City of Bowling Green

Internal Auditor's Office

Fleet Technician Efficiency Audit

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Transmittal Letter

TO: Kevin D. DeFebbo, City Manager, Ex-officio Member
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Tony Witty, Audit Committee Vice-Chair
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Cristi Pruitt, Audit Committee Member
Joe Denning, Commissioner and Audit Committee Member
CC: Kris Crowe, Fleet Division Manager

Pursuant to the approved 2015/2016 Internal Audit Plan, I hereby submit the Fleet Mechanic Efficiency Audit. The objective of this audit is to evaluate the effectiveness and efficiency of fleet mechanic services including preventative maintenance, repairs, outfitting new equipment and evaluate appropriate staff allocation to the division. The body of the report consists of observations, recommendations and management's responses to the recommendations.

Results in Brief

Based on the results of this audit, substantial opportunity exists for Fleet Services to improve its processes and become more accountable. The audit identified several areas where the management and supervision of fleet technicians and daily operations can be improved. Seven (7) recommendations are identified within this report to improve the effectiveness and efficiency of fleet services. The recommendations are as follows:

1. **Management should standardize technician procedures and ensure that all labor hours are consistently and accurately entered so data can be relied upon by management and used to evaluate performance and staffing needs.**
2. **Management should evaluate current technician staffing levels. Audit calculations of industry standards indicate a possible need for two additional technicians.**
3. **Management should decide what level of service should be provided, if any, to outside agencies. A written agreement should be approved by the Board of Commissioners so expected service levels are consistently performed as well as appropriate guidance provided for Fleet management.**
4. **Management should implement the updated Fleet Focus software that was purchased in June 2012, but has never been implemented.**
5. **The daily scheduling process should be improved to use the software and streamline the current manual process. Various sheets and e-mails are currently used to schedule which can lead to errors or missed items and is extremely time consuming. Improving this process would free up time for the Shop Supervisor to adequately oversee daily shop operations and technicians day to day work.**
6. **Management should work to incorporate the fire fleet services within the general shop scheduling and supervision. The fire technician works separately from the rest of the technicians with limited supervision or oversight from fleet management.**
7. **The City Manager should work with management to decide how to balance adequate authority levels to service responsibility. Each department differs in how they provide service requests for items that are not a repair or general**

maintenance to fleet services; however, fleet management has limited authority on approving the services that they are responsible for installing or maintaining.

It was a pleasure working with the Department of Public Works and the Fleet Division employees. The technicians take great pride in the services they provide and they were very cooperative throughout the audit process.

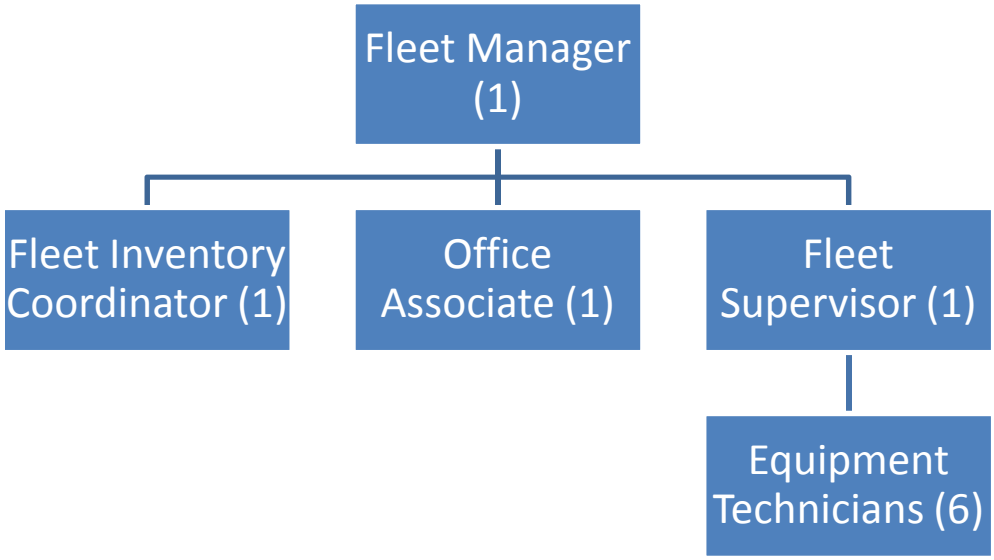
Sincerely,

Deborah Jenkins, CFE, CICA
Internal Auditor

Background

In September of 1970 a Service Division was created at the City of Bowling Green. The responsibilities were to maintain and operate the City Service Center and maintain city vehicles and equipment under the leadership of a Service Center Manager. This function had been performed by various employees within the Street Division or outsourced to local repair facilities in the past. In October 1973, the position of Service Center Mechanic was created and in 1978 the division was combined into the Public Works Maintenance Division. It remained as a combined division until 1997 when the department was reorganized due to recommendations from a management study back to the Service Center Division. In 2002, the name was changed to Fleet Management Division which it is still known as today.

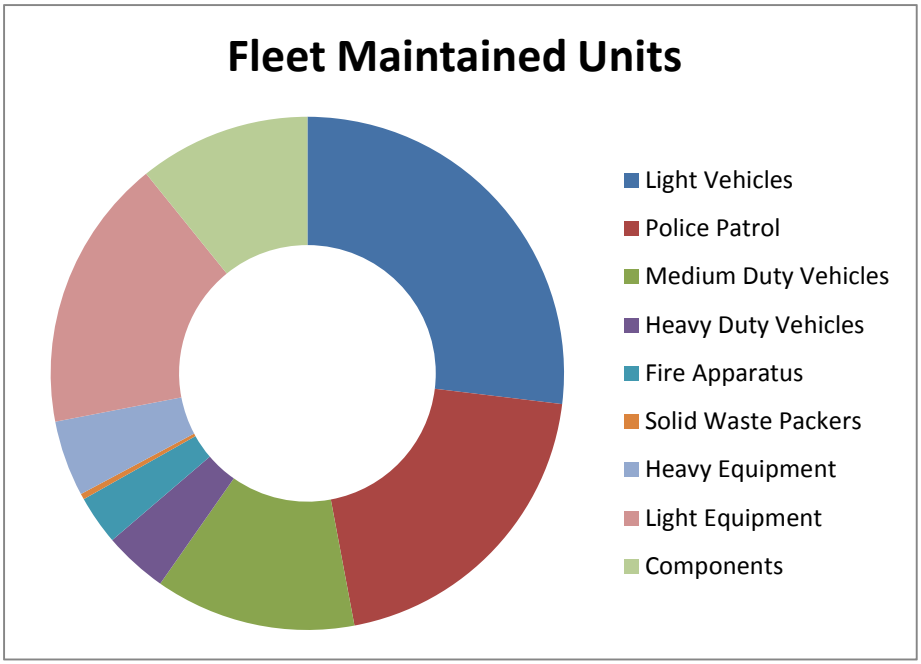
Fleet operates a central repair facility located at 611 Raven Street. The division is ASE Certified and can perform in house warranty on Ford and General Motors vehicles. They provide the preventative maintenance and repairs for all City vehicles, and most of the City's equipment, in addition to a few outside agencies vehicles and buses. Fleet Management works with all City departments to prepare vehicle bids when new vehicles or equipment needs to be purchased or when items need to be analyzed for removal from the City's fleet. There are a total of 10 full-time positions within this division as shown below.



The various pieces of equipment are categorized by maintenance class. The chart below is a listing by maintenance class as of April 5, 2016. The total number of units fluctuates within the year as new pieces are purchased and put into service and others are retired and sold at auction or to another governmental agency. All City units are maintained by Fleet except for certain pieces of equipment that are maintained by Park Maintenance; however, occasionally Fleet is asked to perform repairs or upgrades to the Park's units. When this occurs, Fleet staff will add the park units to their Fleet Focus software in order to track any work performed by Fleet.

Maintenance Class	Total City Units	Outside Agency Units	Total Units Serviced
Light Vehicles	125	22	147
Police Patrol	110	0	110
Medium Duty Vehicles	27	42	69

Heavy Duty Vehicles	20	2	22
Fire Apparatus	17	0	17
Solid Waste Packers	2	0	2
Heavy Equipment	26	0	26
Light Equipment	94	0	94
Components	59	0	59
Grand Total	480	66	**546**



Outside Agencies in which Fleet Management provides services to include:

- Community Action buses and vans for public transit and senior center
- Head Start school buses
- Housing Authority of Bowling Green
- Warren County Library
- Warren County Rescue Mobile Command Bus

The Fleet Technicians also perform vehicle setups with each new vehicle which can be very extensive. Police vehicles can take around 50 working hours per vehicle to get it ready to be assigned to a police officer. When the police cruiser is purchased, it must be completely outfitted before it can be put into use. When the cruisers arrive from the manufacturer, the back seat has to be removed for installation of the back seat cages, wiring must be installed for all of the lighting and sirens; as well as for the electronic components needed for the dash cameras, mobile computer and other various needs. This is all performed in-house by Fleet Technicians.

Vehicle upon arrival

Removal of rear seat and panels

Rear seat and cage after full outfitting

Technician installing rear wiring and required IT components

Front console, computer and radio outfitting

Completely outfitted Police Vehicle

Police cruisers are by far the most extensive outfitting that must be completed; however, the Fleet Technicians also outfit all of the other City vehicles to the department's specific needs. When the City is ready to replace a police cruiser or departmental vehicle, the fleet technicians are also responsible for removing all of the City equipment and lettering before the vehicle can be sold at auction or to another governmental agency.

Objective

The objective of this audit is to evaluate the effectiveness and efficiency of fleet mechanic services including preventative maintenance, repairs, outfitting new equipment and evaluate appropriate staff allocation to the division.

Scope

The scope of this audit included Fleet Division operations from January 1, 2015 through December 31, 2015.

Criteria and Approach

This audit was based on documented policies and procedures, as well as general best business practices. The approach consisted of three phases:

1. Understanding the Process:

During phase one, an introductory meeting was held to discuss objectives of the audit work, collect information and documentation, and inform them why they were selected. I then conducted interviews and multiple observations with each fleet bay to gain a general understanding of each technicians work and challenges. I also spent time observing the Fleet Supervisor to understand the coordination and scheduling process for the technicians.

2. Sample Determination and Detailed Testing:

During phase two, seven (7) risk areas were identified and prioritized based on perceived control techniques, control weaknesses, as well as the impact to the effectiveness and efficiency of the division. A combination of randomized testing and haphazard selection of samples were tested based on the priority scale of risks identified.

3. Reporting:

During phase three, I analyzed and evaluated the results of the tests performed. I then summarized the observations and recommendations into a report format based on the analysis. A draft was provided to management for review and their management responses were incorporated into this report.

Statement of Standards

The audit was performed in accordance with government auditing standards (except for the completion of an external peer review), which are promulgated by the Comptroller General of the United States. Those standards required that I plan and perform the audit to afford a reasonable basis for judgments and conclusions regarding the organization, program, activity or function under audit. An audit also includes assessments of applicable internal controls, compliance requirements under the law and regulations when necessary to satisfy the audit objectives. I believe this audit provides a reasonable basis for the conclusions.

Audit Conclusion

Based on the results of this audit, substantial opportunity exists for Fleet Services to improve its processes and become more accountable. The audit identified several areas where the management and supervision of fleet technicians and daily operations can be improved.

Observations and Recommendations

1. **Management should standardize technician procedures and ensure that all labor hours are consistently and accurately entered so data can be relied upon by management and used to evaluate performance and staffing needs.**

Observation

The lack of accurate and timely technician time posted to work orders is an ongoing issue that was included in the Fleet Division Audit finalized in January 2012, in the resulting follow-up audit finalized in July 2014 and continues as an issue in 2016. The posting of time charged to work orders is inconsistently required by management and often is entered after the work was actually performed; therefore many estimated times are entered instead of actual time. The late entry of work time was shared with management during the follow-up audit in 2014, but entry has not been enforced with all technicians. There is no real consistency in time entry.

The table below is a summary by technician with the total number of 2015 work orders that each technician clocked in on and how often the labor time was entered after the date that the labor was said to be performed. There are a couple of technicians who do a very good job of entering their labor time on the date that the work is performed, but there are others who consistently charge their time either the day after as they close the work order, or in some cases many days after, including up to 137 days after the date that the work was performed.

Technician	Total 2015 Work Orders	No. With Labor Time Entered AFTER Labor Date	% of Time Labor Charged AFTER Date Worked
1	498	251	50.40%
2	564	25	4.43%
3	196	54	27.55%
4	346	8	2.31%
5	519	137	26.40%
6	235	156	66.38%

An analysis was also performed to extract the amount of hours in 2015 that each technician was at work and available to perform maintenance and repairs by excluding all leave time and any education hours where the technician would not have been at the shop. The 2015 actual work time was compared to the total hours charged on work orders to determine the percentage of time charged as productive time on work orders. According to industry standards found from Mercury Associates and Government Fleet, 70% of technician worked time is the benchmark for productivity. According to The City's Fleet Management, the technicians maintained 70% productivity in 2014 and 81% in 2015.

The average found by audit calculations showed an average of 82%; however, the individual averages ranged from roughly 50% up to over 95%. This is another indicator that either:

1. the labor time charged to work orders is not charged consistently and accurately; and/or
2. the distribution of work among the technicians is greatly varied.

Considering the non-work order related tasks that must be performed within a shop (daily prep, cleanup, meetings, breaks, etc.), a goal of 80% productivity is reasonable so it is likely that there is some inflation of charged time in some cases and underreporting of time in other cases. The table below shows the individual percentages charged per technician.

Technician	Total W/O per Tech.	% of 2015 Hrs. charged to W/O
1	498	83.04%
2	564	86.26%
3	196	95.50%
4	346	85.27%
5	519	93.04%
6	235	49.95%
	Average	82.18%

The duties of each technician are different so it would not be expected for each of the technicians to complete the same number of work orders each year. Technician specializations include fire apparatus, heavy equipment, customized outfitting of new vehicles, general preventive maintenance and repair to midsize and light vehicles and equipment. The specialization of each technician was taken into consideration and expected results were discussed with management after the total work orders were summarized.

Risk

Without accurate data being entered into the software, management cannot rely on the Fleet Division's data for future reporting, technician performance evaluations or future staffing level analysis.

Recommendation

An old management proverb says, "You can't manage what you can't measure." In order to determine actual operational efficiency and effectiveness of Fleet Technicians, reliable data must be available. When the analysis shown above was shared with Fleet Management, they were not surprised by the results and agreed that technician accuracy and productivity varied.

Management should take advantage of the pending software upgrade to fully review technician work order entries and related time to ensure that future processes are accurate and reliable. Technicians should not have the ability to go back into a work order and enter their time after the task is completed. After the technician entry of time is consistent and reliable, then management can use that data to assist in evaluating technicians and work load, productivity and staffing levels.

Management Response

The nature of the automotive repair industry is not unlike any other industry in the fact that often times the individual has to juggle many tasks. Generally, the fleet technicians will have multiple work orders in many stages of completion, due to waiting on parts, waiting for the vehicle to

return or various other reasons. The technicians are also regularly pulled from their current work order to troubleshoot an issue or make a quick repair on a drive up vehicle.

Due to the multiple tasks the technicians may complete in the day, they have developed the habit of posting their labor times at a later date. The delay in posted labor hours has resulted in inaccurate data.

Fleet management will emphasize to the technicians that maintaining accurate labor times is a requirement and not optional.

Management will begin performing daily labor audit reports for the previous day's labor and compare them to the technician's clock hours.

Management will take advantage of a pending software upgrade to review all work order processes. When any new processes are finalized, Fleet management will ensure all of the fleet staff is trained and held accountable for their portion of its implementation.

2. **Management should evaluate current technician staffing levels. Audit calculations of industry standards indicate a possible need for two additional technicians.**

Observation

In order to determine if the Fleet Technicians are operating efficiently, one of the important issues to analyze is the staffing level for the City's centralized maintenance shop. After some research was conducted, there is an industry standard to assess technician staffing levels by using a Vehicle Equivalent Unit (VEU). Mercury Associates and the Matrix Consulting Group are recognized as the authorities on analyzing staffing levels for fleet services and there was additional information found within Government Fleet magazine on calculating VEU's. By using this information, an analysis was performed on the City's current staffing levels. The units maintained and repaired by the City's Fleet Division were categorized by maintenance class sizes and outside agency units were separated from the City's vehicles and equipment.

City Owned Vehicles and Equipment

Maintenance Class	VEU Value	Total City Units	Total VEU's Per Class
Light Vehicles	1.25	125	156.25
Police Patrol	2	110	220
Medium Duty Vehicles	3	27	81
Heavy Duty Vehicles	5	20	100
Fire Apparatus	10	17	170
Solid Waste Packers	6	2	12
Heavy Equipment	5	26	130
Light Equipment	0.5	94	47
Grand Total			916.25

Then using the City's Fleet inventory, I compared the City's six Fleet Technicians actual hours worked in 2015 to the industry standard to ensure that the industry estimated hours worked of

1,456 was applicable to the City. Even though the annual estimated number of working hours in a year is 2,080 (40 hr.'s per wk. x 52 wks.), the estimated worked hours removes all benefit time such as holidays, vacation, personal days, sick days, etc., to arrive at the actual number of hours on the job in a given year. The City's 6 technicians averaged 1,797 hours on the clock which is above the industry standard, but also includes a total of 265 hours of overtime and compensatory time above the 2,080 base hours. Even though the City Fleet Technicians worked over the standard number of hours, the industry standard of 1,456 hours were used in the assessment due to the fact that 2015 was an unusual weather year which may have affected the hours required by staff.

The next step in the analysis was to take this information and calculate the annual labor hours needed to maintain the City's Fleet. The actual hours tracked within the City's current Fleet Focus Software were not deemed to be reliable by current processes (See Recommendation No. 1) so a benchmark that is used within the industry is 10 to 15 annual maintenance hours for one VEU. In determining the City's annual maintenance, consideration was taken for the City's age, condition and experience of our mechanics. The City has a good mix of new and used vehicles with some older vehicles that have been well maintained and the Fleet Technicians have a good experience ranging from 5 to over 45 total years of experience and averaging 9 years' experience within the City's Fleet Division. Based on these factors, 13 annual maintenance hours were estimated for the annual demand for labor to handle the City's needs.

Total VEU's for City Owned Equipment		916
Multiply by 13 labor hours annuallly per VEU	x	13
Total Technician Hours to Maintain City's Fleet		11,911
Divide by Annual Technician Hours Worked	/	1,456
Estimated Technician's Required to Service Fleet		**8**

According to these calculations, the City should have eight technicians to handle the work load based on the number of City units they are responsible for maintaining. Another industry standard is to compare the number of VEU's that each technician can maintain. The benchmark used is 120 VEU's per technician and the City's technicians are handling 152 each (916 VEU's / 6 technicians) which means the City's technicians are operating above the industry benchmark for efficiency.

Consideration must also be given to the fact that one of the technicians is responsible for the custom outfitting of police vehicles and other City vehicles each year. Time was spent throughout this audit observing the process of outfitting police vehicles to gain an understanding of the level of work required for each vehicle. It takes on average 50 hours to outfit each new police vehicle and around four hours to remove equipment on each vehicle when it is taken out of service to be sold. This takes a full time certified technician completely out of the day to day preventive maintenance (PM) and repair work in order to perform this work. The technician shows a lot of pride in the custom outfitting that is performed and the Police Department is very happy with the level of service that they obtain from these services. However, when calculating the number of technicians needed to maintain the City's fleet size, an estimated 40% of one full-time certified technician's time should be removed from the technician time available.

Risk
Without appropriate technician staffing levels, preventive maintenance and repairs on City equipment will be delayed potentially causing additional repairs and costs.

Recommendation
Management should re-evaluate the technician staffing levels. Since the labor data entered into the current Fleet Focus software cannot be fully relied upon, audit work conducted additional analysis based on industry standards. Industry standards indicate that additional technicians are needed; however, the skill level and specialization needed should be analyzed and determined by management to best fit the needs of the division.

Management Response
Based upon the VEU analysis, additional technicians are needed. However, other factors should be taken into consideration in determining how many.

During the years of the most recent economic downturn the City limited the number of replacement vehicles purchased, forcing vehicles that were due for retirement to remain in the fleet. Older vehicles require more maintenance which drastically increased the work load of the technicians. Over the last two years the City has resumed purchasing vehicles. The technicians still maintain a heavy work load, but have felt some relief due to the influx of newer vehicles
.
As mentioned in the first recommendation of this report the technicians are inconsistent when entering their labor hours, resulting in inaccurate data. In efforts to determine the number of additional technicians needed, accurate labor data will be required.

Management will utilize the data generated from future, more accurate reports to determine technician efficiency as well as their direct and indirect hours.

Management will utilize historical and current data to estimate future overall vehicle and equipment count, as well as determine the pattern of increased repairs based on the age of the fleet.

3. **Management should decide what level of service should be provided, if any, to outside agencies. A written agreement should be approved by the Board of Commissioners so expected service levels are consistently performed as well as appropriate guidance provided for Fleet management.**

Observation
The Fleet Division also performs maintenance functions for select outside agencies including Warren County Public Library, Housing Authority and multiple Community Action vehicles including transportation buses, head start, and senior center. Community Action is by far the largest agency that Fleet performs PM and repair work for totaling over $80,000 worth of labor and parts charged in 2015. The amount of work that is performed on the outside agencies vehicles was steadily increasing over the past few years, according to management. Fleet management suspended all work on agency vehicles for a short time in 2015 and then resumed

while restricting services provided to tasks that would take less than 3-4 hours to complete. Community Action has been directed by Fleet Management to use other service providers when the estimated work time is over 4 hours to complete.

Using the same industry standards calculation used in Recommendation No. 2 of this report, the estimated staff needed to fully maintain the outside agencies fleet is 1.5 technicians.

Total VEU's for Outside Agency Vehicles		164
Multiply by 13 labor hours annuallly per VEU	x	13
Total Technician Hours to Maintain Agency Owned Fleet		2,132
Divide by Annual Technician Hours Worked	/	1,456
Estimated Technician's Required to Service Agencies		**1.5**

The City does not currently provide the same level of service to the agencies as City owned vehicles. I was unable to find any written agreement between the City and Community Action. The City currently charges actual cost for parts and charges a rate $50 per hour based on the rate found in the Fleet Focus software. Without a written service agreement between the City and the agency, it is up to Fleet Management to determine what level of service they will provide at any given time.

Risk

PM and repairs to agencies could be delayed which could hamper public services without a clear agreement of service levels between the City and serviced agencies.

Recommendation

Management should work with Community Action and any other serviced agency to create a written and approved service level agreement. This will clarify expectations as well as amounts charged for services and provide adequate guidance to Fleet management going forward.

Depending on the level of service that senior management decides upon, staffing levels should be considered as well to ensure that the agencies vehicles can be properly maintained as expected.

Management Response

Community Action makes up the majority of outside services provided by the Fleet Division. Fleet makes every effort to repair and service these vehicles in a timely manner. On occasion, Fleet has temporarily stopped or limited the services provided to outside agencies, due to an excessive work load with the City vehicles. Fleet management has not been able to obtain a written agreement with Community Action to use as a guide. Therefore, fleet has used best judgment and prioritized the City vehicles ahead of the outside agencies. Fleet Management will provide Senior Management and Community Action with all available information necessary put together and formalize a comprehensive agreement for services.

4. **Management should implement the updated Fleet Focus software that was purchased in June 2012, but has never been implemented.**

Observation

The City purchased a new web-based platform of software management system used by the Fleet Division in June 2012 for $5,760. The new platform has multiple modules (Attachment A) that could increase ease of use and efficiency of the division; however, the set-up work has never been completed. The current software platform is not user friendly and the system is not being used to its capability. There are additional functionalities within the new platform purchased in 2012, but the time must be taken to evaluate the current processes and procedures, and implement the new system where it can work as intended.

In 2012 and 2013, Fleet Division and Information Technology staff attended the Asset Works Conference to learn more about the purchased upgrade at a combined cost of $14,502.63. Since 2012, the City has spent $40,585.25 on annual maintenance for the software. The maintenance costs include modules that we do not even use due to delayed implementation such as customer access and dashboards or current processes being handled outside of the software such as shop scheduling (see Recommendation No. 5).

Risk

Outdated software can greatly affect the performance of shop operations and add costs when purchased and not implemented.

Recommendation

Fleet management and staff should work with Information Technology staff to complete the long overdue implementation process for the software purchased in 2012, and use this implementation process as an opportunity to evaluate and streamline processes. This will be a time consuming project for the Fleet Supervisor since he is the key staff person needed to created tasks and framework so assistance should be provided to ensure the software is fully implemented and utilized to its full potential.

Management Response

The need for industry specific software is a necessity in order to meet the needs of maintaining the data of the City's fleet. As the fleet grows in size and complexity, relying on the software becomes even more of a necessity. The Fleet Focus software upgrade will update elements of the software fleet currently uses, along with adding elements to further assist in scheduling, inventory and technician efficiency.

Fleet staff, in conjunction with Information Technologies, is currently reviewing existing fleet processes to determine how the updated software can assist in the areas of concern.

Management will ensure all Fleet staff is trained on the software upgrades.

5. **The daily scheduling process should be improved to use the software and streamline the current manual process. Various sheets and e-mails are currently used to schedule which can lead to errors or missed items and is extremely time consuming. Improving this process would free up time for the Shop Supervisor to adequately oversee daily shop operations and technicians day to day work.**

Observation

Time was spent with the Shop Supervisor both at the beginning and ending of a work day to learn how the technicians are scheduled for each work day and how customers are contacted for service. The scheduling process is not managed within the Asset Works software, but through a system of checklists, e-mails and spreadsheets. There is no check-in process for customers when they drop off a vehicle or equipment for service, so the Shop Supervisor will walk through the parking lot to see what is on the lot expecting service. Throughout the day, the Shop Supervisor will try to monitor the lot to see if any other vehicles have arrived for service. The day I was shadowing the Shop Supervisor, a Community Action vehicle was in the parking lot waiting for service, but since there is no check-in or out process the vehicle left the parking lot at the end of the day without ever being serviced.

A check list is maintained to track if all the steps have been done such as entering the service on the spreadsheet, sending an e-mail to the customer, adding to the daily list e-mail for technicians, creating a work order in the system and assigning it to a technician. A sample of the checklist is below.

unit	work sheet	email	daily list	work order	date	tech	Operator	description
4106	X	X	X	X	15	MJ	ORS	INSTALL: IX-403, PLOW SENSOR HARNESS, [illegible] HARNESS
32.1535	X	X	X	X	15	MJ	ORS	INSTALL PLOW SENSOR & HARNESS
33 ~~1065~~	X	X	X	X	15	MJ	ORS ?	~~INSTALL ROUND STOCK TO AUGER, INSTALL SENSOR HARNESS~~
4107	X	X	X	X	15	JJ		INSTALL: IX403, PLOW SENSOR HARNESS, AUGER HARNESS
33.1556	X	X	X	X	15	JJ		INSTALL PLOW SENSOR & HARNESS
33.1066	X	X	X	X	15	JJ		INSTALL ROUND STOCK TO AUGER, INSTALL SENSOR & HARNESS
4108	X	X	X	X	15	MJ		INSTALL IX-403, UB PLOW SENSOR & HARNESS, CONVEYOR INPUT HARNESS
4083	X	X	X	X	15	MJ		INSTALL CONVEYOR SENSOR & HARNESS
4109	X	X		X		MJ		INSTALL IX-403, UB PLOW SENSOR & HARNESS, CONVEYOR INPUT HARNESS
33 ~~1064~~		X		X				~~INSTALL ROUND STOCK TO AUGER, INSTALL SENSOR & HARNESS~~

The technicians receive their assigned work through a template e-mail which lists by technician which units they are assigned to work on the following day. A sample of two of the technicians schedule within the e-mail is shown below.

David

1202 no start in Paxton lot
3094 PMA - Pool
3202 PMB (take engine oil sample & change)
7017 replace 3 missing scissor pads – should have been ordered
4114 make ready, request has been sent for decals, nerf bars, fire ext, floor mats, light bar, install radio from 4026
4116 make ready, request has been sent for decals, nerf bars, fire ext, floor mats, light bar(will need to be ordered), install radio from 4033, install diesel transfer tank from 4033

Keith

3154 finish wo 172
CA28A no start – trans position sensor malfunction
3087 PMA, instrument cluster malfunction, check engine light on after revving engine and spinning wheels in snow
3049 sticking when coming out of 4wd – shakes, overdue PMB
4114 install light bar

At the end of the e-mail is a running list of the units that need to be scheduled or rescheduled which is also maintained on the spreadsheet.

4108 install IX-403, install sensor and harness for UB plow, install harness for conveyor sensor demo
4083 install conveyor sensor harness for demo
4013 install IX-101, install harness for pressure sensor
4082 install pressure sensor and harness, pre-season inspection (62-PRE)
4109 due PMA , install IX-403, install sensor and harness for UB plow
4107 install IX-403, install harness for plow sensor
33-1556 install plow sensor and harness, pre-season inspection (62-PRE), replace missing headlight
4035 install IX-101, install plow sensor and harness
4086 perform preseason inspection 62-PRE
2235 PMA, check with Sutphen about odometer malfunction, driver's side tool compartment door – closing bar loose, pre empt light inop – housing ordered for new light, driver's side passenger window malfunctions
2227 PMA, light out in trans temp gauge, Kussmaul charger inop, check the following to see if complete: RH side water level indicator and CC side rear tire missing 2 lug caps
4053 PMA, test diff lube, re-inspect plow wiring, check/replace tires
34-1412 compressor installation
4060 PMB
4105 hydraulic cap
4104 replace throttle cable

Each month, the Shop Supervisor runs a report to show which units are due for preventive maintenance services. An e-mail is sent to various City staff to let them know which vehicles are due for service. The employees are directed to either contact him to schedule or he will send out individual e-mails to employees to schedule service. A sample of this monthly e-mail is below.

The following vehicles are soon due or **overdue** for service. If your vehicle has not already been scheduled, please contact Fleet Maintenance to set up an appointment.

PLEASE DO NOT DROP OFF VEHICLES FOR REGULAR PREVENTATIVE MAINTENANCE WITHOUT FIRST SETTING UP AN APPOINTMENT.

ADMIN
ok

LICENSING
ok

HR
ok

IT
ok

POLICE
3183 overdue 117 miles overdue
3126 scheduled 1/13/15
3190
3094
3123
3049
3135
3129
3132

>>Due by date
3167
3175

FIRE
2227 overdue 25 engine hours
2235 overdue 250 engine hours

This multi-sheet and multi-email scheduling system requires a lot of time and constant verification between all documentation and to make sure the tasks get completed.

Risk

Inefficient scheduling process can lead to errors and missed repairs. It is also an inefficient use of the Shop Supervisor's time which could be dedicated to direct supervision of all technicians as well as daily issues that arise.

Recommendation

Management should consider implementing a check-in process for vehicles and equipment. This is the general standard in public service shops and doesn't require the shop supervisor to have to spend time walking the parking lot and potentially missing a vehicle entering or leaving the shop. There are some vehicles such as police vehicles that will arrive outside of the normal work day so proper accommodations would have to be made for those vehicles, but all other vehicles should be arriving during working hours.

As implementation begins on the new platform of Asset Works, special attention should be given to the current scheduling process so that it can be managed within the software as much as possible in order to free up the Shop Supervisor's time to supervise the daily shop and technicians. Customer access portals and the systems scheduling capabilities should be utilized to help free up time for other supervisory needs.

Management Response

One of the greatest challenges for the Shop Supervisor is scheduling vehicle and equipment repairs and maintenance. The size and demands of the existing fleet has caused the current process to become too time consuming. This leaves less time for the Shop Supervisor to perform his other duties. The pending software upgrade contains a module that will give all City departments the ability to schedule their vehicle online.

The software upgrade also has the ability to send automated service reminders to an individual e-mail address, limiting the number of e-mails the Shop Supervisor will have to manually send.

Fleet Management will work with Information Technologies and the department heads to determine the most user-friendly and efficient scheduling process.

The anticipated date the Fleet Division will begin using the updated system is October 1st, 2016. The anticipated date the scheduling module will be available for all City Departments is January 1st, 2017.

6. **Management should work to incorporate the fire fleet services within the general shop scheduling and supervision. The fire technician works separately from the rest of the technicians with limited supervision or oversight from fleet management.**

Observation

The Fire Technician position was transferred to Fleet from the Fire Department in 2012. Since that time, the Fire Technician has operated as a one man shop for the needs of the 17 total units of which 8 are the front line trucks used daily. The Fire Technician receives daily inspection lists forwarded by Fire Department supervisors that are completed by each fire truck driver from each of the six fire stations. With three shifts working per week within the Fire Department, this causes a daily need to review all of the reports to identify new requests. These daily inspections are used as the repair request and wish list of things to be addressed on the fire trucks and equipment. At the bottom of each unit inspection report is a remark section which shows the repair items being requested. A sample of the request sections are listed below.

REMARKS:			
46	FireCom - 4A 4C, GM has, sending in for repair.	39	
46		25	pre emp is stayin on while parking brake engaged BA 11/3
31	TIC 1290 taken to DC Napier for repair 1?15?16 CW	46	Cracks in mounting brackets GM will replace at PM
28	Missing Capt. & Sgt Helmet Sheild 1/1/16 BTM	13	Air leak near accuator for Front Discharge Drain KM 12/16
31	Capt. Thermal broken,FAO- contact Napier direct.	13	Aux Air Compressor out of service. BTM 12/15 GM will rep
REMARKS:			
36	Front Duels are in poor condition. MCG 12/28/15, PM repair	46	Compartment open light is coming on sparadiacally. MC 1/
46	mech. siren not working on either side with foot pedal 11/9 Bat		
46	Broken cover-extension cord box receptical Bates 11/28/2015		Bates, send Gary a picture of the cover.
24	Extinguisher compartment lights are inop. 12-31 Maynard gar		Headsets still not working properly 1/9 CB
46	spring broke in rear intake 1-5-16 Carver Gary is ordering ne		
40	Tank to pump leaks 1/19/16 Hope		

The fire equipment is very specialized due to the pumping and ladder systems on the fire trucks. There is one additional fleet technician who assists the Fire Technician when he is out of the office or needs additional help. However, fire preventive maintenance and repair work orders are scheduled directly by the Fire Technician instead of the Shop Supervisor who schedules all other units that the division maintains. The direct scheduling provides the Fire Technician a lot of flexibility in scheduling; however, it also results in limited communication and knowledge of fire repairs within the general shop operations and supervisors. The Shop Supervisor stated that he allows the Fire Technician to handle his own scheduling and work orders since he is experienced and at a higher pay grade than the rest of the Fleet Technicians.

The number of Fire Technicians work orders was the lowest completed (196) out of the six technicians within the division. It is reasonable that the number of work orders completed would be lower due to the complexity and size of the units compared to normal small or mid-sized vehicles; however, the list of open work orders for the Fire Technician also exceeds all of the open work orders for the technicians within the division. Some of this may be due to having to order the specialized equipment, but since the shop supervisor isn't involved in the scheduling work orders like he is for all other vehicles, the shop supervisor's knowledge of the needs of the fire equipment is limited.

Risk

The segregation of the fire technician from the rest of the fleet shop operations limits the knowledge, cross training, assistance and supervision of the maintenance and repair of the fire trucks and equipment. Without adequate involvement and supervision, it is impossible to determine whether there are additional staffing needs to adequately service the fire equipment or if there isn't adequate productivity of the Fire Technician.

Recommendation

Fleet Management should work with the Fire Department to improve how and what information is provided for the preventive maintenance and repair of fire trucks and equipment. The Shop Supervisor should become more active with the scheduling and work completed for the fire trucks and equipment the same way as all other departmental units serviced by the other technicians who also report to him.

Special attention should be given to the fire units to ensure that all work is being performed in a timely and efficient manner. Assistance may be needed to keep up with the needs of the department due to the specialized nature of the equipment, but Fleet Management should work to better incorporate the Fire Technician as a Fleet Division employee rather than thought of as an offsite Fire Department employee. The Fire Technician should ask for assistance when needed so more cross training can be performed and he should also be willing to assist with general fleet services when time allows or the need arises.

Management Response

When Fleet assumed the repairs and maintenance of the Fire vehicles, it was done so with a little knowledge of the Fire Departments requirements and procedures. It was quickly determined the fire truck fleet was in poor condition. Due to the lack of familiarity with the fire equipment by the shop supervisor and the heavy work load with the rest of the city vehicles, it was determined the quickest way to bring the fleet up to an acceptable level was to allow the fire truck technician to oversee the scheduling and repairs.

The demands of the Fire Department are different than other departments in the fact that they are emergency response and are limited to few back up vehicles. Working within their schedule is difficult and requires timely and accurate communication.

When a more efficient scheduling process is implemented, it is anticipated the shop supervisor will have more time to learn the intricacies of the Fire Apparatus' and the Fire Department needs.

Fleet management will evaluate the current system and consult with the Fire department to determine the most efficient process to service their fleet.

7. **The City Manager should work with management to decide how to balance adequate authority levels to service responsibility. Each department differs in how they provide service requests for items that are not a repair or general maintenance to fleet services; however, fleet management has limited authority on approving the services that they are responsible for installing or maintaining.**

Observation

Throughout the City, vehicles and equipment are either assigned to a specific employee or are general use and pool vehicles that are assigned to a specific department or division. Within the work load of fleet services, 40% of the work completed is preventive maintenance and 60% is categorized as repairs. The repairs include general repairs as well as a variety of customizations and requests from various levels of staff within the City. Some departments have designated staff that is responsible for the oversight of their fleet and other departments do not have a designated structure which results in all levels of employees coming to fleet services for additional requests.

There are also instances where the Fleet Management is not involved in fleet related purchases until after the purchase has been made and they are told to install the equipment. An example of this is when a GPS system was purchased for the Public Works Operation Division in an effort to increase efficiencies and tracking especially during weather events. Unfortunately, the first system was purchased without input from fleet services and after attempted installation, it was determined that the system could not do what it was supposed to do. This resulted in fleet services having to remove the system they had installed, purchase a system that would work and install a new system. The new system was installed in spring 2016 and appears to be working appropriately.

The purchase and retirement of City vehicles is a calculated process within the annual budget process. Fleet Management is involved in the process of selecting which vehicles need to be replaced and what the replacement vehicle should be. However, in some instances, the department decides to keep the old vehicle as a backup or as an additional pool vehicle. These instances result in fleet services still maintaining a vehicle which was deemed past its useful life and ready to sale and they are responsible for maintaining the old vehicle as well as the new one.

Risk

Responsibility for installation, maintenance and repairs without proper authority structure leads to increased cost and wasted resources both in technician time and tax dollars.

Recommendation

The City Manager should work with management to establish key departmental authority within each department who is the coordinator and approver of additional service requests above general maintenance and repair. This will assure that each request is approved at the appropriate departmental level and provide consistency and appropriate communication with fleet services.

The authority level should be clearly defined within the role of Fleet Management as the expert in service and repairs of vehicles. Fleet is responsible for maintaining the fleet and equipment, but currently do not have clearly defined authority as to what service requests they have the ability to deny when deemed appropriate. The designated departmental staff in each department should work with fleet when they are searching for new and improved items for their vehicles and equipment. This would allow them the ability to ensure that the products purchased would work on the City's equipment.

Management Response

The Fleet Division makes every effort to assure each vehicle is repaired, serviced or up-fitted according to the department's requests. On occasion one of these services will be requested that the Fleet Division, based on expertise, determines is not necessary or there is a more cost effective alternative.

The Fleet Division recognizes and agrees with the various departments need for back-up vehicles. The vehicles used for back-ups are vehicles that are kept after they have exceeded the replacement criteria. The problem with this method is it extends the life of a vehicle that has been deemed past its usefulness, resulting in the Fleet Division continuing maintenance of an old vehicle in addition to the new replacement. Also, with an additional vehicle available, sometimes the back-ups are used along with the primary vehicles rather than when a primary vehicle is temporarily out of service.

Fleet Management will collaborate with the individual departments to develop a process in which all relevant divisions are consulted when requests are made not concerning general maintenance and repair.

Fleet Management will work with the individual departments in efforts to obtain a back–up vehicle plan that minimizes the use of the vehicle along with providing vehicles that have not exceeded the replacement criteria.

Attachment A

Fleet Modules v15

Reporting
The Reporting Module makes it easier to take data stored in your database and reformat it into information that can assist in effectively managing operations. At the same time, it opens up the visibility into your operations to the entire organization by publishing professional reports over a zero-client, browser interface. The Reporting Module will provide standardized reports as well as accessibility to real-time data and report automation.

Scheduler
The Scheduler Module enables your organization to create and administer repeated tasks that automatically run to facilitate various system-related activities. At present, the Scheduler Module allows your organization to schedule reports to run automatically, save their output to PDF format, and email their results to a distribution channel. In the future, additional functions will utilize the Scheduler Module to set up automated, calendar-driven processes.

Ad-Hoc Query
The Ad Hoc Query Module provides secure ad hoc query capabilities. It allows users to build their own queries, format the display of the results, export the results, and save queries for future use and sharing with others.
The Ad Hoc Query Module uses screen views as data sources to provide end users with familiarity when querying data. Access to the views is restricted in this module through the same screen and control permissions utilized by the GUI that limit a user's rights to viewing screens and fields.

Dashboards
The Dashboard Module provides snap-in dashboard functionality to your existing system. It provides real-time access to your database through easy-to-interpret, out-of-the-box gauges and charts. Dashboard elements provide instant insight into your maintenance key performance indicators via a standard web browser. You may provide access to dashboards to anyone in your organization, without the need to install any software on their machines.
The Dashboard Module is a .NET-powered add-on to the family of products. Customers use the Dashboard Module to add dashboard content to their maintenance management portal for viewers both inside and outside of the maintenance organization. Dashboards may be implemented on pages all by themselves or integrated into existing pages, such as the Supervisor Portal (included in the Shop Activity Module).

Performance Analysis
The Replacement Modeling: Performance Analysis Module is designed as an easy to use, browser-based interface for creating replacement and performance analysis runs. It allows organizations to analyze the performance of vehicles compared to others in the same category. After analyzing the vehicles in a run, the status of the run can be changed to REPLACEMENT, so the run can then be viewed in the Asset Replacement Analysis Module.

Replacement Analysis
The Replacement Modeling: Replacement Analysis Module is an easy to use, browser-based interface designed to allow users to analyze the performance of vehicles compared to others in the same category and set each vehicle for replacement, schedule replacements, and enter estimated replacement costs.

Equipment Planning
The Equipment Planning Module is designed as an easy to use, browser-based interface to assist with replacing dated equipment and adding new equipment to an organization. (Review and approval process for vehicle replacement.)

Supervisor Portal
The Shop Activity Supervisor Portal is designed to provide your organization's supervisors with a single easy-to-use portal to all of the screens and functions required during their workday. Supervisors can use the Shop Activity Supervisor Portal to:

- View and assign work
- View current status of employees on shop floor
- View equipment repair history, service requests, and messages
- Request or post parts for work orders and view status of past requests and postings
- Place work orders into and out of delay status
- Create and update test results related to work orders
- Complete PM checklists for PM and inspection services
- Enter complaint, cause, and correction detail (3 C's) for repairs performed

- Add comments and notes to work orders
- Create new work orders
- Place work orders into WORK FINISHED status
- Create new service requests
- Assign employees to existing work orders
- Review and close work orders
- Post data to work orders after-the-fact (i.e., 3 C's, labor, parts, etc.)

The look and feel of the Shop Activity Supervisor Portal was designed specifically to make data entry as easy as possible while maximizing the effect on the system. The buttons and workflow of the module support the use of touch screen monitors, removing the need to use a mouse and minimizing the use of a keyboard.

Technician Portal

The Shop Activity Technician Portal is designed to provide your organization's technicians with a single, easy-to-use portal to all of the screens and functions required during their workday. Technicians can use the Shop Activity Technician Portal to:

- View work assigned to them
- Log on and off of direct and indirect tasks
- View equipment repair history, service requests, and messages
- Request or post parts for work orders and view status of past requests and postings
- Place work orders into and out of delay status
- Add comments and notes to work orders
- Create and update test results related to work orders
- Complete PM checklists for PM and inspection services
- Enter complaint, cause, and correction detail (3 C's) for repairs performed
- Create new work orders as needed
- Place work orders into WORK FINISHED status
- Add/modify related tasks
- Add/manage service requests to work orders
- Print work orders
- Post data to work orders after-the-fact (i.e., 3 C's, labor, parts, etc.)

The look and feel of the Shop Activity Technician Portal was designed specifically to make data entry as easy as possible while maximizing its effect on the system. The buttons and workflow of the module support the use of touchscreen monitors, removing the need to use a mouse and minimizing the use of a keyboard.

Storekeeper Portal

The Shop Activity Storekeeper Portal is designed to provide your organization's storekeepers with a single, easy-to-use portal to all of the screens and functions required during their workday. Storekeepers can use the Shop Activity Storekeeper Portal to perform the following functions:

- Manage Part Requests
  - Review request line items across multiple requests
  - Act on (issue or order) multiple line items at one time
  - Flag request line items to notify the technician that parts are ready to pick up
- Manage Parts Requisitions
  - Review pending and open parts requisitions
  - Add new parts requisitions
  - Add new line items to parts requisitions
  - Act on requisitions (convert to purchase orders or requests for bid/quote/proposal (B/Q/P))
- Parts Ordering
  - Review pending and open purchase orders
  - Add new purchase orders
  - Add new line items to existing purchase orders
  - Receive line items
- Create New Parts
  - Add new part records to the system

Work Management

The Shop Activity Work Management Portal gives supervisors immediate access to relevant data based on their work management needs by providing a highly customizable entry point to the Shop Activity work flows. It offers the same

capabilities of the Supervisor Portal except for one key difference: instead of the legacy Supervisor Portal front page, a highly versatile front page consisting of customizable gadgets is used. The most important customization is the ability to create user-defined filters for the gadgets. For example, the supervisor can define a set of filters for a gadget to show typical counts for various assets and add it to the front page. This allows the product to better support a wide variety of assets.

Production Manager

The Shop Activity Production Manager Portal is designed to provide your organization's production managers with a single easy-to-use portal to all of the screens and functions required during their workday. Production Managers can use this portal to perform the following functions:

- View and manage production requests
- Create work orders for production runs
- Request parts for work orders on production runs
- View and assign work
- View current status of employees on shop floor
- Request or post parts for work orders and view status of past requests and postings
- Place work orders into and out of delay status
- Create and update test results related to work orders
- Add comments and notes to work orders
- Create new work orders
- Place work orders into WORK FINISHED status
- Assign employees to existing work orders
- Review and close work orders
- Post data to work orders after-the-fact (i.e., 3 C's, labor, parts)

The look and feel of the Shop Activity Production Manager Portal was designed specifically to make data entry as easy as possible while maximizing the effect on the system. The buttons and workflow of the module support the use of touchscreen monitors, removing the need to use a mouse and minimizing the use of a keyboard.

Customer Access

The Customer Access Module is designed to provide your organization's maintenance department administrators with an easy to use, browser-based, real-time view into information regarding the vehicles and assets in their departments. It provides a link to enter service requests on vehicles, display assets assigned to the user's department, display open work orders for assets assigned to the user's department, and enter meter readings and usage tickets for assets. Deploying the Customer Access Module allows your organization to provide department administrators with immediate access to valuable information.

Service Request

The Service Request Portal is designed as an easy to use, browser-based interface for deploying Service Request entry and display to any user in your organization. This portal is easy to deploy and provides your organization with the option to relieve the burden on shops or call centers that record requests from employees and operators for asset maintenance or vehicle service by allowing individuals to log the requests themselves. Using the kiosk feature eliminates the need for each operator to have a login for entering and displaying vehicle service requests through the Web Modules interface.

Notification Portal

Just as maintenance and fleet management practices are becoming more active and less passive, software systems are expected to do the same. It is recognized that a static maintenance system no longer meets the needs of most organizations. A system that notifies you and provides timely information is essential for efficient and effective business operation. The Notifications Module is an important first step in addressing this need.

The Notifications Module provides:

- Instant alerts of important and need-to-know scenarios
- Flexibility in the "what" and "how" of notifications that lets you choose what scenarios are important to you and specify how the alerts should arrive (email, pager, on-screen messages)
- Better communication and information sharing between departments
- Instant value from the system without having to train your customers on the system
- A collection of out-of-the-box notification scenarios to get you started
- A tool that can create custom notification scenarios to meet the unique needs of your organization

The Notifications Module provides a means to send messages and, optionally, emails to its users. Because the integrated Send Message feature in the system is used, users can view notifications in the client GUI, Enterprise Portal, or all other Web Modules.

Asset Management

Timesheet

The Timesheet Portal is bundled with Shop Activity and available in Web Modules. The purpose of this portal is to review timesheet and timesheet entries and make any corrections needed as timekeepers, supervisors or designated users see fit. Timekeeping must be configured for this portal to work correctly. The timesheet and related entries are primarily generated upon technician clock out within Web Modules. Please note that Timesheet portal is different from the legacy View Timesheets page that is used to review detailed labor postings by work order and service request. The Timesheet portal is best understood as a summary overview with its own set of Timesheet data generated in real-time upon employee clock in and clock out where line items are generated for regular time, shift differential time, and overtime. The Timesheet portal functions as a standalone portal and can also be accessed through the Technician and Supervisor/Work Management Portals.

Warranty Writer / Warranty Processor / Warranty Supervisor

Use the Warranty Module to manage equipment, component, commercial and parts warranty opportunities and track the process from claim creation to collection.

- Identify
- Claim
- Track
- Reconcile

The Warranty Module provides organizations with a real-time, interactive environment where claims resulting from work order closeouts will be available for write-up immediately after the maintenance shop closes/approves the work order. It provides an electronic area for warranty claim write-up and submission to manufacturers, while providing warranty supervisors with full visibility into all aspects of the claim handling workflow. The main Warranty Portals include:

Warranty Supervisor Portal – Allows warranty supervisors to review pending claims, update/reprioritize the to-do queue, and monitor status of all claims in all branches of the workflow.

Warranty Writer Portal – Provides warranty writers with an easy, electronic workbench where all of the detail regarding the claims, manufacturer coding, proper claim amounts, validation of part IDs and claim amounts are entered via a web portal.

Warranty Processor Portal – Once the warranty writer marks a claim as being ready for submission to the manufacturer, the claim is made available to the processing clerks via this portal. The portal provides a clear, efficient way for processing clerks to view what claims need to be processed, review full detail about those claims, and mark claims as having been successfully submitted.

Not licensed for:

Allocation & Assignment / Assignment Request

The Allocation and Assignment Module is designed to allow an asset or part to be assigned to a person (operator), place (location or department) or another asset. There are two parts to the module: Allocation and Assignment Portal and Assignment Request Portal.

The *Quartermaster* can use the Allocation and Assignment Portal to create assignment records for items and track the status and expiration of those items. He or she can also use this portal to view requests for items from Operators for either themselves or their location/department.

The Operators have access to the section of the module called the Assignment Request Portal. Through the Assignment Request Portal, a user can log in to either request a new item or report an issue with their current item. These requests then are sent to the Quartermaster section of the module, so that they can be responded to as needed by supervisors and the store manager.

The Allocation and Assignment Module works with the Shop Activity Module's Storekeeper Portal for inventory tracking, purchase orders (POs) and Requisitions. The items and inventory purchased and tracked through Storekeeper Portal, based on each location, are the same inventory that the Quartermaster has access to assign within the Allocation and Assignment Portal. Please refer to the *Shop Activity Storekeeper Administrator and User Guides* for additional information about the Storekeeper Portal.

Billing Portal

The Billing Module is designed for review, adjustment and editing of transactions, for the purpose of billing out work order transactions, fuel transactions, end of the month charges, special fees, motor pool usage and more. The Billing Module provides:

• Setup to define rules for billing based on Transaction Types, to choose departmental billing rules for transactions.
• Portal workflows to allow adjustment and comments on transactional changes, with change tracking for accountability.
• Options to allow only specified user groups to perform maintenance and advanced functions, while allowing other user groups only to review transactions and make simple adjustments.
• Reporting available for billing summaries, exception reports and transactional details.
• Ability to expand with custom integrations in MAXQueue:
    o To define logic for custom or specific Billing Accounts rules or other more advanced rules your organization might need; or
    o To export to outside billing systems.

Capital Project

State of Good Repair (SGR) and Capital Planning assist transit agencies with meeting the Federal Transit Administration's (FTA's) initiative to track the SGR for transits across the United States as well as determining forecasted capital expenditures. The goal is to be the single repository for capital asset replacement data that results in more efficient management of SGR data, improved capital planning, and easier reporting to the FTA.
To ensure adequate planning for capital expenditures, transit agencies need to know the current condition of each asset and how that condition affects the asset's remaining life. Several aspects are considered when capturing and tracking condition ratings for all assets.

State of Good Repair and Capital Planning include the following features:

• Tracks manual condition assessments of assets and automates those assessments.
• Offers expanded asset condition settings to provide scores based on Condition ID.
• Allows Condition IDs to be restricted by Asset Category.
• Algorithm calculates the overall condition of a higher-level (parent) asset based on the manual or automated condition assessments of its child assets. For example, the overall condition of a rail car is affected by the conditions of critical components.
• Generates a SGR or Condition Rating that is flexible, user-defined, data-focused, and transparent. It allows users to build data criteria for multiple score components.
• Provides minimum and expected dates and meter information for rehabilitation versus replacement for capital planning purposes.
• Provides for the creation of Capital Plans consisting of multiple Capital Projects supporting identifying funding sources, risks, benefits, attributes, approval process, budget and schedule.

Equipment Portal

The Web Modules Equipment Portal is an easy to use, browser-based interface that allows users to add new Fleet Equipment units.

Fuel Focus

The FuelFocus Module allows organizations to better manage information and tasks related to fuel and fluid operations by providing integration with the FuelFocus System. FuelFocus supplies up-totheminute fueling information in the database with real-time validations and instantaneous feedback to users at the Island Control Unit (ICU). Once fueling transactions are completed, authorized users can view them on the Internal Fuel Tickets screen in the module.

Mobile Focus

PocketPC/Windows Mobile devices. The purpose of the products in the suite is to make the applications portable, enabling employees to access and update data related to work orders, asset meter readings, part transactions, and linear track and signal inspections from where the work occurs rather than "tied" to a PC or kiosk.
The intended user for this product is the transportation professional who requires access to enter and/or access Enterprise Asset Management (EAM) system data while in a mobile environment.
MobileFocus provides users several benefits:

• Obtain real-time wireless (802.11a/b/g network protocol) or batch sync connection to the database from a PocketPC/Windows Mobile handheld mobile device;
• Track labor real-time towards direct (i.e., work order-related) and indirect tasks;
• Perform common work order functions such as: labor capture, labor posting, parts issues and returns, PM checklists, notes, comments, test results, start/stop delay, view work history, and finish/close work order;
• Track work order "3C's" data (complaint – cause – correction) for enhanced warranty recovery and repair analysis;
• Create and post transactions to new work orders on-the-fly;

- Download a desired subset of work orders from FleetFocus FA to a mobile device and access those work orders from a mobile environment;
- Post internal fuel tickets (fuel usage from system-tracked tanks) to equipment units;
- Issue parts from stockrooms onto work orders;
- Perform parts "direct issues" – direct to an asset, department, or account without the need for a work order;
- Update equipment meter readings, condition, current location, and parking stall fields directly from the mobile device;
- Perform real-time or batch load parts inventory counts;
- Perform real-time or batch load yard check/equipment meter readings entries;
- Perform asset test results;
- Perform track/linear asset inspections and defect recording;
- Enter new asset-related service requests.

All functions are built to support easier and more accurate data entry through integrated use of barcode scanning methods.

Parts Catalog

Illustrated Parts Catalog (IPC) Module provides capabilities to view part drawings linked to part numbers and to add selections to a shopping list that interfaces with the Shop Activity modules. DocuMoto™ is the tool used for the Web Modules' Illustrated Parts Catalog.

The following provides background that illustrates the value of the Illustrated Parts Catalog to the organization by increasing efficiency in part requests/orders.

When performing repairs, technicians need to request/order parts. When the repairs are routine, typically the technician knows the part numbers (or they have pre-created "standard parts" lists). However, when technicians perform non-standard repairs, or are working in areas that they are not familiar with, it is likely that the part number is unknown (and, therefore, it cannot be requested or ordered). With the IPC (DocuMoto), the technician can refer to an illustrated guide related to the asset being worked on, locate the page related to the system being worked on (e.g., air conditioning), drill-down to the specific area being worked on, and use the diagram to build a list of parts required (i.e., using pictures/diagrams rather than just part IDs). The shopping list created in the Illustrated Parts Catalog (using pictures) is transferred to Web Modules (as part numbers).

The Illustrated Parts Catalog is easy to use and assists technicians in accomplishing their daily repair activities.

PMM – Performance Measures and Monitors

The Performance Measures & Monitors module (PMM) allows users to quickly and easily analyze their historical data to provide insight on trends and gain an overall perspective in order to make key business decisions and gain a competitive advantage. Whereas Dashboards depict the current situation, PMM's are based on the industry standard model and provide a snapshot of data over time. This PMM data is generated from your existing data and is defined by the PMM_defs table entries. This "snapshot" data is stored in the PMM_data table per frequencies defined in the PMM_defs table.

The module consists of the MAXQueue interface and the user interface. The MAXQueue interface generates the PMM data through the PMM definitions. (For PMM data to be captured through MAXQueue, you must first activate the PMM snapshot definitions. PMM definitions are activated through the screen titled PMM Definition (2382). Once a definition is activated, it is available for MAXQueue to collect the data points.) The user interface is managed and viewed through the PMM module. The PMM user interface leverages the power of the Dashboard module to define the look and feel of the PMM gauges and charts.

For existing customers that have historical data available, we have created a program that builds historical data into the PMM tables to provide a head start in analyzing your data trends. The data points that are collected into the PMM data tables are then used in PMM Key Performance Indicators (KPI's) to be displayed in PMM dashboards. Many out of the box PMM Definitions and KPI's are available for customers' immediate use. Customers can also create PMM definitions and collect the data to provide custom KPI analysis through adding records to the PMM_defs table and activating these PMM definitions.

Key Valet

Motor pools allow fleet managers to "right-size" their fleet by reducing fleet size while increasing utilization. Successfully managing a motor pool involves many components including customer reservations, vehicle check-out, billing and maintaining the motor pool vehicles. KeyValet is a comprehensive solution for successfully running a motor pool. KeyValet integrates with FleetFocus motor pool software which manages every aspect of the motor pool fleet and allows fleet managers to deploy an unmanned motor pool in an efficient, secure and cost effective manner. This product also provides 24/7 access through an online portal for your customers to reserve their vehicles along with a secure automated keybox with radio frequency connectivity to record trip data and provide accurate odometer updates. These features, coupled with reporting and integrated customer billing, make KeyValet the only motor pool solution you need.

- A single software solution to handle all aspects of your motor pool including reservations, availability management, customer notifications, dispatch, and billing.
- Online access for customers to reserve motor pool vehicles 24/7. Automated confirmation emails are sent directly to the customer with a reservation-specific confirmation code.
- Real-time odometer readings from motor pool vehicles at the start/end of the trip automatically updating FleetFocus thereby

reducing data entry time and errors.

- Secure key storage for unmanned motor pool with "smart card" options.
- A radio-frequency identification device (RF ID) installed in every vehicle that also works with FuelFocus, thus, reducing additional hardware. (As an option, KeyValet can also be used without RF ID boxes in each vehicle. However, in this case, customers are required to manually key in their vehicle's mileage.)
- Integrated billing and reporting using FleetFocus.

Reservations

Reservations Module is an easily deployed, browser-based user interface that allows your customers to create, view and modify their motor pool reservations. The module also provides the option to email confirmation tickets to users requesting reservations. The Reservations Module improves efficiency by providing users with instant access to the information they need to streamline the reservation process.

Enterprise Portal

The Enterprise Portal module is a web-based alternate end user interface to the base application logic. To users familiar with the graphic user interface (GUI) screens, it provides a familiar lookandfeel to grid and tabs, function buttons, and screen menus, while removing the need for a clientside installation. Users have access to all the same screens and functions as through the GUI, but access the screens through a standard web browser.