization (odometer)

For Low Utilization vehicles
Evaluate fleet with a rightsizing program or consider renting

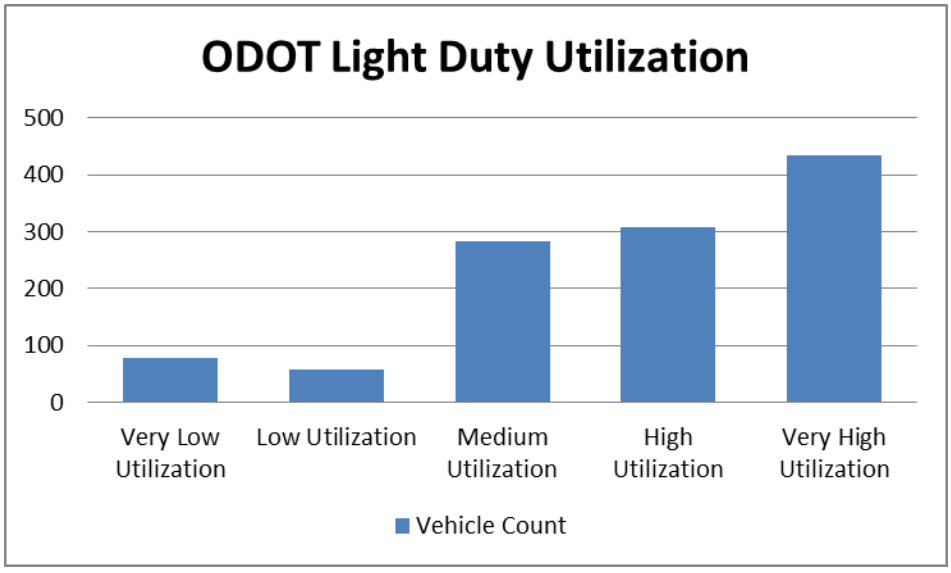
Total Vehicles



ODOT Light Duty Utilization

Miles per Year (Min to Max in Range)			Utilization Category
0	to	3,000	Very Low Utilization
3,001	to	6,000	Low Utilization
6,001	to	12,000	Medium Utilization
12,001	to	18,000	High Utilization
18,001	and	above	Very High Utilization

Summary of vehicle Utilization by mileage	Number of Vehicles
No Utilization Data	7
Very Low Utilization	78
Low Utilization	58
Medium Utilization	282
High Utilization	308
Very High Utilization	433
	1,166



3.3 Life Cycle Analysis

While not originally part of the scope of this analysis, one of the issues that we saw in talking with the agencies and analyzing the fleets is that many of the groups are either not using life cycle models or are not using models that are the most cost effective based on the use of the vehicles. In these cases, one model does not necessarily meet the needs of all departments. As an example, we have provided a basic model comparison for patrol cars based on our observations and data provided during the review.

3.3.1 DPS Patrol Car Lifecycle Comparison

As opposed to much of the light duty usage across the fleet, the patrol cars are used at an extremely high level, traveling typically 80,000 miles over a three-year period. At this point, the DPS fleet uses a model of driving the vehicles for approximately six years. While it may appear to save the state money by driving the vehicles longer, the following model shows that per patrol car unit needed, using a three-year cycle will save about $2,000 per unit need over a six-year period. This would translate to approximately $333,000 a year savings for a 1,000 patrol fleet. (The 1,000 patrol vehicles is based on a current fleet size of just over 1,200 vehicles with approximately 120 civilian units and an expected reduction of the size of the fleet of about 100 vehicles overall.) This does not take into account the savings for parts and maintenance relative to carrying costs of parts inventory and less maintenance resources needed to maintain the fleet.

3-Year Cycle Model – 2 Vehicle Acquisitions in 6 Years

3-Year / 80,000 Miles	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Totals
Vehicle Cost	$28,000	$0	$0	$28,000	$0	$0	$56,000
Maintenance and Tires	$3,000	$1,500	$1,500	$3,000	$1,500	$1,500	$12,000
Sale of Previous Unit	($13,000)	$0	$0	($13,000)	$0	$0	($26,000)
Total Cost (Excludes Fuel)							**$42,000**

6-Year Cycle Model – 1 Vehicle Acquisition in 6 Years

6-Year / 160,000 Miles	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Totals
Vehicle Cost	$28,000	$0	$0	$0	$0	$0	$28,000
Maintenance and Tires	$3,000	$1,500	$1,500	$3,000	$6,000	$4,000	$19,000
Sale of Previous Unit	($3,000)	$0	$0	$0	$0	$0	($3,000)
Total Cost (Excludes Fuel)							**$44,000**

Maintenance and Tire costs are based on numbers provided by DPS showing $6,000 for first 80,000 miles (years 1-3) and $13,000 for the second 80,000 miles (years 4-6).

3.3.2 Additional Life Cycle Models

Similar models should be built for fleets throughout the state to determine the optimal life cycle for the vehicles. These models will be specific to different types of equipment and have the potential to both reduce the risk of having older equipment on the road and reducing overall cost of ownership.

The fleets that would most benefit from a new lifecycle analysis and implementation in addition to DPS are FMD, ODOT and DOC.

3.4 Carbon Footprint and Conditional Forecast

A Carbon Footprint Baseline was developed based on the data available for fuel usage in 2012. This was somewhat difficult in that the Comdata Fleet Card (used to purchase fuel and maintenance from outside vendors) data did not accurately reflect the type of fuel used for CNG purchases. However, these points of sale CNG transactions appear to be a small percentage of the overall CNG usage giving the state a good baseline to use for future comparison.

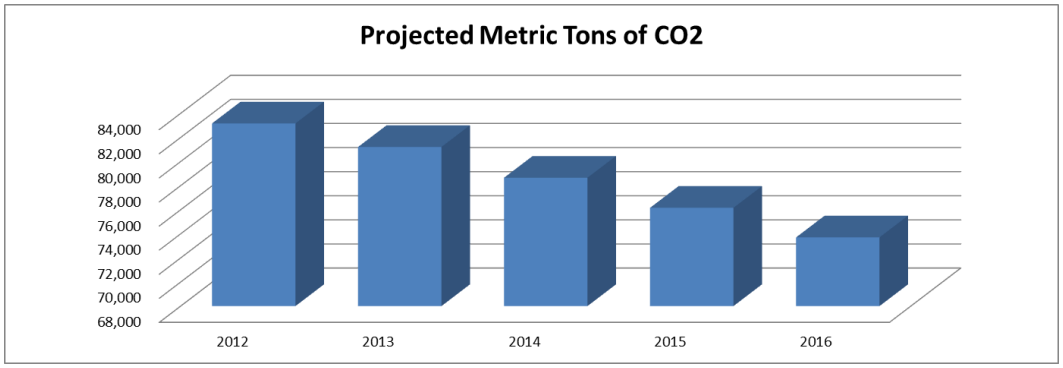
The carbon footprint baseline and projections were based on 2012 fuel data, both from bulk fuel purchased for state-owned pumps and fuel purchased via Comdata cards. The source of green-house-gas (GHG) emission particle weight based upon fuel consumed is as follows:

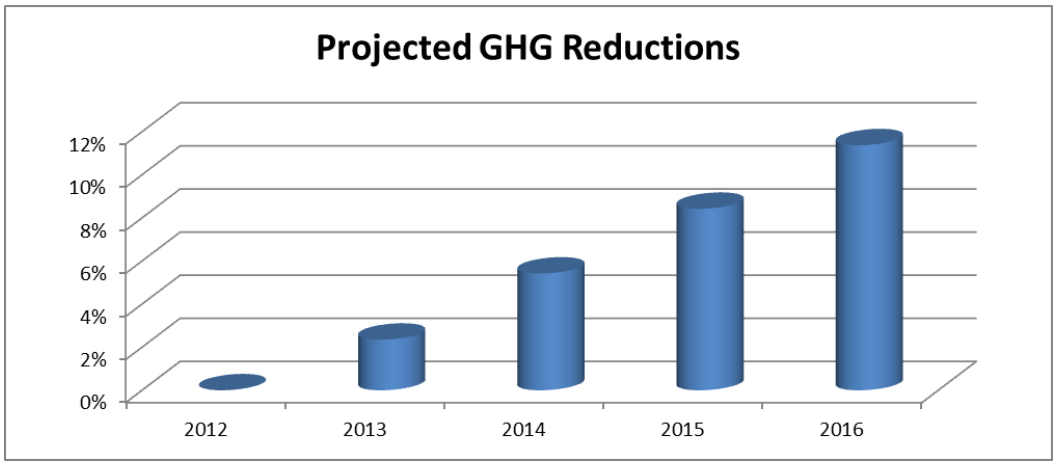
- For diesel and unleaded fuels: the U.S. Energy Information Agency (http://www.eia.gov)
- For compressed natural gas (CNG) and propane fuel: N.C. State University Alternative Energy Center (http://www.eos.ncsu.edu)

2012 Estimated Consumption	Gallons Consumed	Emissions – GHG Metric Tons
Unleaded Fuel	58,513	594
Diesel Fuel	1,382,246	12,316

For the projection after 2012, it was assumed that Unleaded and Diesel consumption would be reduced 3% per year while CNG usage would be increased 20% per year. These are variables in the models that may be changed as the state either increases or decreases its rate of CNG usage.

	Diesel		Unleaded		CNG		Total		
Year	Gallons	Metric Tons	Gallons	Metric Tons	Gallons	Metric Tons	Gallons	GHG Metric Tons	Projected GHG Reduction %
2012	2,404,145	24,402	6,533,458	58,213	208,958	543	8,937,603	83,158	0%
2013	2,332,020	23,670	6,295,662	56,094	250,750	1,439	8,627,683	81,204	2%
2014	2,262,060	22,960	6,056,643	53,965	300,900	1,727	8,318,702	78,652	5%
2015	2,194,198	22,271	5,814,763	51,810	361,080	2,073	8,008,961	76,153	8%
2016	2,128,372	21,603	5,568,104	49,612	433,296	2,487	7,696,476	73,702	11%





4 Facilities Review (Maintenance Operations Review)

CST began the project collecting basic vehicle asset management data, utilization data, and maintenance / fuel site data from the multiple agencies in the state. Once on site, we visited sample maintenance facilities, interviewed fleet managers and conducted small group interviews for the different fleets.

This also allowed us to vet the data that we received with what we saw in the field and heard in the interviews.

4.1 Fleet Management Systems and Data Sources

Internal Fuel and Maintenance Transactions

As stated above, the seven fleets that run primary maintenance facilities use a variety of systems to collect both fuel and maintenance data. The goal of OMES is to use Assetworks M5 as the system of record for the state. Other departments are willing to migrate to the system if they can see the value relative to the additional expense of going to a new system.

The state agencies would also like more insight into the costs they are charged in the leasing and maintenance systems primarily provided by FMD. In addition, other fleet departments either provide services for other agencies or have the capacity to. Going to a single fleet system will help with this process. This issue will be further discussed later in this document.

Outside Fuel and Maintenance Transactions

The state has a statewide fleet card for the purchase of fuel and maintenance services conducted by outside vendors. The fleet card currently in use is the Comdata Fleet Card. Comdata provides monthly downloads of data for system interface for both the fuel and maintenance purchases; however, this is time consuming to administer for the departments and does not provide detail data needed for all transactions, especially for maintenance services. The Comdata information requires manual consolidation and oversight often meaning that someone is trying to track down an error in a transaction

that occurred weeks in the past. This leads to inconsistencies in the data and makes it difficult to accurately attribute costs to the correct type of service provided. Additionally, Higher Education entities are exempt from using the statewide mandatory contract and use other fleet cards.

4.2 Facility Visits

The basic maintenance model for the state is to use internal services provided by state agency shops for vehicles that are in reasonable proximity to an internal shop that services their agencies' vehicles. If the vehicle is not located in reasonable proximity, the operators use the Comdata card to purchase services for preventive maintenance and, if approved, additional required maintenance from outside vendors.

While this method works, there are changes that could be made within this overall operating model that would make it more efficient both within the agencies and across agencies.

CST analyzed vehicle maintenance operations based on site visits, fleet personnel interviews, and some costs comparisons based on the data available. The agencies that have vehicle maintenance facilities are listed below with the number of maintenance facilities they operate and that were visited in parentheses:

- Fleet Management Division 1 (1 visited)
- Oklahoma Department of Transportation 9 (2 visited)
- Department of Public Safety 2 (2 visited)
- Department of Human Services 1 (1 visited)
- Department of Corrections 21 (3 visited)
- Oklahoma State University 1 (1 visited)
- University of Oklahoma 1 (1 visited)

There are a few general observations about the maintenance facilities visited that should be made.

- The facilities are well maintained and have adequate capacity to handle the number of vehicles that are being serviced. (OSU is looking to build a new shop as they are running at their physical capacity.)
- Both FMD's and DPS's new facilities have additional physical capacity that could be used at some point.
- Each of the agencies appears to emphasize good preventive maintenance practices which are maintained at the state-owned shops. (Based on comments in the group interviews, it is unclear how successful the agencies are in guaranteeing that preventive maintenance is handled as successfully for remote vehicles.)
- Changes to the way vehicle maintenance is financed need to be made to allow both standard maintenance and maintenance due to operator negligence be charged back to the operating departments separately.
- Fully loaded costs for maintenance are not accurately tracked on all fleets making it difficult to compare operations to each other or to outside vendors.
- There do appear to be efficiencies to be gained in handling parts in multiple departments by either reducing the amount of inventory carried or decreasing the amount of time the mechanics are waiting for parts.

4.3 Managing Maintenance Costs

There were two issues that continued to rise to the top in our review of the different maintenance operations.

- Many of the shops do not have measures in place to determine how efficient they are as a shop and how efficient their staff members are individually.
- The fleets in general do not have a way to make the operating agencies or departments responsible for driver neglect and / or vehicle abuse.

In the case of determining efficiency, operations in general are not tracking industry standards such as direct verses indirect labor and fully loaded hourly rates. Without this data being accurate, maintenance costs for a fleet are not truly accounted for without

just looking at the overall cost of the department (seen at OU, DOC and ODOT). In the case of FMD, the maintenance costs are inflated due to additional overhead within the department that can only be charged out in lease prices, fuel charges or maintenance even though that overhead has nothing to do with any of the three. This lack of being able to accurately reflect costs at the vehicle level and department level means that lifecycle models and maintenance models are not as valuable for making informed decisions.

The second issue revolves around the ability of the fleet departments within agencies to recoup costs for maintenance that is needed due to driver neglect or abuse of the vehicles. This is mainly due to

a) the lack of standard bidirectional Service Level Agreements between the fleets and their users

b) the lack of chargeback systems within agencies (DOC and ODOT especially) and across agencies (FMD) that separate standard maintenance from maintenance required due to neglect.

Neglect that can cost hundreds of dollars in repair could be, as an example that we saw, eliminated simply by washing a vehicle well after it has been exposed to adverse conditions such as salty roads during the winter. (Radiator was ruined due to the salt.)

Abuse can be handled within an agency or as part of cross agency lease programs. In either case, the offending operator's department should be held financially accountable for the additional repair costs. At this time, the fleet departments across the state are consuming this cost driving up the maintenance prices for all users.

4.4 Parts *Management Costs*

A cost that is definitely not understood across the fleets is that of either carrying too much inventory or of mechanics waiting on parts. The following observations were made relative to parts management across the state.

- The agencies all use the state's parts contract with O'Reilly's Auto Parts to purchase much of their inventory with the exception OU's facility.

- ODOT, DHS and DOC keep minimal preventive maintenance parts in place and use local stores for purchases of additional parts as needed.
- OSU, FMD and DPS each have larger parts rooms that keep more inventories in stock and operate as full functioning parts rooms.
- OU uses NAPA IBS program in which NAPA staffs the part room and owns the inventory only charging OU for the parts when they are issued to the mechanics.

When looking at the cost of parts there are three major areas that need to be optimized:

- Cost of the parts
- Carrying cost of inventory
- Cost of vehicle and mechanic downtime if a part is not available when needed

Balancing the above items can be done with both internal and external solutions, but the key is tracking the parts availability in addition to the parts cost and cost of inventory. OU, in fact, went to the NAPA solution to bring their parts availability up from around 60 percent which is well below industry best practices to about 92 percent at the current time. (The goal should be to have parts available at least 85 percent of the time. This will vary some depending on the variety of makes and models of vehicle equipment in the fleet.)

The issues that currently need to be measured and addressed are:

- High inventory levels at OSU and DPS
- Downtime waiting on parts at DOT and DOC

A full implementation of M5 can help to quantify and provide management the data required to determine the extent of the problems. At this time, data is not available to evaluate what solutions, if any, need to be implemented.

5 Policies and Procedures Review

Policies and procedures are maintained by FMD and available for all departments. In addition to policies and procedures, FMD provides guidance and assists in review of contracts relating to fleet issues.

By statute, FMD is the primary leasing agent for the state and currently leases approximately 1,100 vehicles with another 35 available for daily use. Lease charges are to be based upon the operational costs of the leased vehicles.

The primary issue that some agencies have with the current policy is the requirement to use FMD leasing and maintenance services when they feel a better value is available through commercial vendors. There are two problems with this. First, lease terms are not necessarily created equal so the comparison between the leases is not an "apples to apples" comparison, taking into account all benefits included in the lease terms. Second, FMD rates are negatively impacted by the fact that the division is forced to add overhead to the rates which are not related to the leasing or maintenance programs but is an overhead related to administering statewide fleet initiatives.

Forms and statewide contracts related to fleet are available at:

Forms: https://www.ok.gov/dcs/searchdocs/app/index.php

Statewide Contracts: https://www.ok.gov/dcs/solicit/app/index.php

Service Level Agreements

The major items missing from these policies are bidirectional Service Level Agreements that clearly define roles, responsibilities and repercussions for both the owning and using departments in the leasing arrangement.

6 Assessments and Conjectures

The Assessments and Conjectures listed next are based on our overall review of the state's fleets. These items are based on interviews with state staff and observations made during visits to multiple state facilities.

- Overall, the state's fleet maintenance departments are fairly well run and are especially attentive to preventive maintenance.
- The issue that the fleets have is that their upper management or past management has put the fleets in a hole relative to the age and condition of the fleet. The average age of the fleet needs to be reduced.
- The CNG initiative is well on its way but, before additional purchases are made, operations for the departments need to be consulted to verify that the CNG vehicle will meet the mission and has the infrastructure in place to support CNG in its area of the state.
- At this time, a centralized fleet management department will be very difficult to implement. However, it is vital that standard systems and processes are implemented across the fleets so that resources can be shared and cross agencies analysis can be accomplished.
- Parts issues need to be studied across the fleets to determine the best models for balancing inventory costs and parts availability.
- Policies surrounding how FMD non-lease and maintenance services are funded need to be modified so that the overhead is removed from the lease and maintenance costs, allowing them the chance to be competitive both internally and externally.

7 Recommendations – Short and Long Term

7.1 Short Term Recommendations

The short term recommendations seen below offer tangible benefits without requiring major policy changes, offer a very quick return on investment (ROI), or are required for long term recommendations.

We feel that the first and third recommendations be implemented in parallel with the second recommendation.

Conduct full Life-Cycle, Right-Sizing and Right-Typing Study to address:

- Aging Fleets in DPS, ODOT, FMD Leasing Program and DOC
- Wrong vehicles being used leading to additional risk, operational and/or maintenance costs

Implement a single FMS system (Assetworks M5) across all non-ODOT fleets.

- Information needs to be transparent to Using Agencies
- Interfaces with PeopleSoft and Agile needed
- Include fully loaded fleet costs

Conduct a Comprehensive Fleet Cost Analysis for:

- Overall Fleet Cost with Detail to Asset Level
- Vehicle Leasing Programs
- Vehicle Maintenance Services
- Parts Inventory
- Compare all internal and current contracted outside vendors

7.2 Long Term Recommendations

Implement policies, procedures and chargeback system to address lack of current operator accountability.

- Requires a fleet management system implementation that will support capturing the data required for the analysis
- Service Level Agreements must be implemented to hold both the fleet service provider and the using agencies accountable
- This will be a major change of operations for some of the agencies and will need to be well planned within each agency

Investigate and implement more extensive shared services across fleet departments.

- Will require chargeback system as well as a single, or at least integrated, Fleet Management System in place
- Initial right-sizing and cost analysis should be completed before exploring best options for shared services

8 Savings Potential

Savings potential for the fleet is hard to determine for some areas in that the current real cost of the fleet is not clearly documented. However, there are certain savings that we can estimate simply with the available data.

8.1 Right-Sizing Estimates

As stated before, the first and easiest group of vehicles to right-size is the non-pursuit light duty fleet. We estimate that with a right-sizing implementation, reducing the underutilized vehicles by 30 percent, the state would save over $1.3 million per year. Refer to the table in section 3.2.2.1.

Savings are available with both the ODOT and DPS fleets, but estimates of $100 thousand per year and DPS of $150 thousand per year are conservative based on estimated reductions of 70 and 100 vehicles per fleet. These estimates are based on utilization data for both the heavy and light duty fleets (ODOT) and agency fleet management's statements (DPS) for being able to reduce both their number of civilian and police vehicles.

8.2 Lifecycle Models

In addition, the lifecycle analysis as shown in Section 3.2 would conservatively save $160,000 per year. Similar savings could be applied to the other older fleets across the state; however, a more comprehensive lifecycle model would need to be developed to find the optimal model and savings levels.

The lifecycle comparison per pursuit vehicle as shown in section 3.3.1 is an example of saving overall cost of ownership of the fleet while maintaining a newer fleet.

8.3 Long Term Savings

The state, as it gets a better handle on the true costs for operating its fleets, will find savings derived from the above recommendations.

By implementing a Fleet Management System, collecting true, fully loaded costs and being able to manage shops based on individual and shop productivity, the fleets should be able reduce maintenance costs. Just as important, by making maintenance operations more efficient, less spare vehicles are required, allowing the state to continue to right-size the fleet. This is especially important in the operations that rely on the availability of heavy duty equipment where the reduction of one vehicle has a much larger impact to the bottom line than does that of a light duty vehicle.

Specific savings opportunities will exist as the state implements a charge-back system. Once operational agencies and divisions understand the true impact to their budgets of neglecting or abusing vehicles, operator habits will be better managed.

Shared services will also provide an avenue for savings. Once maintenance operations have more consistent offerings based on both services and charge back prices, agencies should be able to take advantage of using services at facilities closer to their base of operation saving the state costs relative to both employee productivity and vehicle costs.

As stated in the executive summary, we feel that savings garnered from all short and long term savings will be in the range of 5 percent to 8 percent annually, ongoing. CST estimates the annual spend for the 12,000 asset fleet, inclusive of maintenance and fuel, to be between $100 and $120 million.

Appendix 1: CST Models

The following working models have been provided to the State of Oklahoma as part of this study. CST holds rights to their distribution and usage outside the State of Oklahoma fleets.

	CST Fleet Services 'What If… ?' Models©	Questions the models assist in evaluating:
1	Fleet Vehicle Age Model	Is my fleet too old, too new, distributed evenly by age?
2	Fleet Vehicle Utilization Model	Is my fleet underutilized, over utilized? Is Fleet utilization even across departments?
3	Fleet Carbon Footprint Planning Model	Is my plan for greening the fleet progressing towards reducing our carbon footprint in an acceptable manner? What could we do to improve?
4	Fleet Right-Sizing Model	Is there a sufficient need to right-size my fleet? Is there savings?
5	Micro Lifecycle Model	How long should I keep my vehicle?

Appendix 2: Best Practices Matrix

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Fleet Business Model							
Annual Fleet Business Plan	Y	Y	N	N	N	Y	Y
Fleet Annual Report produced regularly	Y	N	N	Y	P	Y	Y
Mission statement	Y		N	N	P	Y	Y
Fully burdened labor rate calculated and updated yearly	P	N	N	N	N	Y	N
Occurrence based charge-backs and billing in place -Maintenance activity	Y	P	N	N	Y	Y	Y
Occurrence based charge-backs and billing in place -Fuel transactions	Y	P	N	N	P	Y	Y
Comparison of inside service vs. out-sourcing services reviewed regularly	Y	Y	P	P	Y	P	Y
Established and Maintained Set of Authorized Policies and Procedures for all WO Activity in the Shop	Y	Y	Y	N	N	P	P
Developed and maintained Set of Agreements which Establish Service Levels between the Service center and Fleet Customers	N	N	N	N	N	N	N
Well defined organization structure in place	Y	Y	Y	P	Y	Y	Y
Well defined job descriptions	Y		Y	P	Y	Y	Y
In sourcing offered for other local government agencies	P	P	N	N	Y	Y	Y
Fuel Management - Emissions							
Carbon footprint, green-house gases or emissions tracked and monitored	P	N	N	N	N	P	N
Goals for Emissions or Green fleet initiatives set and tracked	P	N	N	N	N	P	P
Fuel Management - Fuel Dispensing							
Fuel sites – automated, locked down secured	Y	P	P	P	Y	Y	Y
Vehicles equipped with on board systems to activate fuel pumps	N	N	N	N	N	N	N
Fuel tracked by dept. and vehicle (MPG)	Y	P	P	Y	Y	Y	Y
Fuel costs inclusive of overhead for fuel management (fuel stations, fuel	N		N	N	N	Y	Y

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
employees, etc.)							
For on board computer in fleet vehicles - metrics from the vehicle downloaded periodically	Y	NY	NA	NA	N	NA	NA
Dispensed fuel tracked by fuel type	Y	Y	Y	Y	Y	Y	Y
In house fuel transactions entered into a central database	Y	P	P	Y	Y	Y	Y
POS fuel transactions entered into a central database	Y	Y	Y	Y	Y	Y	Y
Fuel tanks electronically monitored for level and water content	Y	Y	Y	Y	Y	Y	Y
Fuel reconciliation on a regular basis – purchased/dropped with fuel dispensed.	Y	Y	P	P	P	Y	Y
Fuel purchase and distribution agreements reviewed and adjusted regularly.	Y	Y	Y	Y	Y	Y	Y
Review of POS transactions, if used	Y	Y	Y	Y	Y	Y	Y
Green Fuel Initiatives	Y	P	N	P	N	Y	Y
Parts costs inclusive of burdened rate for parts overhead costs	P	N	N	N	N	Y	Y
Parts availability above 80% (i.e. 80% of the time a mechanic goes to the parts window , part is immediately available)	Y	Y	N	N	Y	?	Y
Parts replacement warranty tracked	Y		N	P	Y	Y	
Statistics on part failures tracked and monitored - i.e. largest part failures in the fleet	N	N	N	N	N	N	N
Parts Management System in place with WO charges and Ordering System	Y	P	N	P	N	Y	Y
Indirect parts and or supplies tracked and charged to departments	Y	N	N	N	N	P	P
Parts charged to WO via bar code	N	N	N	N	N	N	N
Minor parts charged or built into overhead rate	Y	Y	N	N	Y	Y	Y
Parts ordered efficiently	Y	Y	N	Y	Y	Y	Y

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Parts inventory taken and balanced on a regular basis with slippage monitored	Y	P	P	P	P	Y	Y
Parts for re-order calculated and ordered upon review	Y	P	N	N	Y	Y	Y
Efficient process in place for receipt and payment for parts	Y	Y	P	P	Y	Y	Y
Plan implemented to identify and remove obsolete parts	Y	N	N	N	NA	Y	Y
System and process in place to adjust re-order levels based on usage trends	P	N	N	N	Y	P	Y
Ability to adjust parts inventories based on vehicle purchases and vehicle retirements	Y	N	N	N	N	Y	Y
Parts in/out for satellite store rooms entered into a central database	NA	NA	NA	NA	N	NA	NA
All outgoing parts assigned to a WO/Vehicle or Indirect Code	Y	Y	N	P	Y	Y	Y
Effective system for managing vendor supplied parts which do not go into inventory in place and charged against WO	Y	Y	P	P	Y	Y	Y
Effective management and duration of part supplier contracts	Y	Y	Y	Y	Y	Y	Y
Reporting and Metrics							
Metrics monitoring system implemented from your maintenance system provider or a third party to actively manage performance metrics	P	N	N		N		
Management with metrics - Identify 3-6 key areas to improve the fleet such as reducing vehicle downtime, increasing PM's on time percentage, etc. (With thresholds of performance)	N	N	N	N	N	P	P
Metrics driven savings tracked and monitored - For the 3-6 key areas (Metrics) to improve the fleet calculate the savings associated with improving each metric and report to the Fleet savings as the metrics improve	N	N	N	N	N	P	P
Unit Availability tracked and	Y	Y	P	P	N	P	P

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
monitored by Metrics							
Real Time Metrics with threshold of performance built, monitored and tracked	P	N	N	N	N	N	N
Visuals and dashboards for metrics that indicate threshold conditions	N	N	N	N	N	N	N
Summary Metrics and Trends built, monitored and tracked	N	N	N	N	N	N	N
Monitor vehicles with Telematics and GPS	Y	N	N	N	P	P	P
Capability of Building and Saving Special Reports	Y	N	P	Y	NA	P	P
Ad-hoc reporting capabilities in place and efficient	Y	N	N	P	NA	P	P
Shop Floor Diagnostics							
Diagnostic tools implemented in PM checks	Y	Y	P	Y	Y	Y	Y
Diagnostic tools implemented and available for all vehicles in fleet	Y	Y	N	Y	Y	Y	Y
Diagnostics costs and training considered in vehicle purchases	Y	Y	N	P	P	Y	Y
Online training available and used for all vehicle types repaired by the shop	P	?			N		
Shop Floor General							
Computerized shop floor management system in place	Y	Y	N	N	N	Y	Y
Repairs in the Field (road-calls) tracked	Y	Y	Y	Y	Y	Y	Y
Non-active shifts for vehicles are used for active repair work. (Repairing vehicles when they are not needed).	N	N	N	N	N	N	N
Accurately Defined and Tracked Vehicle Downtime/Excessive Downtime at the Unit and Shop Level	N	N	N	N	N	P	P
Defined Usage and Monitoring of Reason for Repair	Y	Y	N	N	N	P	P
Quality monitored In Service Facility (re-work / comebacks tracked)	P	P	N	N	N	Y	Y
Adequate space in facility and shops are accessible	Y	Y	Y	Y	N	P	Y
Shop – Labor Management							
Labor tracked in Real Time - Mechanic	P	N	N	N	N	N	N

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Scanning on and off jobs on the Shop Floor							
Standard Job codes utilized	Y	Y	N	N	N	Y	Y
All mechanic time direct and indirect time entered into a central database	P	N	N	N	P	N	N
Ratio of vehicles to mechanics monitored against similar industry standards.	P	N	N	N	N	Y	N
Direct labor metric monitored - Mechanics achieve 80% direct labor on a regular basis, 20% indirect labor	N	N	N	N	N	N	N
Have a mechanic recognition/reward program to acknowledge mechanic excellence in place	N				N		
Community colleges engaged with automotive/diesel programs to train and grow staff	N				N		
Mechanic interns utilized	N				N		
“Wall of fame” in place to display mechanic certifications and achievements	N				P		
Reimbursement program in place for mechanic certification to pay for the certification if completed successfully	P				N		
Performance goals and metrics set as targets for mechanics	Y				Y		
"Rewards" planned for mechanics or entire group of mechanics meeting set goals/targets	N				N		
Shop – Vendor Services and Relations							
Have at least 2 vendors for repair estimates	P				Y		
Vendor repairs recorded (parts & labor) by work order into central data base	P				Y		
Preventive Maintenance							
PM Schedules and PM Policies and Procedures for PM’s well documented	Y	Y	Y	Y	Y	Y	Y
PMs completed on time (Above 95%)	Y	Y	P	P	P	Y	Y

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Method to monitor PM Quality in place	P	Y	P	P	N	Y	Y
PM quality assurance in place- spot check PMs to insure they are being performed correctly	Y	Y	Y	P	Y	Y	Y
PM procedures and check lists clearly defined and available to mechanics	Y	Y	Y	Y	Y	Y	Y
PM data recorded into a central data base	Y	Y	N	Y	N	Y	Y
PM checklists for each type of vehicle serviced well documented - At each level of PM	Y	Y	P	P	P	Y	Y
Scheduling software to track and schedule PM's in place and utilized	Y	P	P	P	N	Y	Y
Shop – Road calls							
Road call metrics tracked and monitored	N	N	N	N	P	N	N
Have mobile devices for diagnostics and work order entry on mobile repair vehicles	Y				Y		
Dispatching system in place for road calls and for field support	P				N		
Have ability to charge parts in the field from mobile repair vehicle	Y	Y			Y		
Have the ability to track repairs in the field	P	N			N		
All road calls are entered into central database	N	N			N		
Fleet Customer Relations							
Have regularly scheduled DVCR's sent to shop for review	P	N	N	N	N	N	N
Have a Joint SLA with the using department.	N	N	N	N	N	N	N
Have a designated fleet maintenance or fuel liaison assigned to each using department	P	NA	NA	NA	P	Y	Y
Management of vehicle assignments in the field handled by the customer.	Y	Y	Y	Y	Y	Y	Y
PM notification automatically sent to customer.	P				N		
PM schedules adhered to by customer	P	Y	P	P	Y	Y	Y

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Have a clear and understood work request form and procedure for the customer for non PM repairs	Y	P	P	P	?	Y	Y
Customers given cost and time estimates for repairs	P	Y	P	P	Y	P	P
Have agreed to vehicle availability metrics and requirements	Y	Y	P	P	NA	Y	Y
Have a method for customer to view repair status in real time	N	N	N	N	N	N	N
Have the ability to separate and distinguish maintenance repairs from accidents and/or abuse	N	N	N	N	Y		
Asset Management							
Complete a Vehicle utilization and fleet rightsizing study on an annual basis	Y	N	N	N	N	Y	P
Downtime monitored and vehicle downtime less than one day on an average	P	P	N	P	NA	Y	Y
Have a vehicle evaluation and procurement committee, chaired by the director of fleet with seats from each of the major using departments. Charter is to approve all new vehicles, approve of vehicle disposition, evaluate and review vehicle usage and approve vehicle reassignment. Committee to be made up of key using departments.	P	N	N	N	N	N	N
Completed a vehicle assignment study to evaluate the usage class of vehicle to get breakdowns of when vehicles are needed and used (special events, daily's, seasonally) and usage class (take home, motor pool, crew, routes, location etc.) This will make sure the Fleet plans for the proper vehicle for the proper assignment	N	N	N	N	N	N	N
Life cycle replacement model in place and utilized. Base vehicle life cycle cost inclusive of fixed cost (insurance, licensing, etc.) not just sales price	Y	P	N	P	P	Y	Y

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Detailed vehicle specifications in place	Y	Y	P	Y	NA	Y	Y
Have vehicle in service procedures in place and in service center operated efficiently	P	P	P	P	NA	Y	Y
Have vehicle retirement procedures in place inclusive of most optimum resale / salvage processes (on line auctions)	P	P	P	P	Y	P	P
Vehicle specs are entered into central database.	P	P	N	P	N	P	P
Vehicle assignments entered into central database	Y	Y	N	Y	Y	Y	Y
Vehicle changes (status such as red tagged, sold, out of service etc.) entered into central database	P	N	N	N	Y	N	N
Motor Pool							
Motor pool in place	Y	Y	N	N	Y	Y	Y
Motor pool Vehicles be reserved easily online	Y	N	NA	NA	N	Y	N
Motor pool vehicles shared between departments	Y	N	NA	NA	Y	Y	Y
Lease or rental contracts in place for short term needs of customers	Y	Y	NA	NA	Y	Y	Y
Have ability to compare buy, vs. lease, vs. rental vs. seat leasing for motor pool vehicles	Y	Y	NA	NA	Y	Y	Y
Warranty Management							
Established new vehicle and component Warranty Periods in place	Y	Y	P	P	Y	Y	Y
Ability to track new vehicle warranty in place	Y	Y	P	P	Y	Y	Y
Routinely apply for policy warranties after the basic OEM warranty period is expired	N	N	N	N	N	N	N
Track warranty claims in central database	Y	Y	N	N			
Tire Management							
Standard tire contract / vendor in place	Y	Y	Y	Y	Y	Y	Y
Used / recap tire policy in place	N	N	N	N	N	N	N

Best Practice Application	FMD	DPS	DOC	ODOT	DHS	OSU	OU
Adequate tire in inventory kept in stock to minimize downtime.	Y	Y	P	P	Y	Y	Y
Operator / Shop Safety							
Clearly visible and documented method for denoting vehicles which are out of service or scheduled for work (red tag / yellow tag)	Y	N	N	N	N	P	P
Safety procedures for maintenance work areas (yellow walkways, yellow vests, only mechanics in bays/service areas, etc.) in place and visible	P	P	Y	N	P	P	Y
Scheduled and documented vehicle safety inspections – over and above routine PM service in place	P				N		
Operator Policy – inclusive of safe operation, processes for reporting service requests (pre / post trip inspections) in place and posted to operators	Y				N		
Accident and safety related repair tracking	P		P	P	P		
Operator policy in place and signed by operators….only licensed drivers; obey all traffic laws; perform pre-trip inspections; perform post trip inspections	Y	Y	P	Y	Y	Y	Y
Safety metrics tracking in place; i.e. Incident tracking; monitor days without driver accident; monitor days without shop accident	Y	Y	N	N	N		

Y = Yes, N=No, P=Partial Implementation, NA=Not Applicable