Management and Operations Study of the Fleet and Facilities Division

OGDEN CITY, UTAH

matrix consulting group

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1. EXECUTIVE SUMMARY

The City of Ogden City retained the Matrix Consulting Group to conduct an operations study of its Fleet and Facilities Division of the Department of Management Services. The areas of inquiry for this engagement included service level evaluation, overall operational philosophy of the Division; organization, staffing and productivity; an assessment of administrative procedures and customer service; and evaluation of performance measures; an assessment of financing methods and billing procedures; as well as other elements of operations. The study also was designed to elicit opinions of services from both the internal staff as well as customers, and to compare the operations of the Fleet and Facilities Division to those of its peers, both in terms of direct comparisons in a formal survey, as well as through the comparison of the Division's practices to those of "best management practices" in the fleet and facilities industries.

1. STUDY METHODOLOGY

The process utilized by the project team for conducting this study and composing recommendations to address the areas of inquiry is outlined in the following points:

- The project team conducted in-person interviews with all staff in the Division. These interviews were designed to acquaint the project team with the organizational structure and operations of the Division and to identify key issues for inquiry.

- The project team conducted interviews with Department managers throughout the City, providing these representatives with an opportunity to share their perspective and opinions on the service provided by the Fleet and Facilities Division.

- The project team collected extensive data from the Division, both on-site and electronically, in order to develop a detailed and accurate understanding of the Division's structure, workload, policies, and operational practices. Documentation included:

  – Personnel data such as staffing numbers, organizational charts, pay scales, and job descriptions;
  – Fleet documentation such as the number and types of vehicles, parts inventory, vehicle usage data, and replacement cost;
  – Facilities data, such as square footage and location of facilities, contracted repairs, etc.
  – Workload data, including the hours worked by maintenance employees, value of parts issued, etc.
  – Financial and administrative information such as budgets, billing rates and schedules, and the use of existing software applications.

- The project team compared the policies, procedures, and operational practices of the Division to "best practices" in order to identify current strengths, weaknesses and opportunities for improvement. The project team used our firm's diagnostic assessment matrix for this effort, comparing the Division's services to qualitative and quantitative benchmarks developed by the Matrix Consulting Group over years of experience with public sector entities.

These process components provided an in-depth understanding of the Fleet and Facilities Division and its key issues, and they served as the foundation for conducting a thorough analysis of the questions presented to the project team.

2. STRENGTHS OF THE DIVISION

While the focus of this study was to evaluate the Division's operations, identify opportunities for improvement, and provide ideas for implementing efficient solutions, the project team also noted a number of strengths in the Division over the course of the study. Examples of these strengths include the following:

- The Department maintains frequent and open communication with its customers regarding the services provided to them.

- The City has centralized all fleet, facilities and warehouse operations under a single organizational unit in the Fleet and Facilities Division. This centralization minimizes administrative overhead, and assures that all costs of operations are consolidated, which facilitates analysis of cost-effectiveness and efficiency.

- The Fleet Shop Supervisor provides monthly safety meetings, and covers OSHA topics, CPR, bloodborne pathogens, etc.
- The City has also engaged an ESCO to look at certain other initiatives such as replacing street lights with LEDs.
- Division personnel report time by task, which facilitates decision-making regarding staff productivity, outsourcing and insourcing, training needs, as well as many other dimensions of operations.

These existing strengths provide a foundation for increasingly sound operational practices and future efficiency improvements in the Division.

3. SUMMARY OF KEY RECOMMENDATIONS

The following document contains recommendations made by the project team as a result of our data collection, benchmarking, and analysis efforts over the course of the study.

The following table provides a summary of the recommendations.

Summary Table of Recommendations

Recommendation	Cost / Savings	Priority
2. Analysis of Management and Administration		
1 The Fleet and Facilities Division should develop a strategic plan for its component sections.	NA	High
2. The Division Manager, internal staff and customers should develop and adopt a comprehensive mission statement. The statement should be published to the Division's web site.	NA	Medium
3. The Division Manager, internal staff, and customers should review the possible vision statement contained within this report, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.	NA	Medium
4. The managers and leadworkers of the Fleet and Facilities Division should review the possible values statement contained within the report, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.	NA	Medium

Summary Table of Recommendations

Recommendation	Cost / Savings	Priority
5. The Division Manager, staff and customers of the Fleet and Facilities Division should review the possible goal statements contained within the report, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.	NA	Medium
6. The Fleet and Facilities Division should develop objectives for each of the goals ultimately developed and adopted by the Fleet Management and Facilities Management sections.	NA	Medium
7. The Fleet and Facilities Division should develop a full array of performance measures for each of its objectives including inputs, outputs, efficiency, and effectiveness.	NA	High
8. The Fleet and Facilities Division should develop a performance measurement scorecard.	NA	High
9. The results of the performance measurement scorecard should be reported to the managers and supervisors of the City on a quarterly basis.	NA	High
10. The Fleet and Facilities Division should develop and distribute management reports using Cartegraph.	NA	Medium
11. The Fleet and Facilities Division should enhance written policies and procedures manual for the separate sections.	NA	High
12. The effective, consistent and comprehensive implementation and use of the Cartegraph CMMS should represent a "vital few" Division goal. As such, ensure Cartegraph is fully updated and effectively implemented for use as a maintenance management tool.	NA	High
13. Consistent with ISO best practice philosophies, develop a division-wide Standard Operating Practice (SOP) Manual to describe the overall proper use of the Cartegraph CMMS as a data repository and management information system. Distribute this SOP to all division staff.	NA	High
14. Further train the Senior Project Manager, Fleet Supervisor, Lead Worker in Facilities Management, and Senior Office Assistants on the use of Cartegraph as repository of information to make decisions.	NA	Low
15. The Division should begin utilizing Cartegraph to produce regular reports on fleet and facilities maintenance performance and efficiency in order to identify areas of high performance and improvement opportunities.	NA	Medium

Summary Table of Recommendations

Recommendation	Cost / Savings	Priority
16. Identify a Divisional Cartegraph "power user" to create and run reports for fleet and facilities management decision-making.	NA	High
17. The Division should eliminate the position of Office Supervisor, and distribute the position's duties to the two Senior Office Assistants in the Division. The elimination of the position results in a cost saving of $64,098, including direct salary (at the midpoint of the salary range), plus 40% for fringe benefits.	($64,098)	Low
3. Analysis of Facilities Management		
18. The Facilities Management section should develop and institute a preventive maintenance program for all of the City's buildings and building components.	NA	High
19. Hire two additional Maintenance Technicians in the Facilities Management section of the Division. These positions should be responsible for the development and implementation of the preventive maintenance programs for HVAC and plumbing assets	$107,845	High
20. Elevate one of the existing Maintenance Technicians to the position of Lead Technician.	$7,725	Low
21. Increase the budgeted amount for training from the current $1,000 annually to at least $1,000 per Maintenance Technician.	$4,000	Low
22. The Lead Technician should be responsible for providing time estimates on each work order assigned. This will facilitate the section's ability to plan and schedule the work of all Technicians in the section.	NA	Medium
23. Should the Facilities Management section elect to continue to charge hourly rates for its services, it should re-calculate the actual labor rate on an annual basis to recover all appropriate elements of cost.	NA	High
24. The Facilities Management section should transition from its current method of charging tenants for its services via two separate scales. The project team has provided four alternatives for replacing this method, and recommends a method by which the Facilities Management section receives an annual allocation from the General Fund, and also charges tenants for the discretionary services which they request.	NA	High
4. Analysis of Fleet Management		
25. Continue to accomplish effective overall turnaround times in which 85%-90% of vehicles are serviced within the same or next business day.	NA	Medium

Summary Table of Recommendations

Recommendation	Cost / Savings	Priority
26. The lead mechanic or supervisor should inform all customers via e-mail upon the completion of maintenance or repair services on their fleet apparatus. Failure to pick-up after two business days should result in a follow-up phone call (with appropriate documentation of call).	NA	Low
27. For any service exceeding one week, the lead mechanic or supervisor should contact the customer via phone informing them of the specific reason for delay. This follow-up should occur weekly via phone or e-mail update until the fleet apparatus is delivered to the client.	NA	Low
28. Based on information contained in this report as well as institutional knowledge, identify corrective methods to significantly improve the emphasis on preventive maintenance work given the significant amount of effort that is currently dedicated to corrective maintenance activities.	NA	Medium
29. Continue to strive for wrench-time benchmark standards. Fleet Maintenance is very close to desirable standards of 70% loaded wrench-time and 80% floor wrench time performance.	NA	Low
30. Improve the accuracy of recording vehicle mileage/hour usage among mechanics and drivers in Cartegraph and Fuel Master systems.	NA	Low
31. Ensure all fleet maintenance assets receive at least one PMA effort annually.	NA	High
32. Reduce the occurrence of preventively over-maintained or under-maintained fleet apparatus.	NA	Low
33. Fleet Maintenance must devise a preventive maintenance program that is proactive, with Fleet Maintenance being responsible for notifying the customer when a PM is due and ensuring the apparatus is checked-in.	NA	Medium
34. Adopt other preventive maintenance practices identified in the Best Management Practices matrix in this report.	NA	Low
35. Consistent with approaches discussed in this chapter, the Fleet Supervisor should conduct a comprehensive fleet usage study and develop strategies to reduce the size of the fleet both in terms of the number of vehicles and potentially the size of vehicles.	NA	Medium

Summary Table of Recommendations

Recommendation	Cost / Savings	Priority
36. Maintain the existing four (4) mechanics and one (1) lead mechanic staffing until preventive maintenance programming and fleet right-sizing initiatives are fully executed. Upon this implementation, re-visit the need for filling the currently vacant fifth mechanic position.	NA	Low
37. Maintain existing supervisory staffing of one (1) Fleet Maintenance Supervisor position.	NA	Low
38. Enhance mechanic training and consider monetary rewards for maintaining relevant ASE and other certifications in various maintenance skill sets.	NA	Low
39. Ensure sufficient fire apparatus repair/maintenance training is provided given the complexities of these assets.	NA	Medium
40. Develop a written Standard Operating Practices Manual for Fleet Maintenance.	NA	High
41. The City should implement a single internal service fund approach with one charge-back mechanism for the delivery of services provided by Fleet Maintenance. This should be based on a loaded monthly rental rate.	NA	High
42. Reinstitute the Fleet Replacement Reserve. Fleet capital costs (i.e., replacement costs) should be included in an ISF, and fully-loaded charge-back rates should be calculated to include operations, maintenance, and vehicle depreciation (replacement cost).	NA	High
43. Recalculate mechanic hourly rates based on "loaded fleet maintenance operational costs" and update them on an annual basis.	NA	High
44. Implement fleet maintenance best management practices provided in this report to the extent feasible. Report to City management the outcome of implementing best-management practices efforts.	NA	Medium
5. Analysis of Stores Operations		
45. The Stores Clerks should initiate an analysis of the degree to which each part in the warehouse is being utilized. Slow-moving and obsolete parts should be removed from stock.	NA	Medium
46. The Fleet and Facilities Division should discontinue the practice of placing Stores Clerks on call for after-hours emergency call outs.	($17,163)	Low

Summary Table of Recommendations

Recommendation	Cost / Savings	Priority
47. The Division should calculate a precise percentage markup on all parts and supplies issued from the Warehouse. This markup should be sufficient to recover all costs associated with the operation of the Warehouse.	NA	Medium
48. The City should issue an administrative order requiring that all City departments utilize the central Warehouse operated by the Fleet and Facilities Division.	NA	Low

2. ANALYSIS OF MANAGEMENT AND ADMINISTRATION

Management accountability is the expectation that managers are responsible for the quality and timeliness of program performance, increasing productivity, controlling costs, mitigating adverse aspects of operations, and assuring that programs are managed with integrity and in compliance with applicable law.

This chapter evaluates the management accountability practices within the Fleet and Facilities Division. This includes strategic planning; goals, objectives, and performance measures; and policies and procedures.

1. THE FLEET AND FACILITIES DIVISION SHOULD DEVELOP AND ADOPT A STRATEGIC PLAN FOR OPERATION AND MAINTENANCE OF CITY BUILDINGS, VEHICLES AND EQUIPMENT.

The *American Public Works Association's Public Works Management Practices Manual* is a tool that public works, and related, departments can use to develop or improve existing practices, enhance performance, increase productivity. Management Practice 1.6 states "Planning for any agency is more a process than a given set of plans, or procedures. This process involves clarifying the agency's overall mission and the level of service provided to the community or customer base it serves, establishing long-range goals and objectives, developing a plan to reach these goals and objectives and designating a method to monitor the agency's progress towards these objectives so that the plans and objectives are modified to fit the changing needs of the agency and

community." The strategic plan should include levels of service, planning goals and objectives, plan monitoring, plan documentation, goals and objectives, etc.[1]

Managers are often so preoccupied with immediate issues (e.g., the next work order) that they lose sight of their ultimate goals. In the real world, many activities fall under the facility manager's responsibility, causing frequent lapses into a reactive mode in order to respond to all the service requests, orders, regulations, deadlines and demands of the organization. Fleet and facilities managers know and understand that the need to become more proactive and strategic is important, however daily events can cause frequent interruptions to plans.

In addition, the individual Fleet and Facilities sections of the Division face a number of long-term challenges such as the following:

- The need to cover costs through charges for service;
- The retirement of the long-tenured Director of the Division, and the assimilation of new management;
- More effective utilization of *Cartegraph* as a maintenance management system and not merely as a work order system, or its replacement; and
- Energy conservation and sustainable facility management practices;
- Assimilation of more fuel efficient vehicles in the fleet;

Effective management strategic plans and objectives are geared towards decisions and actions to control and preserve fleet and facility assets. These include (1) actions focused on scheduling, procedures, and work and systems control and optimization; and (2) performance of routine, preventive, predictive, scheduled and unscheduled actions aimed at preventing vehicle and equipment failure or decline with the goal of increasing efficiency, reliability, and safety.

[1] American Public Works Association, Management Practices Manual, 8th Edition.

An effective management strategic plan and strategy can have important benefits for an organization. For example, effective operations and maintenance strategies targeting energy efficiency can save 5% to 20% on energy bills without a significant capital investment.[2] Beyond the potential for significant cost and energy savings, effective operations and maintenance strategies have other important implications such as those noted below.

- A well-functioning fleet and facility operations and maintenance program is safe. Equipment is maintained properly, which mitigates any potential hazard arising from deferred maintenance or missed preventive maintenance.

- In most buildings, the facility management and maintenance staff are responsible for not only the comfort, but also the health and safety of the occupants. An increasing concern is the indoor air quality within these buildings. Proper operations and maintenance reduces the risks associated with the development of dangerous and costly indoor air quality situations.

- Properly performed operations and maintenance ensure that the design life expectancy of equipment will be achieved, and in some cases exceeded. Conversely, the costs associated with early vehicle and equipment failure are usually not budgeted for and often come at the expense of other planned operations and maintenance activities.

- A well functioning operations and maintenance program is not always answering complaints, rather, it is proactive in its response and corrects situations before they become problems. This model minimizes callbacks and keeps vehicle users and building occupants satisfied while allowing more time for scheduled maintenance.

The Fleet and Facilities management strategic plan should include five distinct segments: operations, fleet and facility maintenance, facility engineering, professional development, and administration. Possible goals for the operation and maintenance strategic plan are presented below.

- **Effectively manage the maintenance and repair of City of Ogden City vehicles and facilities**. The separate Fleet Management and Facilities Management sections should establish and ensure effective implementation of

[2] PECI. 1999. *Operations and Maintenance Assessments.* Portland Energy Conservation, Inc.

policies and the planning and administration of fleet and facilities management. The sections should formulate and utilize formal management objectives to improve performance. The sections will monitor and assess their work activities using *Cartegraph,* or its replacement, to improve all aspects of performance. The sections will ensure that positions are filled with highly qualified individuals. The sections will achieve a high degree of personal and public safety. The sections should monitor and report their performance using metrics and *Cartegraph*.

- **Effectively maintain and repair City of Ogden City fleet and facility assets**. The staff of the Fleet and Facilities Division should manage the performance of maintenance and repair in an efficient and safe manner such that economical, safe, and reliable operation is optimized. The sections should conduct maintenance in a safe and efficient manner and should plan and conduct effective preventive and predictive testing and inspection programs to contribute to optimum performance and reliability of vehicles and facility systems and equipment. The sections should insource the core fleet and facility maintenance and repair activities, and outsource non-core activities, peak workload, or work for which the sections lack the specialized knowledge.

- **Foster the professional development of the staff**. The Fleet and Facilities Division should ensure effective implementation and management of training activities. The individual sections will ensure that their staffs have a basic understanding of their responsibilities and safe work practices and have the knowledge and practical abilities necessary to maintain, repair, and operate the City fleet and facilities safely and reliably. The sections should develop and improve the knowledge and skills necessary to perform assigned job functions.

- **Achieve a high level of customer satisfaction**. The Fleet and Facilities Division should determine and monitor the level of customer satisfaction with the services provided by the individual sections. The sections will identify and implement improvements that should increase the level of customer satisfaction. The Sections will implement a customer relations and communications program.

- **Be a leader in sustainability**. The Fleet and Facilities Division will develop and implement sustainability initiatives and metrics for City fleet and facilities. The sections should develop and implement equipment replacement, and capital improvement projects and management systems that maximize the economic lives of the assets under their management and care. The sections will develop a culture of sustainability awareness in the City by incorporating aspects of sustainability into its daily activities.

- **Maximize efficiency using Cartegraph**. The Fleet and Facilities Division should create a common vision for *Cartegraph,* or its replacement*,* and its implementation. The individual sections will use the Computerized Maintenance Management System to efficiently maintain, repair, and operate City vehicles and facilities. The sections should manage the deployment of the CMMS to fulfill its needs and those of the Division's customers.

- **Keep a life cycle asset management perspective**. The Fleet and Facilities Division should make decisions regarding the operation, maintenance, and repair of the City's fleet and facilities with consideration of the impact on the overall life cycle of vehicles, equipment and systems to generate the most cost-effective actions. The sections should keep a life-cycle perspective throughout the planning, construction, operation, and maintenance, repair, and replacement of vehicles, building equipment and systems.

The strategic plan for the Fleet and Facilities Division should be designed to set the direction for the component sections over the next five years, and build a framework for them and their decisions regarding the operation, maintenance and repair of City vehicle and facilities.

Recommendation 1: The Fleet and Facilities Division should develop a strategic plan for its component sections.

2. THE FLEET AND FACILITIES DIVISION SHOULD DEVELOP GOALS, OBJECTIVES, AND PERFORMANCE MEASURES SEPARATELY FROM THE CITY'S OPERATING BUDGET.

The *Governmental Finance Officers Association (GFOA)* recommends a number of best practices regarding the development of goals, objectives, and performance measures. That organization encourages all governments to report on the outputs and outcomes and should be related to the mission, goals and objectives of each program (e.g., fleet and facilities management). Local government managers should strive to:

- Develop a mission statement for each program;
- Identify goals, short- and long-term, that contribute to the attainment of the mission;
- Identify goals and objectives that are specific in timeframe and measurable to accomplish goals;
- Identify and track performance measures within programs;
- Identify program inputs that address the amount of resources allocated to each program;

- Identify program outputs that address the amount of service units produced;
- Identify program efficiencies that address the cost of providing a unit of service;
- Identify program outcomes that address the extent to which the goals of the program have been accomplished;
- Take steps to ensure that the entire organization is receptive to evaluation of performance;
- Integrate performance measurements into the budget that at a minimum contain by program the goals and input, output, efficiency and outcome measures; and
- Calculate costs and document changes that occur as a direct result of the performance management program in order to review the effectiveness it."[3]

The Fleet and Facilities Division should develop extensive goals, objectives, and performance measures, both for internal purpose and for publication in the annual operating budget, and report their accomplishments on a quarterly or semi-annual basis to the Director of Management Services.

For the Fleet Management and Facilities Management sections, the development of goals, objectives, and performance measures should be a process of looking toward the future, through a two-to three-year window, identifying why the sections exist (mission), how they would look if they achieved their separate missions (vision), and what concrete steps it will take to achieve those missions (goals). Performance measurement data tell Department management, the sections, their customers and, importantly, the general public, whether the sections are achieving or exceeding the results specified in its goals and objectives.

[3] Government Finance Officers Association, Best Practice - Performance Management: Using Performance Measurement for Decision Making, 2007.

(1) The Fleet and Facilities Division Should Develop a Mission Statement, Vision And Values Statements.

A mission statement is the cornerstone of the direction of the sections of the Division, providing the basis for aligning goals, objectives, and performance measures, and providing the context for decision-making at all levels in the sections.[4]

The mission statement should articulate the purpose for the sections, who its customers are, and the results the sections expect to achieve for their customers. In evaluating the appropriateness of the mission statement, the sections should consider the following:

- Does the mission statement identify who are we – a brief statement of purpose?
- Does the mission statement identify what do we do – what are the Division's reason for existence?
- Does the mission statement identify for whom do we perform our work – the customers of the sections?
- Does the mission statement identify why do we perform our work – why is it important?
- Does the mission statement identify why public resources are devoted to the efforts?

Mission statements should provide a clear foundation for the goals of the component sections of the Division. For example, the mission statement for the Office of Facility Engineering and Operations at the Smithsonian Institute is to "provide world class services through a dedicated and professional workforce that is committed to managing resources wisely and preserving the integrity of our facilities by providing a safe and appropriate environment for people and collections." The mission statement for the San Bernardino County Fleet Management Department states, "The San

[4] National State Auditor's Association, Best Practices in Performance Measurement, 2004

Bernardino County Fleet Management Department provides vehicles, equipment and services to the officials and employees of the County so that they may provide services that promote health, safety, well being and quality of life to the residents of the County."

The Division should develop a mission statement, and develop a vision and values statement to accompany the mission statement. The recommended process for the development of the mission statement, vision statement, and values statement is presented below.

- **The Division should develop a mission statement.** The Division Manager and, in concert with internal staff and customers, should carefully craft a mission statement. The Division's mission statement should be a broad statement expressing how the component sections intend to fulfill their public purpose. It describes the Fleet Management, Facilities Management and the Stores sections' unique contribution to the City of Ogden City in delivering services, and provides a framework within which the sections operate. The Division Manager, staff and its customers, should review the possible mission statement, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.

Recommendation 2: The Division Manager, internal staff and customers should develop and adopt a comprehensive mission statement. The statement should be published to the Division's web site.

- **Develop a vision statement for the Division.** A vision statement describes where the Division want to be and describes what the future would look like if the it achieved its mission. A good vision statement is one that will inspire and challenge, and also be meaningful so employees will be able to relate their job to the vision. Well-written visions are conceived through a partnership between management, supervisors, and employees of the sections of the Division, as well as the customers of the Division. A great vision statement will be:

  – Brief and memorable;

  – Inspiring and challenging;

  – Descriptive of the ideal;

  – Appealing to employees, customers, and stakeholders;

  – Descriptive of future service levels;

– Idealistic, standing above the commonplace; and

– Enduring.

A possible vision statement for the Fleet and Facilities Division is presented below. The Division manager and staff, in concert with the Division's customers, should review the possible vision statement, revise it as necessary, and adopt the statement. The statement should be published to the Sections web site.

- We promise to care for City vehicles, facilities and building systems in the best manner possible within the resources available to us.

- We will seek out innovative techniques, ideas, incentives, savings, and new technologies to stretch our budget dollars and be as cost efficient and effective as possible.

- We will strive to promote the goals and ideals of a sustainable future in everything we do.

- We will create and maintain a positive working environment for all of the Division's employees conducive to their productivity, effective communications, skills enhancement, and professional development.

- We will work with all staff of the City and assist them with fulfilling their goals and requirements whenever it is within our capacity to do so.

- We will always look for ways to improve and enhance our operations, while striving for excellence and becoming the best we can be.

Recommendation 3: The Division Manager, internal staff, and customers should review the possible vision statement contained within this report, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.

- **Develop a values statement for the Sections.** Values and beliefs guide the decisions of the Sections. Values statements are the concepts, attitudes, and beliefs that are most important to the Section. The values define the Section's culture and help to distinguish some choices, goals, or hopes for the future as being more appropriate than others. Generally, the best statements of values express the Section's attitude and values about three things:

  – People: The way employees and customers are treated.

  – Processes: The way the Sections are managed, decisions are made, and products and services are provided.

– Performance: The expectations concerning the Sections responsibilities and the quality of its products and services.

For example, the value statements for the Office of Facility Engineering and Operations at the Smithsonian Institute include "balance between program needs and operational activities, excellence through diligent stewardship and providing legendary service to the Smithsonian Institute through dedicated and effective teamwork."

A possible values statement for the Facilities Management Sections is presented below. The managers and leadworkers of the Sections should review the possible values statement, revise it as necessary, and adopt the statement. The statement should be published to the Sections web site.

– We will meet high expectations for well-maintained City facilities and building systems;

– We will conduct the business of the Sections with the highest level of professionalism while showing respect for those with whom we work, partner, and contract;

– We will spend the Sections resources wisely and responsibly while striving for the best value possible;

– We will provide a safe working environment for City staff and customers;

– We will be a good neighbor in Ogden City and set good examples; and

– We will maintain high quality, sustainable facilities that support the City's mission.

Recommendation 4: The managers and leadworkers of the Fleet and Facilities Division should review the possible values statement contained within the report, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.

(3) The Fleet and Facilities Division Should Develop Goals.

Goals help answer the question, "Where is the Division going?" Among the items for consideration in developing good goals are the following:

- The goals must support the mission;
- Each goal should represent a desired result that can be measured;

- The goals must be realistic and achievable; and
- Each goal should make sense to others outside the organization.

It is important to differentiate between goals and objectives. To provide a clarification, the Division should consider the following:

"A goal is a statement of broad direction, purpose, or intent based upon the identified needs of the community. A goal is general and timeless; that is, it is not concerned with a specific achievement within a specified time period."

The Division's goals must be hierarchical for each program within the sections (e.g., maintenance management, cleanliness of fleet and facilities, professional development of staff, etc.), specific, and support the higher-level mission of the component sections. Possible goals for the Fleet and Facilities Division are presented below.

- The Fleet and Facilities Division will provide maintenance and repair of City fleet and facilities that protects the health and safety of employees and customers, protects and ensures good stewardship of the environment, protects and preserves the City's capabilities and capital investment, reduces energy consumption, and enables mission performance.
- The Fleet and Facilities Division will provide for the lowest life-cycle costs, and improve the safety and reliability of City fleet and facilities by using effective predictive and preventive maintenance systems.
- The Fleet and Facilities Division will ensure that City vehicles and facilities are safe, clean, orderly, and attractive, well cared for, enhance the prestige and reputation of the City, and reflect the City's values and concern for its capital investment in its fleet and facilities.
- The Fleet and Facilities Division will manage the City's fleet and facilities maintenance work cost effectively and efficiently by using state-of-the-art maintenance management systems.
- The Fleet and Facilities Division will provide exceptional service to its customers, taking a proactive approach to partnering and teambuilding with customers in all we do.

- The Fleet and Facilities Division will use performance-based service contracts that:
  - Clearly define the scope of work to capitalize on the service contractor's experience and ingenuity;
  - Contract for results and not just best efforts;
  - Maximize value through the use of fixed pricing and unit cost pricing with competition;
  - Improve quality through contractor selection based on past performance, measuring against prescribed, objective, and measurable performance standards; and
  - Follow a formal Quality Assurance Plan.
- The Fleet and Facilities Division will utilize formal continuous improvement processes to identify, develop, and implement processes and technologies to improve the operations and maintenance of vehicles and facilities over their entire life cycles and to promote the sustainability concept.

The Division Manager, internal staff and customers should review the possible goals, revise the goals as necessary, and adopt the goals. The statement should be published to the Division's web site.

In summary, the goal statements for the Division should be a brief summary of why the component sections exist and what they are trying to achieve. It tells the sections and their customers what the Division does, and why. The statements are specific enough to describe the Division's purpose, but general enough to last into the future.

Recommendation 5: The Division Manager, staff and customers of the Fleet and Facilities Division should review the possible goal statements contained within the report, revise it as necessary, and adopt the statement. The statement should be published to the Division's web site.

(4) The Fleet and Facilities Division Should Develop Objectives for Its Separate Sections.

The establishment of objectives is an essential element for establishing accountability for managers of the Division. A definition of an objective is provided below.

"Objectives are desired accomplishments that can be measured within a given time frame. Achievement of the objective advances the program toward the goal of the program. Accordingly, objectives must be developed that support and contribute to the achievement of the established goal."

In developing objectives, the Sections should seek to make these objectives specific, measurable, achievable, realistic, and time-based. The specifics of making these objectives are presented below.

- **Specific**. What exactly are we going to do, with or for whom? The program states a specific goal to be accomplished. The objective is stated in numbers, percentages, frequency, outcome, etc. The objective is clearly defined.
- **Measurable**. Is it measurable and can we measure it? This means that the objective can be measured and the data source is identified.
- **Achievable.** Can we get it done in the proposed timeframe/in this political climate/ for this amount of money?
- **Relevant**. Will this objective lead to the desired results? This means that the outcome or results of the section directly supports the goals of the section and the division.
- **Time Bound**. When will we accomplish this objective?

For example, one of the possible goals of the Fleet and Facilities Division cited previously is that "the Division shall provide for the lowest life-cycle costs, and improve the safety and reliability of City fleet and facilities by using effective predictive and preventive maintenance systems." Possible objectives that would support this goal are presented below.

- The Facilities Management Division will develop a comprehensive preventive maintenance program for the City's fleet of vehicles and building equipment by June 30, 2017. For facilities, this will include a preventive maintenance program for roofs; electrical systems and equipment; plumbing systems and equipment; and heating, ventilating, and air conditioning systems and equipment. For the fleet of vehicles and equipment, this will include a preventive maintenance program for hydraulic, electrical and cooling systems. The preventive maintenance program will include preventive maintenance guidelines that document what is to be preventively maintained, the frequency of preventive maintenance for fleet and facilities, the preventive maintenance task descriptions, and checklists to be used by Division employees in performing the preventive maintenance.

- Beginning on June 30, 2017, the Fleet and Facilities Division will develop a weekly schedule utilizing *Cartegraph,* or its replacement, to assure all fleet and facilities requiring preventive maintenance in a particular week receive that preventive maintenance on a timely basis. The component sections of the Division shall develop and assign a preventive maintenance work order and preventive maintenance checklist to the appropriate staff in the sections utilizing the computerized maintenance management system. The sections will not close a work order without its completion.

- Beginning on June 30, 2017, the Fleet and Facilities Division will utilize *the* computerized maintenance management system to monitor the weekly schedule to make sure preventive maintenance and service requires are completed as scheduled. A total of 95% of the scheduled preventive maintenance will occur within five days of the scheduled due date. If vehicles and building components do not receive preventive maintenance as scheduled, the sections will follow-up with the appropriate staff to effect corrective action and the preventive maintenance of the fleet or building asset.

- By June 30, 2017, the Fleet and Facilities Division will allocate not less than 30% of its staff's available work hours to preventive maintenance and to predictive testing.

- By June 30, 2017, 95% of the preventive maintenance work will be within the labor hour guidelines established by the sections. For example, preventive maintenance of a transfer switch that transfers incoming power from one source to another shall be done on a quarterly basis and shall require 15 minutes per transfer switch.

The management and lead staff of the Fleet and Facilities Division should develop these objectives for each of the goals ultimately developed and adopted by the Fleet Management and Facilities Management sections.

Recommendation 6: The Fleet and Facilities Division should develop objectives for each of the goals ultimately developed and adopted by the Fleet Management and Facilities Management sections.

(5) The Fleet and Facilities Division Should Enhance Its Performance Measures.

For most of the sections-related activities, it is preferable to manage and guide change or improve performance through well considered performance measures that measure progress toward a desired result. Fleet and Facilities Division managers and lead staff must know what goals and objectives are expected of them, where their work contributes to the overall goal, how well the work is progressing, and what will happen if results are not occurring as they should.

The Fleet and Facilities Division should develop a broader array of performance measures, an example of which is presented in the following table.

	Input Indicators	Workload Indicator	Efficiency Indicator	Effectiveness Indicator
Indicator Definition	Amount of resources used to produce an output or outcome	Units of service or product provided	Indicate how well a program or service is using its resources or inputs, typically expressed as a ratio between input and output	Indicate how well the service provided achieves its intended purpose, typically assessed by internal customers or the public, or other objective measure
Indicator Example	Annual cost of preventive maintenance	Number of vehicles and pieces of equipment serviced	Cost per vehicle, or cost per vehicle equivalent unit	Trends in the incidence of emergency or unscheduled repairs Trends in the economic lives of vehicles and equipment Trends in the salvage value of vehicles and equipment

As the table indicates, an array of performance measures is presented for inputs, outputs, efficiency, and effectiveness. The successful and complete deployment of *the* computerized maintenance management system selected by the Division should facilitate the transition to this broader array of performance measures.

While there is no specific formula or criteria for selecting performance measures, there are some characteristics typical of good measures in which they:

- Reflect results, not the activities used to produce results;
- Relate directly to a goal and its supporting objectives;
- Are based on measurable data and are measurable;
- Are practical and easily understood;
- Provide a basis for continual self-assessment;
- Provide a benefit that exceeds the cost of data collection; and
- Have “owners” of that performance measure.

Possible performance measures to assess compliance with the goal cited previously - that the “the Facilities Management Sections shall provide for the lowest life-cycle costs, and improve the safety and reliability of facilities and building equipment by using effective preventive maintenance systems and reliability-centered management techniques” - are provided below.

	Input Indicators	Workload Indicator	Efficiency Indicator	Effectiveness Indicator
Indicator / Performance Measure	Amount of labor allocated to preventive maintenance	Number of preventive maintenance work orders	Preventive maintenance expenditures per preventive maintenance work order	% of all work orders that are preventive maintenance work orders
			Preventive maintenance expenditures per maintainable square foot of City facilities	% of scheduled preventive maintenance that occurred within 5 days of the scheduled due date
			% of preventive maintenance work orders completed within the labor hour guidelines established by the Section	% of available work hours allocated by the Sections to preventive maintenance and predictive testing and inspection.

The Division should establish a few performance measures for each goal and that goal's supporting objectives – in the range of three to five measures for each goal – that will readily identify how well the component sections are accomplishing each goal.

Recommendation 7: The Fleet and Facilities Division should develop a full array of performance measures for each of its objectives including inputs, outputs, efficiency, and effectiveness.

(6) The Fleet and Facilities Division Should Report Its Accomplishments to Its Customers On a Quarterly Basis Using a Scorecard.

A scorecard is simply a set of performance measures, grouped according to various aspects of performance.

In developing a set of measures, however, a question arises regarding what aspects of performance really belong on the scorecard. The scorecard should account for two kinds of success for the Division - operational success in current work (the maintenance and repair of City vehicles and facilities) and strategic success in

preparing for the future (e.g., training its staff, energy conservation and sustainability, etc.). The important elements of developing a scorecard include the following:

- **Scorecards drive better performance**. The evidence is clear that feedback enhances performance - at all levels and across all organizational units. When employees throughout the City know how the Fleet and Facilities Division is performing and what needs improving, the performance of the Division will improve. A common comment in the project team's interviews with customer departments was that they were unclear as to how rates were developed, how they were charged, or whether they received relative value for the charges they are assessed. A scorecard containing the important measures will address these concerns, and will also improve the Division's own performance.

- **Scorecards implement strategy**. Scorecards translate the strategy of the Fleet and Facilities Division (e.g., energy and fuel conservation) into concrete terms and help it track its implementation.

- **Scorecards help ensure that the Fleet and Facilities Division has the right measures**. Performance measures implemented without a well-considered model in mind seldom bring new focus on desired actions. In building a scorecard with a vital few measures, the sections of the Division would develop a focused performance measurement structure that helps its staff know what should be measured, what belongs, and what does not belong.

- **Scorecards encourage balanced performance**. Effectively maintaining the City's fleet and facility assets is crucial, but so is implementing the strategic initiatives that prepare the Division for the future. The proper scorecard design keeps the right balance of operational and strategic factors. The measures ensure that the sections focus actions with long-term results.

- **Scorecards point out what's missing**. Because a scorecard is designed to offer a comprehensive view of how the sections within the Division are doing and where it's going, the scorecard will help the Sections see if any key factors are missing - the gaps stand out.

- **Scorecards encourage good management**. As noted earlier, scorecards make it possible to readily monitor the vital few measures. As a result, reviews of performance are more regular and more thorough. When performance issues stand out on a scorecard, it's possible for managers and supervisors to "drill down" to layers of data that provide further details. Scorecards encourage thorough monitoring and timely corrective actions.

- **Scorecards communicate**. Customers of the Facilities Management Section will take a keen interest in the performance of the Sections. Strong scorecards help

the Sections tell the full story of their performance, to present a picture of their performance that is undistorted by focus on an individual issue.

The Fleet and Facilities Division should prepare a performance measurement scorecard, and use the results to communicate its performance to its customers. The groups of performance measures should include cost, customer satisfaction, service delivery, sustainability, capital project management, work management, and learning. Possible scorecard measures that could be utilized by the Fleet and Facilities Division are presented below.

- Percent of facility management capital projects completed on schedule;
- Percent of facility management capital projects completed according to the project budget;
- Percent of service requests received from customers completed on time and within the scheduled commitment made to the customer;
- Average response time to corrective work orders received from customers (in workdays);
- Percent of preventive maintenance work orders completed during the previous month that were scheduled to be completed during that month;
- Percent of scheduled and preventive maintenance work orders versus reactive, or unscheduled, work orders and service requests;
- Percent of available work hours charged to work orders in the computerized maintenance management system (e.g., total hours charged to work orders versus total hours recorded in payroll);
- Facilities Management cost per square foot;
- Fleet Management cost per vehicle equivalent unit;
- Electrical (kWH) demand per square foot;
- Gas therms per square foot;
- Customer satisfaction (using an electronic survey link attached to each completed work order to elicit customer satisfaction); and

- Number of training hours per Fleet and Facilities Division employee.

Scorecards are extensively used to assess performance. The scorecards are designed to translate the mission and strategy of the Fleet and Facilities Division into a comprehensive set of performance measures that provide the basis for strategic measurement and management for facilities management.

Recommendation 8: The Fleet and Facilities Division should develop a performance measurement scorecard.

Recommendation 9: The results of the performance measurement scorecard should be reported to the managers and supervisors of the City on a quarterly basis.

3. THE FLEET AND FACILITIES DIVISION SHOULD DEVELOP A MANAGEMENT REPORTING SYSTEM.

Although the Fleet and Facilities Division has utilized the *Cartegraph* computerized maintenance management system for several years, it has not yet developed a robust, comprehensive Division-wide reporting system. The sections of the Fleet and Facilities Division should develop quarterly performance reports. *Cartegraph,* or its replacement, should be utilized for a number of purposes as noted below.

- **Use it for resource allocation decisions**. There are important linkages among resource allocation, management planning, and performance measurement. An effective management planning process using the Division's computerized maintenance management system is directly related to, and drives the process for, allocating resources to carry out goals and objectives.

- **Use it in employee evaluations**. The Division should develop a means of linking accountability performance evaluations. The managers and lead workers in the Fleet and Facilities Division should be held accountable for the performance of their sections, including factoring performance measurement results into their evaluations. Most best-in-class organizations link performance measures in some way to the performance evaluation.

- **Use it to determine gaps between objectives and reality**. Performance measurement results can be used to determine gaps between specific objectives

and actual achievement. The root causes of these gaps are analyzed, and measures developed and implemented. Whenever there is a gap between current results and an organization's objectives, it is an opportunity for process improvement.

- **Use it to drive reengineering**. The performance measurement data should be used for reengineering in response to the identification of gaps between objectives and achievement. This could include cycle time for closing work orders or service requests, organizational structure, building automation systems, programs, and benefits.

- **Use it in benchmarking**. Performance measurement data should be utilized for benchmarking as a methodology for organizational improvement.

- **Use it to adjust objectives**. In most cases, if objectives are not met, corrective action is warranted Conversely, if objectives are exceeded, the "bar" is reset to establish stretch goals.

- **Use it to improve measures**. The Division should display performance measurements on bar charts and use raw data in its first year of implementation.

Examples of the types of data that the Sections should report on a quarterly basis are presented in the exhibit on the following page.

The Division should develop and deploy an effective management reporting systems using its computerized maintenance management system to enhance the performance of the Fleet Management, Facilities Management and Stores sections.

Recommendation 10: The Fleet and Facilities Division should develop and distribute management reports using* Cartegraph*.

4. THE FLEET AND FACILITIES DIVISION SHOULD ENHANCE THE EXTENT OF ITS COMPREHENSIVE, WRITTEN POLICIES AND PROCEDURES.

The *American Public Works Association's Public Works Management Practices Manual* is a tool that public works-related departments can use to develop or improve existing practices, enhance performance, increase productivity. Management Practice

1.4 states "the organizations policies, procedures and practices are periodically reviewed and / or updated to reflect actual practices."[5]

The Facilities Management Sections have developed some policies and procedures such as Building Safety Management, work requests from Facilities Management, Municipal Services Center, City Vehicle and Equipment Security.

However, the Sections should develop more extensive policies and procedures to guide its managers and leadworkers and assure uniformity in the critical processes.

Types of Data That the Facilities Management Section Should Report on a Quarterly Basis

Input Indicators	Workload Indicator	Efficiency Indicator	Effectiveness Indicator
Annual cost of custodial contract	Number of work orders opened by trade	Cost per gross square foot of office space cleaned compared to Building Owners and Managers Association International, and the International Facility Management Association	Cleanliness rating of buildings by Section's contract manager % of customers rating Section services as satisfactory or better
			Facilities Operating CRV Index (annual facility operating and maintenance expenditures / current replacement value
Average building trade staff hours per completed work order	Number of work orders completed by trade, by priority, and by type of work order (e.g., corrective, preventive, etc.)	Cost per gross square foot of office space maintained compared to Building Owners and Managers Association International, and the International Facility Management Association	Preventive maintenance – actual versus scheduled by trade and by type of equipment
			Scheduled versus unscheduled work order ratio
Amount of overtime hours	Number of gross square feet maintained of office space	Number of gross square feet of office space per building trades position and by type of trade	Deferred maintenance backlog ($)

[5] American Public Works Association, Management Practices Manual, 8th Edition.

Input Indicators	Workload Indicator	Efficiency Indicator	Effectiveness Indicator
Current Replacement Value of Facilities	Response time to work order requests received from building occupants	Utility cost per gross square foot by type of utility and utility kWh, BTU, etc. per gross square foot	% of routine work orders requests received from building occupants responded to within one week
	Number of backlogged work orders	% of available work hours building trades charged to work orders	Proportion of preventive maintenance work orders versus corrective / discretionary work orders

In developing policies and procedures, the following approach should be utilized.

- Minimize. The policies and procedures should be kept to a minimum.
- Best Methods. Make certain the procedure represents the "best method". This means the procedure has been analyzed and is continually challenged.
- Keep Current. The problem with many policies and procedures is that they have long ago outlived their usefulness. No one remembers why the policies and procedures were created in the first place. Sometimes they contradict each other and create even more confusion. Responsibility for updating these policies and procedures should be clear.
- Be ready to change. The key to organizational effectiveness and efficiency is finding a better way. The Sections must always be ready to challenge current policy - throw it out – change it.
- The policies should be available on the Sections intranet site. This should facilitate easy updating.

The Sections should strive to achieve the best practices presented below in developing the policies and procedures manual.

Best Practices for a Policy and Procedures Manual
• Develop written policies and procedures to guide managers and leadworkers.
• Establish a committee to develop, update, and evaluate its policies.
• Annually recommends changes to the Sections policies and procedures needed to reflect changes in Section practices.
• Periodically (once every four or five years) evaluate and recommend changes to the Sections policies to ensure that they are complete and relevant.

• The Sections managers review, change (if necessary), and adopt the committee's recommended changes to the policies.
• Develop procedures dealing with administrative matters.
• The policies and procedures are readily accessible to all of the Sections staff, and staff use them to guide their activities.

Examples of possible policies and procedures that should be developed are presented in the exhibit on the following page.

Recommendation 11: The Fleet and Facilities Division should enhance the extent of written policies and procedures manual for the separate sections.

Possible Policies and Procedures for the Fleet and Facilities Division

Category of Policy and Procedure	Policy	Recommendations and Key Procedural Elements
Introduction	Purpose of the Manual	Contains the purpose and organization of the manual, and the process for updating the manual
Administration	Administrative Responsibilities	Should include 1. Authority, 2. Organization, 3. Boundaries
	Service Level Agreements in a centralized environment	Should include 1. Performance measures, 2. Section and operating department responsibilities.
	Reports	Should include 1. Report delivery and frequency
Maintenance and Repair	Maintenance and Repair Work Control	Should include how maintenance is conducted – the work order and service request process and the methodology for the processing and managing of related work and staff resources
	Types of Maintenance and priorities of response	Should include the types of maintenance such as preventive maintenance, unplanned or reactive maintenance, emergency maintenance, and the priorities of the different types of maintenance.
	Safety Inspections	Should define responsibility for facility and/or fleet inspection program to identify life safety code deficiencies and correction of noted deficiencies.
	Building Systems and Collateral Equipment	Should define the responsibilities by type of building system (e.g., electrical, plumbing, HVAC, etc.) for the maintenance and inspection of the system, as well as the various types of automotive systems (e.g., suspension, hydraulics, cooling, etc.)
	Preventive Maintenance	Should include 1. The responsibilities for the development of preventive maintenance schedules, 2. How *Cartegraph* is to be utilized to develop work orders and report preventive maintenance,

Category of Policy and Procedure	Policy	Recommendations and Key Procedural Elements
	Repair	Should include 1. Procedures for having fleet and facility equipment repaired and 2. How *Cartegraph* is to be utilized to develop work orders and report repairs
	Outside or Commercial Repair	Should include 1. Criteria for repair 2. Outsourcing relevance
	Utility Interruptions	Ensure that any known interruption is scheduled and coordinated with upper level management prior to the required interruption.
	Breakdowns	Should include procedures for who to contact to request repairs of breakdowns, the initial evaluation, and how to respond to emergencies
	Cartegraph	Should include the procedures for reporting work accomplishments in *Cartegraph*
Parts and Inventory Management	Parts	Should include 1. Ordering, 2 Use of contracts / non-contracts, 3. Purchasing cards 4. Approvals.
	Receiving	Should include 1. Identified space 2. Hours for acceptance 3. Security 4. Computer-entry into *Cartegraph*
	Issuing	Should include 1. Approval(s) 2. Computer entry 3.
	Inventory Control	Should include 1. Inventory frequency and method 2. Minimums and maximums 3. Reports
Service Contracts	City policy on procurement of service contracts	Should include a summary of City policies and procedures regarding service contracts and procurement of service contracts
	Obtaining Service Contracts	Should include: 1. Identifying potential service contractors and 2. Obtaining bids and selecting a contractor
	Writing Specifications	Should include 1. Documenting service requirements using a performance-based approach; 2. certification and safety requirements; and contract protocols and considerations.
	Managing service contracts	Should include 1. Communication, 2. documentation of performance and review with the service contractor, and 3. spot checks / verification.
Capital Project Management	Design and construction policy	Should include the City's procurement rules governing and controlling facility design and construction practices
	Project delivery methods	Should include the methodology to be used in managing capital projects
Sustainable Operations and Management	Energy Conservation Guidelines	Should include 1. Operational guidelines to manage energy usage in City buildings (e.g., temperatures); 2. Energy reporting; and 3. alternate sources of energy (e.g., solar).

5. IT IS IMPORTANT TO FULLY USE THE CARTEGRAPH COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM (CMMS) TO IMPROVE FLEET AND FACILITIES MAINTENANCE EFFICIENCY, EFFECTIVENESS AND ACCOUNTABILITY.

Presently neither the Fleet Maintenance or Facilities Management section uses most Cartegraph CMMS features for a variety of reasons to include perceived lack of robustness, lack of user-friendly interfaces, lack of training, lack of a dedicated "power user" and other reasons. Despite Cartegraph's alleged shortcomings, our project team was able to make specific data requests of City staff to obtain much of the information from Cartegraph to complete this report. Because the Cartegraph CMMS is workable, its hurdles are issues that must be overcome to ensure a robust fleet and facilities maintenance organization that operates consistently with best practice.

(1) The Full Implementation and Usage of the Cartegraph Computerized Maintenance Management System Should Represent a "Vital Few" City Organizational Goal.

The U.S. Department of Energy in its *Operations and Maintenance Best Practices Guide* simply defines a Computerized Maintenance Management System as "a type of management software that performs functions in support of management and tracking of operations and maintenance (O&M activities)." The CMMS is fundamentally designed to achieve a variety of specific benefits. Numerous national and international professional entities such as the Plant Maintenance Resource Center, Maintenance World e-Resource site, the National Institute of Building Sciences, the Technology Evaluation Centers and the aforementioned USDOE indicate several critical benefits of a well-implemented CMMS to include, but not be limited to, the following illustrative statements:

- Computerized Maintenance Management Systems (CMMS) enable the fleet or facility manager, subordinates and customers to track the status of maintenance work on their assets and the associated costs of that work. CMMSs are utilized by facilities maintenance organizations to record, manage and communicate their day-to-day operations. The system can provide reports to use in managing the organization's resources, preparing facilities key performance indicators (KPIs)/metrics to use in evaluating the effectiveness of the current operations and for making organizational and personnel decisions. In today's maintenance world the CMMS is an *essential tool* (emphasis added) for the modern facilities maintenance organization[6].

- One of the greatest benefits of the CMMS is the elimination of paperwork and manual tracking activities, thus enabling the staff to become more productive. It should be noted that the functionality of a CMMS lies in its ability to collect and store information in an easily retrievable format. A CMMS does not make decisions; rather it provides O&M managers with the best information to affect the *operational efficiency* of a facility[7]. And although the references in the USDOE manual specifically address facilities, its applicability extends to fleet maintenance operations as well.

- A CMMS is an excellent business opportunity whose implementation can significantly improve operations, reduce equipment downtime, increase accountability of the maintenance functions, and produce substantial financial savings. The old ways of managing the maintenance function do not work anymore. The use of everything from index cards, pegboards, and white boards is cumbersome, ineffective, and unreliable. What's more, these low-tech tools were used inconsistently and irregularly, further reducing whatever minimal benefits they may have been expected to achieve. A CMMS is not only a much better solution, it is a more practical and realistic one[8].

- Computerized Maintenance Management Systems (CMMS) are often purchased on a wave of high expectations regarding the benefits they will deliver. These benefits include: *improved employee productivity*, giving reduced direct labor costs; *increased Equipment Availability*, due to better planning*; increased Equipment Reliability* through the identification of repetitive faults; *improved Stock control*, giving reduced inventory levels and fewer stock-outs; improved *long-term reduction in Maintenance* costs; and *improved Safety* by providing detailed Standard job procedures[9].

As suggested above, there is near-universal sentiment regarding the vast numbers of benefits associated with an effectively implemented CMMS. These benefits

[6] http://www.wbdg.org
[7] USDOE O&M Best Practices Guide, page 4.2
[8] Technology Evaluation Centers, Computerized Maintenance Management Systems: Benefits and Interfaces http://www.technologyevaluation.com
[9] http://www.plant-maintenance.com

are achieved through the proper use of a Computerized Maintenance Management System's features and functionality which usually include the majority of capabilities noted as follows:

- Preventive, corrective and rehabilitative work order generation, prioritization, and tracking by equipment/component.
- Historical tracking of all work orders generated which become sortable by equipment, date, person responding, etc.
- Tracking of scheduled and unscheduled maintenance activities.
- Calendar- or run-time-based preventive maintenance work order generation.
- Real-time reports of ongoing work activity.
- Capital and labor cost tracking by component as well as shortest, median, and longest times to close a work order by component.
- Complete parts and materials inventory control with automated reorder capability.
- Storing of maintenance procedures as well as all warranty information by component.
- Storing of all technical documentation or procedures by component.
- PDA interface to streamline input and work order generation.

A CMMS with the noted feature sets are an indispensable aid to the efficient management of maintenance services. These systems enable maintenance organizations to not only mange individual pieces of work but also plan and schedule prevention and major maintenance efforts. An optimum system enables managers to collect comprehensive information about the activities of maintenance crews and identify ways in which work can be more efficiently managed. With advances in information technology over the last fifteen years, analytical procedures that would have required weeks or months to perform in the past can now be performed in a matter of

minutes or hours with a comprehensive and well-utilized CMMS. Key pieces of information can be instantly compiled, sorted, and summarized or reviewed in a variety of formats, giving managers insights into operational strengths and weaknesses. Real-time access to repair histories, work order labor time, staff productivity and perpetual inventory records afforded by a CMMS makes it possible to manage in-house maintenance operations and provide services in ways that were literally impossible in the past. The use of such a system also is essential to support the use of charge-back systems and to identify potential staffing and other resource needs.

In the project team's experience, organizations often expend so much effort on installation of information technology systems such as a CMMS that they do not realize that the value of the system lies in its proper use, not merely in its installation and operation. A robust CMMS will enable managers to answer such business process questions as the following:

- **Are maintenance procedures working?** The management of the organization should be able to look at total employee hours, grouped by work type or class and compare the amount of work performed to the amount of work scheduled.

- **Are maintenance activities adequate?** The management of the organization should be able to look at the number of scheduled work orders grouped by work type or fleet or facility asset and compare the amount of work that was scheduled to be performed based on pre-determined service levels to the amount of work actually performed. This information can then be linked to the results of inspection reports.

- **Where are my problems and where should limited resources focus?** The management of the organization should be able to look at the total cost for work type or class and sort the work requests by asset, and by location. This will identify by asset where all the time and associated costs are being accumulated. This is typically referred to as the "Top 10" list or "Bad Actors" report. By example, such information can be used to justify installation of a new part or system as opposed to re-investing efforts in continued corrective maintenance.

- **Where are maintenance staff focusing their efforts?** The management of the organization should be able to look at the total employee hours grouped by work type or class. Depending on the established work types, this will identify the type of work that the maintenance organization, in conjunction with its contractors, is accomplishing. This is critical to ensure true maintenance work is being accomplished in support of production goals and targets.

- **What is the profile of our work backlog?** The management of the organization should be able to look at the backlog of all requested work assuring that there are no less than two weeks and no more than four weeks of lower priority backlog.

- **How efficient is our maintenance staff?** The management of the organization should be able to review the labor hours per employee and per work order and compare these to developed benchmarks (e.g. wrench time per employee). These efficiency and effectiveness measures can be used to justify existing and future desired staffing levels.

- **How much money are we spending on maintenance services?** This includes parts, material and supply costs, contractor costs, and maintenance labor costs. The management of the organization should be able to look at the material cost, contractor cost, and labor cost grouped by work type.

Suggestions for CMMS report types that can be produced based on the foregoing questions include:

- A quarterly vehicle downtime report broken out by vehicle class would provide the Division with a view of the percentage of time that each vehicle class, or facility equipment assets, is inoperable rather than available for work. The Fleet and Facilities Division can use this report to identify facility assets, vehicles or vehicle classes that have too much downtime or are off-line for extended periods of time. The Division may also identify where repairs for a critical asset type should be prioritized in order to complete them more quickly and reduce downtime.

- A quarterly energy consumption report by building. This would allow the comparison of the City's buildings' energy consumption on a square footage, or cubic foot basis in order to identify potential areas of inefficiency.

- A monthly mechanic productivity report would allow the Division to view the PM and repairs conducted by each vehicle or facilities mechanic. By assessing the time required for preventive maintenance, repairs on various facility asset and vehicle types, and various types of repairs, the Division may be able to identify areas in which mechanics are high-performing and where they could benefit from additional training. A report of this type, while helpful, should only serve as one

part a larger mechanism for evaluating maintenance mechanic performance and establishing incentives.

- A quarterly re-work report (comeback repairs) would allow the Division to view the number of instances of repeating a repair within two weeks (or a period established by the Division). These instances could be aggregated and broken out by asset type, employee, or repair type in order to help identify areas in which there are opportunities for improvement.

In summary, it is clear that a well implemented and properly utilized Computerized Maintenance Management System will result in several important organizational benefits that will facilitate and contribute to improved organizational business processes and enhanced management decision-making. Because of this, the project team believes the information provided in this section of the report fully exemplifies why the effective implementation of a Cartegraph CMMS should represent a "vital few" City goal.

(2) Ensure Cartegraph CMMS Information is Used for Decision-making.

Beyond the optimal implementation of any CMMS database resides the more fundamental purpose of maintaining accurate information: the ability to report upon and use this information in an on-going consistent fashion to effectively manage the maintenance program. Currently Ogden City's Fleet and Facilities Division is not using the Cartegraph CMMS to facilitate important decision-making. It is mostly a repository of information rather than an effective tool. Indeed, fleet preventive maintenance is still tracked on card-stock which is obviously not particularly successful in facilitating a best-practices preventive maintenance program.

According to the Plant Maintenance Resource Center, the following excerpt reflects a critical philosophy surrounding managed maintenance using a Computerized Maintenance Management System.

> *A recurring lesson in history is that obsolete tools in the hands of a master invariably produce better results than the latest technology in the hands of an amateur. So for managers seriously seeking improved maintenance management, the first step is for the entire organization to learn how to use the tools. Remember that there are no bad CMMS, just bad implementations or incomplete use. One commonly misapplied term in the CMMS world is implementation. What software vendors normally provide as implementation services are in reality only installation and configuration assistance. True implementation requires (the definition, review and implementation of) all workflow processes, data-recording requirements, management reports and performance metrics.*

In summary the CMMS should be implemented and designed in such a way as to consistently report upon a variety of maintenance-related information that reflects the operational efficiency and effectiveness of the Division, thereby allowing staff, supervisors and managers to make the most informed maintenance management decisions. For a Computerized Maintenance Management System to be used in the most efficient and effective manner, the implementation of a CMMS must be viewed as an endeavor well beyond a software project. Proper use of a CMMS requires Division and, in fact, City-wide, buy-in and leadership to ensure the concept of managed maintenance is embedded in the organizational culture. The successful and full implementation of a Computerized Maintenance Management System should be perceived as a cornerstone to the Fleet and Facilities Division's realization of a best practices maintenance management program.

Recommendation 12: The effective, consistent and comprehensive implementation and use of the Cartegraph CMMS should represent a "vital few" Division goal. As such, ensure Cartegraph is fully updated and effectively implemented for use as a maintenance management tool.

Recommendation 13: Consistent with ISO best practice philosophies, develop a division-wide Standard Operating Practice (SOP) Manual to describe the overall proper use of the Cartegraph CMMS as a data repository and management information system. Distribute this SOP to all division staff.

Recommendation 14: Further train the Senior Project Manager, Fleet Supervisor, Lead Worker in Facilities Management, and Senior Office Assistants on the use of Cartegraph as repository of information to make decisions.

Recommendation 15: The Division should begin utilizing Cartegraph to produce regular reports on fleet and facilities maintenance performance and efficiency in order to identify areas of high performance and improvement opportunities.

Recommendation 16: Identify a Divisional Cartegraph "power user" to create and run reports for fleet and facilities management decision-making.

6. THE DIVISION SHOULD CONSOLIDATE CLERICAL DUTIES, AND REDUCE THE NUMBER OF CLERICAL STAFF.

The Fleet and Facilities Division is staffed with 3.5 clerical staff members who support 14 operational and administrative employees. This equates to a ratio of one clerical staff member to four operational and administrative employee. The clerical, administrative and operational positions are provided in the following table.

Clerical Positions	Administrative Positions	Operational Positions
Office Supervisor	Division Manager	Fleet Supervisor
Sr. Office Assistant (2)	Sr. Project Coordinator	Lead Mechanic
Office Clerk (0.5)		Mechanic (4)
		Building Maintenance Technician (3)
		Stores Clerk (3)

The project team makes a recommendation later in this report to add two (2) Maintenance Technicians in the Facilities Management section and with these additions, the ratio of clerical support to operational and administrative positions becomes one 1:4.6.

There is no standard, optimal ratio of clerical support staff to the staff that they support. This is due to a variety of factors, including the degree of automation in an organization, the diversity of tasks performed, the size of the organization, the number of external agencies with which the staff must interact, as well as others. With this qualification, however, the large majority of public works-related organizations with

which the project team has experience exhibit ratios that fall within the range of 1:12 to 1:25. The Fleet and Facilities Division's ratio of 1:4.6 is well below even the lower end of this range, indicating that there is an excessive number of clerical staff.

The Division's clerical staff have access to the Cartegraph CMMS, as well as other automated systems for procurement, financial reporting, payroll input, and other functions, thereby reducing the requirement for more labor-intensive efforts required by more manually-oriented processes. Further, the Division provides a relatively limited number of functions, as compared to, for example, a full service public works department that may perform not only fleet and facilities maintenance, but others such as street maintenance, solid waste, engineering, parks maintenance, water and wastewater treatment, and others. These factors also limit the need for greater numbers of clerical staff in the Fleet and Facilities Division.

In analyzing the job duties of the 3.5 clerical staff, the two Senior Office Assistants are individually assigned to the separate Fleet and Facilities sections of the Division. The varied duties of these positions relate specifically to their respective sections, and include such duties as maintaining asset files, setting up appointments for maintenance, reviewing vehicle usage reports, processing of monthly bills and answering questions relating to these bills, and other related activities. The duties of the Office Supervisor are more varied, with duties relating to payroll input, researching billing issues, processing fuel input errors, obtaining outside contractors to maintain office machinery, posting of employment opportunities, training new clerical staff, answering phones, etc. The position of Office Supervisor also facilitates demolitions of

properties in cooperation with the Code Enforcement department of the City, and has nominal responsibility for supervising the staff in the Warehouse.

The duties of the Office Supervisor are only nominally "supervisory", as there is little supervision necessary over the Stores Clerks, who operate autonomously in the determination of parts required, tracking of inventory and disbursing requested parts and supplies. The primary duty of the Office Supervisor in the warehouse is to make adjustments to inventories as cyclical inventory counts are made by the Stores Clerks.

The project team recommends a reduction in the number of clerical staff in the Division from the current 3.5 to 2.5. Although this level of clerical staffing yields a ratio of one (1) clerical staff member to 5.6 operational and administrative positions, this ratio does increase to one (1) per 6.4 with the recommended addition of two Maintenance Technicians, which is addressed in the next chapter of the report. And although the ratio of 1 : 6.4 is still below the range of one per 12 to 25, it is also true that the Division's staffing level of only 14 to 16 operational and administrative staff members is relatively small, and there are minimal levels of clerical and administrative tasks necessary for any organization regardless of size. The project team recommends that the Division eliminate the position of Office Supervisor, distributing the position's clerical duties to the two Senior Office Assistants. Further, the position's duties relating to coordination of demolition of structures in the City be transferred to the Code Enforcement Department of the City.

Recommendation 17: The Division should eliminate the position of Office Supervisor, and distribute the position's duties to the two Senior Office Assistants in the Division. The elimination of the position results in a cost saving of $64,098, including direct salary (at the midpoint of the salary range), plus 40% for fringe benefits.

3. ANALYSIS OF FACILITIES MANAGEMENT

This chapter of the report analyzes the Facilities Management section of the Fleet and Facilities Division. The section is responsible for the maintenance and repair of all City-owned buildings and parking structures. It is currently staffed with a contingent of three Maintenance Technicians, and one Senior Office Assistant assigned to the section.

1. THE FACILITIES MANAGEMENT SECTION IS FAILING TO PERFORM ROUTINE PREVENTIVE MAINTENANCE ON THE CITY'S BUILDINGS.

Interviews with Facilities Management staff indicate that little preventive maintenance (PM) is performed by internal staff on the City's facilities. This is validated through an analysis of work performed by staff over the period from July, 2015 through mid-June, 2016, which indicates that of the 5,849.5 total hours charged by the five Maintenance Technicians employed over that period, only 22 hours were expended for preventive maintenance work.

The Division does contract for all HVAC preventive maintenance, and has expended an average of approximately $73,217 for this service on an annual basis since 2010. Given that the Section's operating budget for FY 2016 is $1,457,000 the expenditure for PM represents only about 5% of the total. This relatively low expenditure is likely due to both the lack of time by staff to perform PM, and the fact that the Section is only contracting for HVAC preventive maintenance.

Many building industry and facilities management groups, including the American Public Works Association, the Building Owners and Managers Association (BOMA) International, the Association of Physical Plant Administrators (now named the

Association of Higher Education Facilities Officers), and the Association of School Business Officers agree on the benefits of well-planned preventive maintenance. These professional associations cite preventive maintenance for its effects on improving equipment's operating efficiency, preventing premature replacement of components, and avoiding interruptions for building occupants. Preventive maintenance is widely thought to reduce long-term costs by maximizing the operating capacities of equipment, minimizing downtime, and avoiding breakdowns that would otherwise lead to higher repair costs later. Studies within individual companies show savings in energy costs and repair costs, as well as reductions in equipment breakdowns, due to preventive maintenance. Some studies have shown that the investment of time and financial resources into preventive maintenance returns $2 in savings for every $1 invested.[10]

The Facilities Management section of the Division should enhance its preventive maintenance program for non-HVAC machinery and components. The Division should develop and implement a comprehensive preventive maintenance program, and enter these elements into the Cartegraph computerized maintenance management system along with the elements of maintenance, and the frequencies with which the maintenance should occur. The elements of this preventive maintenance program are presented below.

- **Establish levels of service necessary to preventively maintain the facilities**. In establishing levels of service, the Facilities Management section should document what maintenance activities are needed to ensure that a particular system or component meets or exceeds its life expectancy. Manufacturer's literature and the experience of Facilities Management staff are some ways to determine both acceptable life-cycles and what preventive maintenance work would result in achieving those life expectancies in the most efficient manner.

- **Prepare an annual work program for preventive maintenance of buildings**

[10] "From Preventive to Proactive", Public Works Magazine, November, 2007.

and building components. Once the levels of service have been established, setting the tasks into a work plan is the next step. The list of tasks to be performed should be described in detail, and the frequency and nature of the work should be clearly stated. The supplies and materials to be used are specified in considerable depth and the manner in which the work is to be accomplished should be expressed in simple language.

- **Develop a formal work planning and scheduling system for preventive maintenance of buildings and building components.** The core of any preventive maintenance program is in the scheduling and assignment of specific preventive maintenance tasks. This is almost always done using a work order system, and in fact, all work performed in the Facilities Management section is currently distributed and reported in this manner. This element of the preventive maintenance program takes the work items developed for each facility component, such as the quarterly inspection of a rooftop HVAC unit, and assigns them to Maintenance Technicians according to the established structure and schedule.

- **Report actual versus planned results of preventive maintenance.** Effective preventive maintenance programs depend on feedback from Maintenance Technicians using the work orders and a reporting and tracking system of costs associated with the work order. This information is used to maintain the proper balance between preventive maintenance and renewal and replacement efforts.

- **Establish a reporting system.** Through a combination of informal evaluations and formal audits, a reporting system could be established to analyze the Facilities Management section's maintenance system to ensure cost-effective maintenance.

Although there will be some initial costs and time consumed in setting up the preventive maintenance program, the benefits will be apparent within 18 to 24 months. As was noted above, for every dollar expended in preventive maintenance, the City may see two dollars of costs avoided. Best practices in building maintenance suggest that 30% of all time expended by staff should be in preventive maintenance activities.[11] As the next section will discuss, the Facilities Management section is not adequately staffed to enable it to institute a comprehensive PM program, however the addition of staff will, in the longer term, avoid the costs associated with a high number of

[11] CFM&D Magazine, "How to Start a Preventive Maintenance Program," June 27, 2014.

unscheduled and emergency repairs.

The Facilities Management section should, of course, develop a comprehensive set of PM tasks, along with associated steps in completing them. These should be products of both manufacturer's recommendations as well as the section's own experience. However, the following table lists some common preventive maintenance tasks, with suggested frequencies of accomplishment.

Description	Frequency
Chiller Check	Daily/Weekly
Cooling Tower Maintenance	Quarterly
Lamp/Lighting Check	Weekly
Restroom Inspection	Weekly
Roof Inspection	Semi-Annual
Fan Coil and HVAC Unit Routine Maintenance	Quarterly
Exit/Emergency Light Inspection	Weekly
Fire Station Mechanical Equipment Maintenance	Quarterly
Mechanical Equipment Maintenance – Other Buildings	Semi-Annual
Winterization of HVAC Units	Annual
Condenser Coil Cleaning	Quarterly
Ballast Checks	Monthly
Check Sprinkler Heads	Monthly
Check Air Filters and Belts	Quarterly
Check Emergency Generator	Annual
Belts and Motors on Exhaust Fans	Semi-Annual
Grease Motors and Pumps	Quarterly
Check Motors on Air Handlers	Quarterly
Inspect Boilers and Steamers	Annual
Check Smoke Alarms	Semi-Annual
Check Fire Extinguishers	Semi-Annual
Check Fire Escape Condition	Semi-Annual
Check Building Electrical Panels	Annual

Recommendation 18: The Facilities Management section should develop and institute a preventive maintenance program for all of the City's buildings and building components.

2. THE FACILITIES MANAGEMENT SECTION SHOULD ADD TWO MAINTENANCE TECHNICIANS, AND ALTER THE BALANCE OF WORK PERFORMED BY CONTRACTORS AND INTERNAL STAFF.

The Facilities Management Section of the Division has an authorized contingent of three Maintenance Technicians who are responsible for the maintenance and repair

of 20 buildings and two parking structures. These facilities, and their associated areas, are provided in the table below.

Facility	Area (sq ft)
Airport	12,400
Fire Station 2	5,600
Fire Station 3	6,500
Fire Station 4	5,600
Fire Station 5	5,600
Fire Station 6	1,400
North Parking Structure	211,958
South Parking Structure	401,600
Marshall White Center	45,000
Public Works 2/Sewer Ops	6,000
Public Works 5/Refuse Ops	8,000
Public Works 6/Sign Shop/Fac & Comm	11,000
Public Works Building 8	23,000
Public Works 9/Wash Bay	3,000
Public Works 11/Stores Warehouse	7,200
Community Service Building	8,784
Francom Public Safety Center	66,000
Golden Hours Senior Center	22,500
Municipal Building	166,000
Public Works 1/133 W 29th	36,000
Ogden City Justice Court	18,662
Total	**1,071,804**

As the table shows, there are 1,071,804 total square feet of space in the 20 structures. In determining the adequacy of staffing, however, parking structures are typically not considered to be equivalent to the heated space in other buildings in terms of the intensity of maintenance required. Therefore, although there are 613,558 square feet in the two parking structures, the project team reduces this number to 10% of the physical space to account for the relatively low maintenance required in them as compared to others. With this reduction, the adjusted total maintainable square footage in the City's 20 structures is 519,602.

As was noted above, the City's facilities are maintained by three Maintenance Technicians when there is a full contingent of staff on hand.[12] This equates to 173,201 square feet of space per authorized position. In determining the adequacy of staffing for facilities maintenance operations, the project team typically utilizes a standard of between 45,000 and 50,000 square feet of maintainable space per full time equivalent (FTE) Technician. This range is supported by a 2009 International Facilities Management Association (IFMA) survey of 650 public and private members of the organization. The ratio of staff to the maintainable space in the City's buildings is clearly insufficient to provide an adequate level of maintenance compared to the ratio indicated by both the project team's experience and the IFMA survey. However, to compensate for this deficit, the Facilities Management Section contracts for a significant amount of maintenance services each year. As the table below shows, this has averaged approximately $400,000 per year for the past seven years.

Fiscal Year	Contracted Repairs	Contracted PM	Total
2010	$233,362.14	$81,738.78	$315,100.92
2011	$351,414.80	$66,720.05	$418,134.85
2012	$294,335.89	$84,027.19	$378,363.08
2013	$299,840.49	$93,302.17	$393,142.66
2014	$345,716.26	$75,778.74	$421,495.00
2015	$467,661.96	$70,042.96	$537,704.92
2016	$299,456.51	$40,907.55	$340,364.06
Total	**$2,291,788.05**	**$512,517.44**	**$2,804,305.49**
Average	**$327,398.29**	**$73,216.78**	**$400,615.07**

The expenditures on contracted repairs effectively equate to a staffing supplement provided by outside contractors. Therefore, in order to determine the full facilities maintenance staffing complement, these contracted expenditures must be converted to full time equivalent staff members. In doing so, the project team assumed

[12] During the project team's on site activities, two of the three positions were vacant.

an average contracted hourly rate of $60 in making the calculations, which are provided below.

Description	Amount
A. Contracted Repairs	$400,615.07
B. Hourly Rate[13]	$60
C. Hours Worked by Contractors (A/B)	6,677
D. Annual Hours Available per FTE[14]	1,537
E. Number of Contractor FTE (C/D)	4.34

As the table shows, contractors are providing the equivalent of 4.34 FTE to supplement the three Maintenance Technicians employed by the City. This equates to a full complement of about 7.34 FTE. Using this figure, the ratio of maintainable square footage (519,602) to equivalent maintenance technicians (7.34) is 70,790, which is above the standard range of 45,000 to 50,000. In order to minimally meet the standard of 50,000 square feet per equivalent maintenance technician, the Facilities Management section of the Division would require approximately ten (10) equivalent maintenance technicians, or 2.66 FTE more than are currently providing maintenance and repair services for the City's facilities.

The project team recommends that the Facilities Management section dedicate the equivalent of at least two (2) additional FTEs to the maintenance of the City's facilities. However, this expenditure may reasonably be made for either full time staff or for contracted services, as the work to be accomplished would be the same under either scenario. There are advantages and disadvantages associated with either approach, as the table below shows.

[13] A limited sample of contractor invoices indicated a wide range of hourly rates. These ranged from $42.50 to $75.00. The project team utilized an estimated $60 per hour as an average.
[14] An analysis of the recorded time of Facilities Management Section employees indicated that 26.1% of all time was spent in non-productive activities such as meetings, training, holiday, vacation etc. Therefore, the figure of 1,537 hours was used (2,080 * (1-26.1%)).

Action	Advantages	Disadvantages
Hire Full Time Staff	• Greater flexibility in assignment of work • Needed repairs may be accomplished in the field as they are found. • Generally less expensive, even considering administrative overhead.	• Difficult to acquire specialized skills in wide range of service areas. • Must provide ongoing training, time off and other administrative time. Not all time is productive. • Must address disciplinary issues on occasion.
Utilize Contractors	• Lower exposure to liability for safety and risk. • No requirement to train contractors, or to provide for paid time off. • Can obtain specialized skills that may be required on only a very limited basis. • No disciplinary issues. • No issues related to termination during periods of budget shortfalls or decline in workloads.	• Generally higher cost for the same service provided by full time staff. • Oversight of contractor work, combined with greater administrative costs, further inflate the relative costliness of contractors. • Contractors are hired for specific tasks, and may not report impending problems with systems and machinery.

In addition to the general advantages and disadvantages listed in the table, there are other, more specific, issues for consideration in the Facilities Management section. These include the following.

- The Facilities Management section is accomplishing very little preventive maintenance with internal staff. As was noted earlier in the report, five different employees charging a total of 5,849.5 hours over an approximate 18-month period charged only 22 of these hours to PM. Preventive maintenance, although arguably the most critical of functions in any facilities agency, is, by its nature, a repetitive and cyclical one. This mitigates in favor of performing this function with internal staff.

- The preventive maintenance program should be the primary source for the identification of longer-term issues with equipment and machinery. Contractors may not be as attuned to these issues as would be internal staff.

- Contractors are only performing PM on HVAC equipment, and not the electrical, plumbing and structural assets. This is a functional deficit that requires that either the existing internal staff divert their efforts away from the work they have traditionally been performing, to PM of these neglected assets, or that the City expend additional funds, whether for contracted or internal labor, to accomplish

these functions. Failure to do so will, in the longer term, result in very costly failures of systems and components.

- A very large percentage of the time charged to work orders by the section's Maintenance Technicians is for work that is either unrelated, or only peripherally related, to the maintenance and repair of the City's facilities. As was described earlier, the project team analyzed approximately 12 months of work performed by five staff members who charged a total of 5,849.5 hours during this time. Of this total, 1,525 hours (26.1%) were for non-productive functions (e.g., vacation, sick, meetings, training, etc.) and 1,104 hours (18.9%) were for work classified as "Miscellaneous", "Office Furniture", "General Labor", and others. These functions can more accurately be classified as custodial rather than building maintenance.

Given the lack of a well-developed preventive maintenance program for the City's facilities, the project team recommends that the Facilities Management section hire two additional Maintenance Technicians. These Technicians should, however, be trades specialists rather than generalists, and should be dedicated to instituting a PM program for plumbing and HVAC systems. Electrical PM and repairs may, at least in the short term, be performed by contractors, as the hourly rate charged by the City's contractor is similar to, if not lower than, the internal Fleet and Facilities Division rate. The total cost for these two positions is $107,845, assuming compensation at the midpoint of the salary range, and adding 40% for fringe benefits. however this cost is offset to a large degree by the following points:

- The Facilities Management section would be assuming the preventive maintenance program for HVAC equipment that is currently performed on contract. As noted earlier, this contractual expense has averaged approximately $73,200 annually.

- During times in which these additional three positions are not performing PM, their time may be diverted to repair of plumbing and HVAC assets. The section is currently expending approximately $327,400 annually on contractual repair and maintenance and, although the Division will continue to expend much of this amount on contracted services, the amount may be reduced to some indeterminable amount.

- As noted above, an increased focus on PM will have long term benefits, as well as reduced costs. Some studies have shown that for every $1 invested in PM, there is a $2 return on this investment.

Recommendation 19: Hire two additional Maintenance Technicians in the Facilities Management section of the Division. These positions should be responsible for the development and implementation of the preventive maintenance programs for HVAC and plumbing assets. The total cost of these positions is estimated to be $107,845 annually, however this cost is offset to a large degree by other factors.

3. THE FACILITIES MANAGEMENT SECTION SHOULD DESIGNATE A LEAD WORKER TO COORDINATE THE ACTIVITIES OF A LARGER NUMBER OF STAFF.

The Facilities Management section has operated with a relatively small staff of three Maintenance Technicians for many years. This low staffing level, combined with the fact that almost all work has been in reaction to maintenance requests, has meant that there was no pressing need to designate a supervisor for the section, as is the case in the Fleet Management section of the Division, which has a Supervisor for the six Mechanics.

With the addition of two additional Maintenance Technicians, the Facilities Management section will be operating with a staff of five, which adds greater complexity to the coordination of work than has been the case with three Technicians. Further, the project team has recommended that the section develop and institute a preventive maintenance program. This program will require the input of data relating to each piece of maintainable facilities asset, along with maintenance cycles, and the tasks associated with each PM event. The PM events should be coordinated by a single employee, who should assign these work orders as appropriate.

The Fleet and Facilities Division should designate a lead worker in the Facilities Management section who will coordinate both scheduled and unscheduled work, and

make assignments to staff. The lead worker would be a working supervisory position, responsible for assigning work, performing work, and for conducting quality assurance checks on work performed by each of the Maintenance Technicians in the section.

The position of Lead Maintenance Technician does not exist in the City's classification system. Therefore, the project team recommends that the City's Human Resources Department evaluate the content of the job to determine its compensation level. However, for the purpose of estimating the cost of this recommendation, the project team assumes that the position will be compensated at the same level as that of the Lead Mechanic in the Fleet Management section, which is $49,999.00. This is $5,518.00 more than the midpoint of the Maintenance Technician position. Adding 40% for fringe benefits to this differential yields a total cost of $7,725.20 for the elevation of one of the Maintenance Technicians to the position of Lead Technician.

Recommendation 20: Elevate one of the existing Maintenance Technicians to the position of Lead Technician. The total estimated cost differential is $7,725.

3. THE DIVISION SHOULD PROVIDE ONGOING TRAINING FOR ITS MAINTENANCE TECHNICIANS.

The Facilities Management section has a total of $1,000 budgeted for Education. This is equivalent to $250 per Maintenance Technician. In comparison, the *American Society of Training and Development* reports annual training expenditures of $1,100 to $1,200 per employee.

The relatively small budgeted amount for education and training has ramifications for the section. In analyzing the work that was accomplished by internal staff over a recent approximate 12-month period, only about 25% of all productive work was in categories that could be considered to require any technical expertise (e.g., boiler

repairs, carpentry, electronics, heating systems, etc.). The remainder of the work was in non-technical categories such as General Labor, Fencing, General and Miscellaneous work, etc.). By comparison, the section typically outsources over $400,000 of work annually to contractors for their technical assistance in repairs and maintenance.

The expenditure of at least $1,000 in technical training for each of the Maintenance Technicians would not only ensure that the internal staff members remain current in their capabilities, but would, in the longer term, result in the ability to in-source at least a portion of the work that is currently outsourced to private firms.

Beyond this routine training, the Fleet and Facilities Division should, in the longer-term, alter the job description of the Maintenance Technician position to require specialized skills in one or more of the trades (i.e., electrical, HVAC, plumbing, electronics, energy management, etc.). This would naturally increase the cost of these positions, but would also increase the value received from the work performed, and would also allow the Facilities Management section to replace some portion of the work currently outsourced.

Recommendation 21: Increase the budgeted amount for training from the current $1,000 annually to at least $1,000 per Maintenance Technician. The project team has recommended the addition of two such positions, for a total of five. Therefore, the net cost of this recommendation is $4,000.

4. THE LEAD MAINTENANCE TECHNICIAN SHOULD PROVIDE TIME ESTIMATES FOR EACH WORK ASSIGNMENT.

Interviews with administrative and technical staff in the Facilities Management section indicate that when work requests are received, a work order is created and provided to a specific Technician who is instructed to investigate the issue and correct

the problem while on site. Generally, the work request is described either via e-mail or by phone by a City employee requesting work in their facility, and is provided to the Technician in written form prior to arrival at the work site.

Clearly, there are many factors that may impact the time required to complete a repair at a facility. However, it is also true that the Facilities Management section has a large database of prior completed work requests that will allow the Lead Technician to provide a time estimate for most work assignments. Currently, the amount of time required to complete any particular work request is left to the discretion of the Technician on site.

The provision of time-of-repair estimates to Technicians is a critical management tool that should be used in the Division. Once Facilities Technicians arrive at the work site, they may reasonably report back that the repairs are more, or less, complex than originally estimated, and the Lead Technician is then able to plan accordingly in order to maximize the use of the other Maintenance Technicians. However, without an initial estimate, work may tend to expand into the time available to perform it.

Recommendation 22: The Lead Technician should be responsible for providing time estimates on each work order assigned. This will facilitate the section's ability to plan and schedule the work of all Technicians in the section.

5. THE FACILITIES MANAGEMENT SECTION SHOULD ALTER THE WAY IN WHICH IT BILLS FOR SERVICES.

The Facilities Management section of the Division currently bills for its services in two ways. For some customers, it receives an annual allocation that is nominally designed to cover the costs associated with service provision. For others, however, it bills for services at an hourly labor rate of $41.50, plus supplies and materials.

The manner by which the section budgets, and receives revenue, for services rendered complicates the assessment of the degree to which it recovers full costs. As noted, the Division receives an allocation of funds to nominally cover the costs associated with repair and maintenance, however this allocation has been static for some years, although it was increased somewhat in the last fiscal year. However, the allocation is not based on any consideration of the actual costs associated with their maintenance. For other buildings, the Facilities Management section bills for services at a fixed hourly rate that, itself, has not changed in many years.

(1) The Hourly Rate Charged for Facilities Maintenance and Repair Is Failing to Recover Direct Costs of Services.

The Facilities Management section of the Division is only nominally functioning as an internal service fund (ISF), as there is no accounting for the degree to which it recovers its own cost of services through fees. As noted above, it receives its revenues through both a fixed allocation of funds, as well as an hourly rate. Neither of these funding sources is based on an annual calculation of the actual cost of service provision.

The estimate the degree to which the section is recovering costs, the project team analyzed the Facilities Management budget to determine the legitimate items which should be recovered through fees. The following table provides the full line item budget, as well as the items which should legitimately be charged to customers through fees.

Budget Item	Total FY16 Budget	Allowable for Charge-Back
Personal Services		
Full Time Employees	$237,475	$237,475
Overtime	$21,000	$21,000
Temporary Employees	$35,000	
Workers Comp	$8,300	$8,300

Budget Item	Total FY16 Budget	Allowable for Charge-Back
FICA	$22,200	$22,200
Retirement	$44,175	$44,175
Insurance	$55,250	$55,250
Disability	$1,375	$1,375
Cell Phone	$4,050	$4,050
Total Personal Services	**$428,825**	**$393,825**
Supplies		
Office Supplies	$2,000	$2,000
Printing and Binding	$500	$500
Postage/Stockroom	$500	$500
Cleaning and Sanitation	$500	$500
Gas, Oil, Garage	$7,500	$7,500
Other Operating Expenses	$20,000	$20,000
Total Supplies	**$31,000**	**$31,000**
Charges for Service		
Telephone	$15,000	$15,000
Utilities-Gas	$225,000	
Utilities-Electric	$525,000	
Utilities-Water	$150,000	
Wireless Phone	$1,400	
Wellness Program	$350	$350
Travel	$1,000	$1,000
Education	$1,000	$1,000
Insurance	$6,350	$6,350
Professional and Technical	$378,025	
Outside Services	$50,000	
Hazardous Waste	$5,000	$5,000
Nuisance Abatement	$40,000	$40,000
Preventive Maint. Contracts	$90,000	
Services Under Contract	$265,000	
Total Charges for Service	**$1,753,125**	**$68,700**
Other Operating Expenses		
Building Repair and Maintenance	$2,000	$2,000
Overhead Cost to Stores	$5,125	
Communications Equipment Lease	$1,000	$1,000
Fleet Vehicle Lease	$22,000	$22,000
Parts Purchased-Resale	$10,000	
Contingent	$100,000	
Total Other Operating Expenses	**$140,125**	**$30,125**
TOTAL	**$2,353,075**	**$518,525**

As the table shows, the total Facilities Management budget for FY16 budget is $2,353,075. However, of this total, there are several line items that are not related to the direct service provision of the Maintenance Technicians involved in the provision of

service. An explanation of the line items removed from the calculation of the hourly rate for services is provided below.

- **Temporary Labor.** As labor is hired on a temporary basis, the hours should be charged at a separately calculated rate. Given that the hours worked by temporary employees are not separately identified in the data provided to the project team, the cost of this labor is removed from the calculation of the labor rate here under the assumption that by removing this line item, neither their costs nor their labor hours are included in the rates.

- **Utilities.** This element of cost does not vary with the level of service provided by the Maintenance Technicians, and is therefore removed from the calculation of rates. Utilities are typically are either charged back to users at cost, or are budgeted separately within the Facilities agency. In either case, they are not appropriately included in the calculation of the labor rate charged by the Maintenance Technicians.

- **Overhead Cost to Stores and Parts Purchased for Re-Sale**. These elements of cost do not vary with the level of service provided by the Maintenance Technicians, but rather are appropriately considered as separate elements of cost for the Stores section of the Division.

- **Contracted Costs.** These are costs that are incurred either due to over-capacity of the Facilities Management section, or insufficient expertise to perform work internally. The costs associated with contracted repair and maintenance should be billed directly to customers, and should not be included in the calculation of labor rates charged by the Facilities Management Technicians.

- **Contingent.** These are costs that are not known in advance, and are not appropriately applied to customers for service provision. To the extent that this line item can be specifically identified to customer services, they should be included in the calculation of the labor rate. However, as they are not known at this time, the project team removes them from the calculation.

After the removal of the appropriate cost elements, the total cost to be recovered through charges for service amount to $518,525. In calculating the hourly rate that should be charged to recover these costs, the project team estimated the number of available labor hours of the three Maintenance Technicians to charge for these services. In doing this, recall that in a previous section of this report, the project team determined that 26.1% of all available labor during the period from July 1, 2015 through

the second week of June, 2016 was for un-chargeable time such as sick leave, vacation, training, meetings, etc. The following table provides a calculation of the estimated hourly rate of services once these elements are removed.

Description	Amount
A. Recoverable Costs (from above)	$518,525
B. Total Annual Hours in One Year per FTE	2,080
C. Number of Maintenance Technicians	3
D. Total Hours Available to Recover Cost (B * C)	6,240
E. Non-productive Time as Percentage of Total Time	26.1%
F. Total Productive Time Available to Recover Costs (D * E)	4,611
G. Hourly Rate Necessary to Recover Costs (A / F)	**$112**

As the table shows, in order to recover the appropriate elements of costs associated with facilities repair and maintenance, the Facilities Management section would need to charge an hourly rate of $122.44 to its customers. This compares with the $41.50 currently charged for these services. This indicates that it is probable that either the section is failing to recover the appropriate elements of cost, or that they are being subsidized by the Fleet Management section of the Division. To place this in some perspective, if the Facilities Management section is charging $41.50 per hour, it is incurring a deficit of $70.95 on each hour worked by its Maintenance Technicians, which results in a total annual deficit of $327,179 ($70.95 * 4,611.4 hours available for charges).

The project team will, in the next section, recommend that the section make a transition from the current method of charging for its services to one of a calculated General Fund allocation. However, it is instructive to have determined the probable degree to which the current hourly rate is failing to recover costs. Moreover, should the Division elect to continue to charge for its services on an hourly rate basis, it is

recommended that this rate be re-calculated on an annual basis to recover all appropriate elements of cost, as has been done in this section of the report.

Recommendation 23: Should the Facilities Management section elect to continue to charge hourly rates for its services, it should re-calculate the actual labor rate on an annual basis to recover all appropriate elements of cost.

(2) The Facilities Management Section Should Alter the Manner in Which It Recovers the Cost of Services.

As was shown in the previous section, although the Facilities Management section of the Division is nominally operating as an internal service fund, it is failing to recover its costs of operation. For this reason, it is necessary to either charge the full cost of services to tenants of the buildings which it repairs and maintains, or change the method by which the costs are charged to them.

To provide some potential guidance, the project team conducted a survey of other cities in Utah to determine how their facilities management agencies charged tenants of the buildings for which they have responsibility. The full comparative survey is provided in Appendix E of this report, however the following table presents the relevant portion of the survey to this discussion.

City	Operates as ISF?	Charge-Back Methodology
Layton	Yes	Fixed annual rate based on time/material spent on the department over a 5 year period.
Logan	Yes	Inter-department budget transfer, for custodial service only.
Provo	Yes	Hourly rate + material costs invoiced to departments.
Sandy	No	N/A
West Jordan	No	N/A
Ogden City	**Yes**	**Partially burdened rate for "unfunded" departments, fully burdened hourly rate for departments receiving facilities maintenance allocation**

As can be seen in the table, three of the five comparative cities nominally operate their facilities management functions as internal service funds, however each of these

three charges for their services in different ways. In fact, each of the three charges for their services in a different manner than does Ogden City's Facilities Management section. Therefore, the survey results do not provide any meaningful guidance on the assessment of the "optimal" manner in which comparable Utah cities charge for their building repair and maintenance services.

In designing any charge-back structure, whether for fleet maintenance, facilities maintenance, information technology, or other services, the structure should be designed to (1) cover all allowable costs, (2) assess charges for those services over which customers have some degree of control, and (3) discourage frivolous uses of services. In the previous section of the report, the project team presented one methodology by which rates could be designed to cover the cost of the Fleet and Facilities Division's facilities maintenance and management services. The development and implementation of such a rate structure requires that the Facilities Management section of the Division not only project the uses of services, but also accurately calculate rates, bill tenants for these services on a periodic basis, and to continuously update these rates as costs change from year to year.

Unlike, for example, charging customers for fleet maintenance and repair, it is more difficult to establish a nexus between the facilities maintenance needs of customers and the degree of control they exercise over their needs. For example, in a multi-tenant facility such as the Municipal Building, it is not a straightforward proposition to determine the appropriate allocation of costs to tenants for chiller and pump repairs, or even repairs to fixtures such as toilets, sinks and lighting in common areas. For single-tenant buildings such as the Marshall White Center, the Public Works complex of

buildings, and the Golden Hours Center, these determinations are somewhat more straightforward, but even in these structure, the tenants themselves do not exercise a great deal of control over the degree to which complex building equipment such as air handlers, pumps, motors, energy management systems and others, are repaired, maintained and replaced. Nor do they exercise any great amount of control, or possess any great degree of knowledge regarding the specifications of replacement equipment.

One area over which tenants do, in fact, exercise a great deal of discretion, however, is in their requests for services such as moving furniture, remodeling, hanging pictures, and the like. And, in fact, in analyzing the work performed by the Division's Maintenance Technicians, as well as in interviews, there is a significant volume of this type of work activity. Therefore, the establishment of rates for these types of services not only serves the purpose of charging tenants for work over which they have a measure of control, but also serves to discourage the frivolous use of limited resources in the Facilities Management section of the Division.

The Facilities Management section has several alternatives in charging its customers for services. These are summarized below.

- Hourly Rates Charged for All Services. This model, similar to that which is common for fleet maintenance and repair services, charges customers for any work performed in their facilities at an hourly rate designed to recover all allowable costs. Parts and supplies are charged at cost, with an appropriate mark-up to cover administrative costs, and contractual services would likewise be charged to tenants in a similar manner.

- General Fund Allocation for Services Rendered in All Buildings. This simplest of models provides an allocation of funds sufficient to cover the projected costs of all internal labor, materials and supplies, utilities, as well as all contract services.

- Hourly Rates Charged to Single-Tenant Facilities, with Hourly Rates Charged to Multi-Tenant Facilities.

- General Fund Allocation for All Buildings, with Hourly Rates Charged for Discretionary Services.

There are advantages and disadvantages of each of the listed alternatives, above. These are summarized in the table below.

Alternative	Advantages	Disadvantages
1. Hourly Rates for All Services	Recovery of cost is basically a simple function of determining the number of available hours of internal staff and projected contracted work. Serves to discourage frivolous uses of Facilities Management personnel resources.	Tenants have little control over the services required to maintain facilities. Difficult to allocate costs to tenants in multi-tenant facilities.
2. General Fund Allocation for All Services	Simplest of all of the methods to administer, requiring only that the Facilities Management section project the costs of operations. No monthly billing of tenants, minimizing administrative support requirements.	Reduced accountability for costs incurred by Facilities Management section.
3. Hourly Rates for Single-Tenant Buildings; General Fund Allocation for Multi-Tenant	Most tenants are in single-department facilities; this may be the most equitable system for the most tenants. Hourly rates for service discourage frivolous and unnecessary uses of Facilities Management staff time.	Complex billing system. Basically a continuation of the current bifurcated system. Although hourly rates may discourage frivolous uses of Facilities Management staff time for some, others in multi-tenant facilities do not perceive the same restrictions.
4. General Fund Allocation for All Buildings; Hourly Rates for Discretionary Services	Potentially the optimum compromise between simplicity of administration of charges, and limitation of unnecessary uses of Facilities Management section staff time.	Potentially requires determination of discretionary and non-discretionary work requests. General Fund allocations reduce accountability for costs incurred by Facilities Management section.

As the table shows, there are advantages and disadvantages of each alternative. Of the four alternatives presented, Alternative 3, the charging of hourly rates for some buildings and General Fund Allocation for others, would appear to be both the least

equitable and most complex billing system. This Alternative is slightly different from the current billing method, but effectively continues the current bifurcated billing structure. Moreover, the tenants of these two categories of facilities receive differing incentives to contain costs due only to the coincidence of being in a single or multi-tenant building.

The remaining three alternatives are attractive in different ways, and the billing structure will naturally be a function of the preference of the Division and, in fact, the tenants themselves. Alternative 4, in which the Facilities Management section receives a General Fund allocation for all buildings, with hourly rates charged for discretionary services, has the appeal of being both simplistic and equitable, and for these reasons should be the preferred alternative in the view of the project team. Although as a rule, General Fund allocations are not as effective as the charging of hourly rates in ensuring accountability for services, this potential impediment may be overcome by the tracking and issuance of performance measures by the Facilities Management section. A suggested set of such performance measures is included in the Management and Administration chapter of this report. Further, the charging of hourly rates for discretionary services requested by tenants ensures that tenants minimize the use of limited Facilities Management resources.

A potential alternative to a straight allocation of General Funds to the section is the charging of an annual amount of the Facilities Management section's budget to the tenants of facilities based on the square footage which it occupies. So, for example, the Golden Hours senior center facility is comprised of 22,500 square feet, which is 2.1% of the 1,071,804 total square feet maintained by the section. (Alternatively, this total square footage may be adjusted, as the project team has done earlier in the report, to

adjust for the relatively-lower maintenance required for unheated space such as the two parking garages.) Under this scenario, the senior center would receive an allocation of 2.1% of the total allowable budget ($518,525, as calculated in a previous section) of the Facilities Management section.

Alternatives 1 and 2 also have some appeal, and the Fleet and Facilities Division may opt for one of these. However, Alternative 1, under which all services are rendered at a pre-determined hourly rate for all tenants, fails to establish a nexus between the charging of services to tenants and the discretion these tenants have in requesting, or receiving, the services. It may be argued that this disadvantage is also true of the by which tenants receive a direct allocation of budgetary costs on a square footage basis, however the latter method at least has the advantage of relatively greater simplicity.

Alternative 2, under which the Facilities Management section receives an annual allocation of funding from the General Fund (and again, it may be altered to assess these charges to tenants according to their square footage occupied), has the appeal of simplicity, and for this reason, may be especially attractive, as it requires less administrative effort than any of the four alternative presented. However, in the project team's view, the assessment of charges on an hourly basis for discretionary services provides somewhat greater accountability on the parts of both tenants and the Facilities Management section, and also serves to mitigate overall costs by serving to discourage tenants from requesting unnecessary, and potentially frivolous, services.

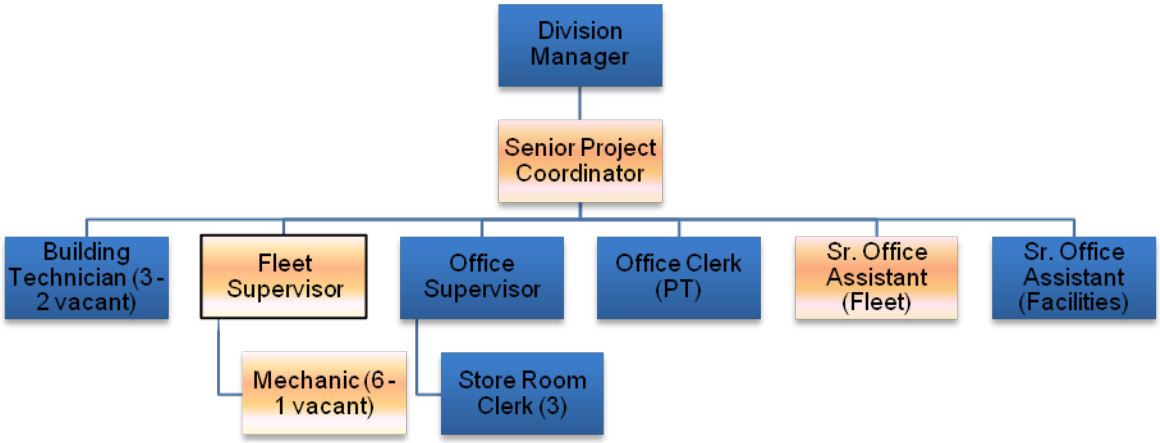
Recommendation 24: The Facilities Management section should transition from its current method of charging tenants for its services via two separate scales. The project team has provided four alternatives for replacing this method, and recommends a method by which the Facilities Management section receives and annual allocation from the General Fund, and also charges tenants for the discretionary services which they request.

4. ANALYSIS OF FLEET MANAGEMENT

This section of the report analyzes the staffing, operations and service levels of the Fleet Maintenance section of the Division. The chapter begins with an overview of Fleet Maintenance to provide context for the project team's analysis.

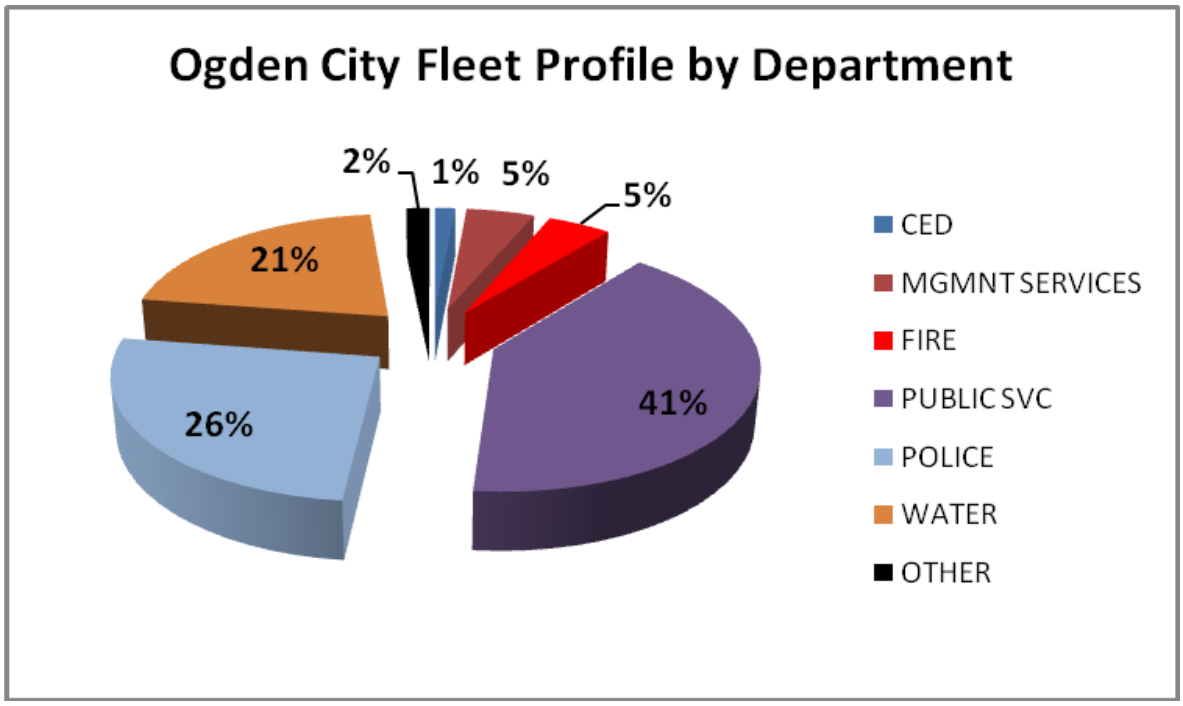
1. FLEET MAINTENANCE OVERVIEW.

The Fleet Maintenance section of the Fleet and Facilities Division is comprised of 8.5 authorized staff with seven (7) currently deployed as illustrated in the Division organization chart shown below.

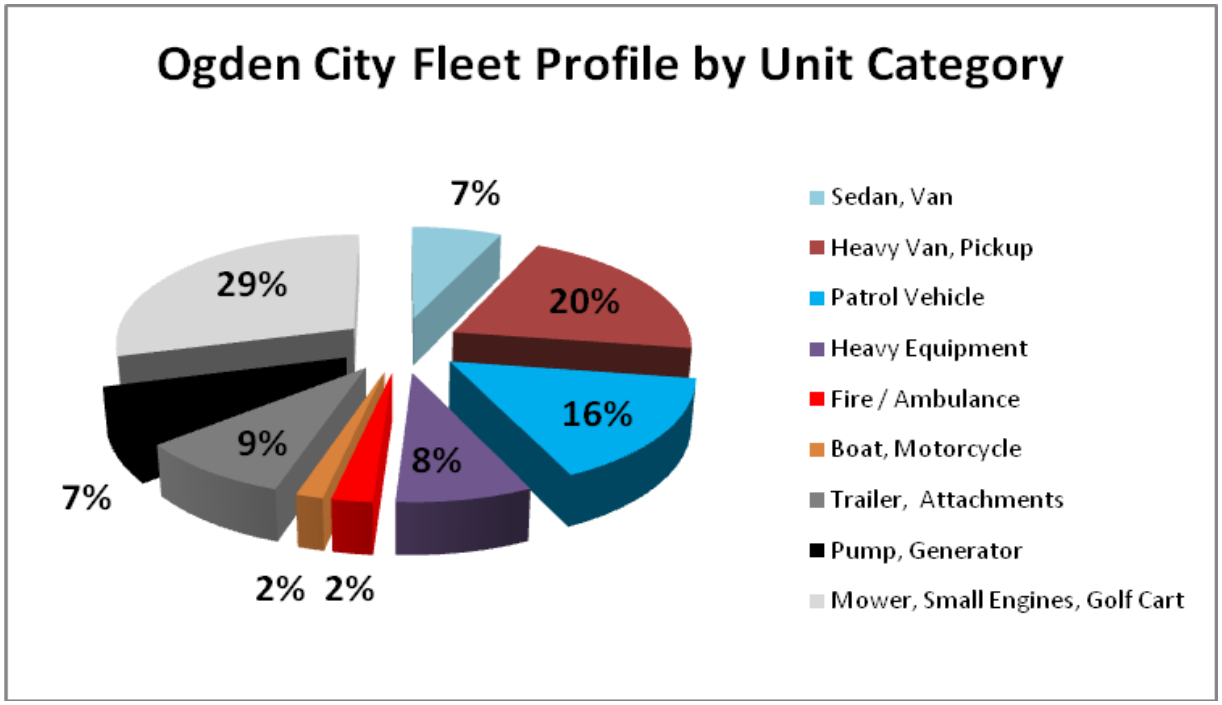


The Fleet Maintenance operation oversees the City's fleet management function, and is authorized one (1) supervisor; (1) lead mechanic; (4) mechanics; and one (1) senior office assistant. The program is overseen by the Senior Project Coordinator who also provides management oversight for facilities services. This fleet program operates and maintains the City's "rolling stock" fleet and small equipment apparatus (e.g.,

chainsaws), numbering approximately 625 units, and provides light and heavy equipment preventive and corrective maintenance Monday through Friday from 7:00 a.m. to 6:00 p.m. The Fleet Maintenance operates from a single facility located at the Public Works yard. Fleet Maintenance also acquires and replaces equipment within the City fleet. Currently the fleet is distributed, by Department, as shown in the following pie chart.



With regard to the fleet composition by major category, the following pie chart shows the proportion of assets in Ogden City.



The rolling stock represents the variety of wheeled apparatus such as sedans, pick-ups, vans, Sport Utility Vehicles, etc. Trailers and attachments represent assets such as vehicle trailers, traffic control equipment, and the like typically pulled by pick-ups or utility vehicles. There is a variety of other equipment ranging from emergency generators (of which some could be towed) to lawn-edgers and mowers to golf cart apparatus. Of interest, 45% of the apparatus for which Fleet Maintenance is currently responsible is not in the "vehicle" category; that is, it represents small equipment, towed apparatus, pumps and generators, and other "machinery" maintained by Fleet Maintenance. The most common vehicles in the City are pick-ups and heavy vans representing 20% of the fleet. When evaluating fleet maintenance operations the distinction of the types of equipment maintained is an important operating consideration.

2. BASED ON THE AVAILABILITY OF FLEET WORKLOAD INFORMATION, STAFFING AND PRODUCTIVITY LEVELS CAN BE EVALUATED USING SEVERAL DIFFERENT APPROACHES.

Staffing levels in Fleet Maintenance can be evaluated using several different approaches assuming data is available to accomplish the necessary analytical steps. Ideally, each analytical approach should be examined to develop a comprehensive picture of fleet maintenance staffing needs. These analytical approaches include:

- **An evaluation of the Fleet Maintenance operation's overall wrench time.** A fully-loaded target of 60% of total shop hours dedicated to wrench time is a benchmark for larger and "profitable" fleet maintenance shops. This level of wrench time includes the amalgamation of all mechanics' work order time as well as administrative support (e.g., supervisors, clerical support, etc.) and is compared to "total payroll time." Achieving this benchmark is possible in larger fleet maintenance operations but usually not practical in smaller garages.

- **An evaluation of the Fleet Maintenance's fully-loaded wrench-turning time.** Industry standard suggest a minimum overall 70% fully-loaded wrench time whereby maintenance work hours recorded on work orders are divided by an available 2,080 hours per year; this is equivalent to approximately 125 hours per month of work order service. This 70% fully-loaded target is for individual mechanics as well as an amalgamation of all mechanics.

- **An evaluation of the Fleet Maintenance's floor wrench-turning time.** Industry standard suggest a minimum overall 80% floor wrench time whereby all leave (vacation, sick, holidays, etc.) is subtracted from 2,080 available hours and then maintenance hours recorded are divided by the resultant. This 80% target is for individual mechanics as well as an amalgamation of all mechanics.

- **An evaluation of preventive maintenance versus corrective maintenance.** Fleet maintenance, ideally, should be focused on preventive maintenance duties which generally impact the necessity to perform corrective repairs. Generally, 50% or more of wrench-time should be dedicated to preventive maintenance activities. Fleet maintenance operations which have significant wrench-time dedicated to corrective maintenance may indicate staffing shortages, as insufficient time is available to complete preventive work and time is instead dedicated to "immediate" corrective work.

- **An evaluation of turn-around time.** Fleet maintenance operations should have a rapid turn-around time to ensure high levels of customer service. Most preventive maintenance jobs should be completed in less than 24 hours, whereas corrective maintenance should average no more than 48 hours. In

general, turnaround time for a fleet maintenance operation should average less than two days for all types of service, with an ideal turnaround time of approximately one day. Lengthy turnaround times can be representative of staffing, scheduling, or other operational issues.

- **An evaluation of fully-burdened mechanic hourly rates.** The fully-burdened mechanic hourly rates are calculated by capturing the full costs of all personnel dedicated to fleet maintenance operations, including the costs of Equipment Mechanic "downtime" (i.e., non-wrench time). Overhead positions' salary and benefits are to be incorporated into the hourly labor rate, but government overhead charges for other departments' administrative services are not included, to help ensure equitable comparisons to private sector garages. All wrench-time hours are divided into the full cost of doing equipment maintenance business to derive a fully-burdened mechanic hourly rate. This hourly rate should be competitive with private sector garages. If the rate is excessively high, this is potentially indicative of staffing or other types of operational issues.

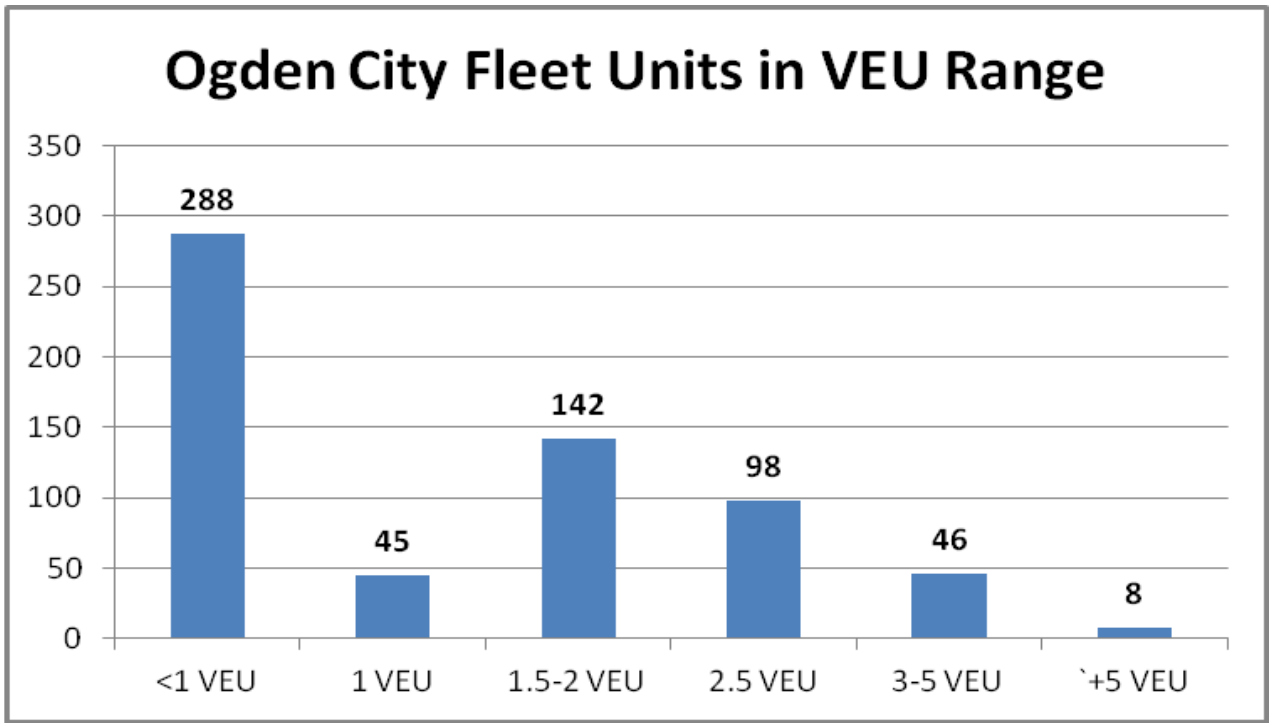
- **Number of mechanics per vehicle.** Another staffing benchmark utilized in the fleet industry for operational efficiency purposes is the ratio of number of mechanics to vehicles, with an efficient/effective ratio, according to *Runzheimer International,* considered to be 1 mechanic to 32-41 vehicles, on average. In the Matrix Consulting Group's experience, however, we periodically see shops with a ratio of 1:50. Note that benchmarks must be reviewed in context and not over-emphasized. A fleet of all safety equipment (police cruisers and heavy fire apparatus) would require fewer vehicles per mechanic. Conversely, a fleet of all under-utilized sedans would require significantly more vehicles per mechanic. The ratio presented is for the "average jurisdiction's fleet profile."

- **Number of mechanics per Vehicle Equivalent Units.** Vehicle Equivalent Units (VEU) are a quantitative measure of the number of direct labor hours required per year to maintain and repair a vehicle. Under this approach, the level of effort required to maintain any type of vehicle in a fleet is expressed in terms of the level of effort required to maintain and repair a passenger sedan. For example, a gasoline passenger sedan is equivalent to 1.0 VEUs while a fire pumper is equivalent to 5.0 VEUs. Thus, if one sedan is assumed to require 15 hours of direct maintenance and labor hours annually, then a fire pumper that requires five times that effort would typically consume 75 hours of direct maintenance and repair effort annually. This technique allows the project team to compare fleets of dissimilar size and composition. The VEUs used have been derived, in part, from research originally conducted by the U.S. Air Force and other organizations, such as Stone and Webster and Utility Fleet Magazine. The National Association of Fleet Administrators (NAFA) conducted a survey of its members in 2001 to establish average VEU values for many vehicle classes. Some fleet managers have used similar approaches to help them determine the appropriate staffing levels for their various vehicle maintenance facilities. The University of Florida instructs on how develop VEU calculations. VEUs are a high level diagnostic tool

to evaluate the relative level of maintenance effort for large groups of vehicles. They are not meant to apply separate values to individual vehicles. Our experience analyzing several dozen public sector fleet agencies is that each mechanic can typically be assigned from 90 to 125 VEUs, barring other operational caveats.

(1) Based Exclusively on Vehicle Equivalent Units (VEUs) and Mechanics per Vehicle, the Fleet Maintenance Operation is Very Competitively Staffed.

The Matrix Consulting Group applied the VEU methodology to Ogden City's fleet profile noted above. The bar graph following shows the distribution of units by VEU rating:



Examples of the types of rolling stock falling in each VEU category include:

- Trailers, light small equipment apparatus such as chain saws, weed-eaters, etc., and golf carts fall under 1.0 VEUs. These are assigned largely to water, streets, parks and golf (e.g. Unit# 13070).
- Gasoline sedans, which are the foundational VEU under which the model is constructed, are 1.0 VEUs. These are assigned largely to police (e.g. Unit# 15013).

- Most pick-up trucks (e.g., with utility-bed attachments), vans and alternative fuel vehicles are examples of VEUs ranging from 1.5-2.0. These are assigned throughout the City (e.g. Unit# 14167).

- Police cruisers (black and whites) are vehicles classified as 2.5 VEUs (e.g. Unit# 15015).

- Smaller dump trucks, backhoes, tractors, refuse trucks, sweepers and other similar heavy equipment are examples of VEUs ranging from 3.0-5.0. These apparatus are generally assigned to the City's maintenance divisions (e.g. Unit# 14157).

- Large complex vehicles such as fire engines, are examples of VEUs ranging above 5.0 VEUs. The highest VEU in Ogden City's fleet are 10.0 VEU fire apparatus (e.g. Unit# 8047).

Based on the Matrix Consulting Group's calculations, the total VEU rating for the in-service Ogden City units is 925 Vehicle-equivalent Units.

In addition to VEUs, the range of one mechanic per forty to fifty vehicles can also be examined. The results of these two analytical approaches are noted in the following table.

VEU and Vehicle Ratios for Authorized Mechanic Staffing

Performance Measure	Ogden City Value	Industry Standard
VEUs Per Mechanic	176	90 – 125
Mechanic: Vehicle Ratio[15]	1:66	1:32-41

With respect to how these ratios are calculated, the ratios include the authorized staffing levels of five (5) mechanic positions and allocate one-quarter time of the lead mechanic to wrench-turning activities on the shop floor. Note that currently one mechanic position is vacant, which would result in higher values than those noted above.

[15] Mechanic to Vehicle ratios only include the vehicle or "rolling stock" apparatus maintained by Fleet Maintenance and exclude the other apparatus for which they are responsible. Also note that MCG as periodically seen mechanic to vehicle ratios of 1:50 operating successfully, although the ratio noted is based on Runzheimer figures—a nationally respected fleet organization.

Based exclusively upon the above Vehicle Equivalent Unit and mechanic to vehicle staffing ratios, Ogden City's Fleet Maintenance is staffed very competitively in comparison to best management practices benchmarks based upon these two metrics. Indeed, in the absence of other framing data, these metrics would point to a need for increased mechanic staffing levels. Nevertheless, these ratios are not atypical in the region. Based on our comparative survey, the following "simplified VEU"[16] table was created related to actual staffing assignments at a variety of Utah fleet maintenance organizations.

Simplified VEU Comparisons – Ogden City vs. Regional Municipalities

City	Heavy Fleet VEU's	Light Fleet VEU's	Small Engine VEU's	Total VEU's	Total (lead + line) Mechanics	Mechanics per 1,000 VEU's
Murray	380	622	5	1,007	2	1.99
Orem	630	750	190	1,570	5	3.19
Provo	1,140	836	40	2,016	5	2.48
West Jordan	210	858	108	1,176	5	4.25
West Valley	335	688	20	1,043	7	6.71
Ogden City	**250**	**702**	**74**	**1,026**	**6**	**5.85**

As is shown above, Ogden City has the second-most mechanics per VEU based upon a simplified fleet profile. While not definitive, as the table could potentially point to short-staffing issues in all these organizations, it does reflect that Ogden City is not unusual in the region with respect to mechanic staffing patterns.

As noted before, this type of analysis is only one approach to evaluating a fleet maintenance operation, and with regard to VEUs and vehicles per mechanic, this is an *efficiency* measure, not an *effectiveness* measure. Additionally, these metrics assume

[16] In this simplified calculation, heavy vehicles/equipment were assigned 5 VEU's each, light vehicles/equipment were assigned 2 VEU's each, and small engines were assigned 0.33 VEU's each.

a fleet with an "average profile" that includes vehicle age, vehicle utilization and other standardized characteristics. These factors will be explored further in this chapter beginning with the effectiveness of fleet maintenance operations as perceived internally by Fleet Maintenance's clientele.

(2) Based Upon Interviews and the Customer Survey, Fleet Maintenance Is Well Regarded in Most Service Areas.

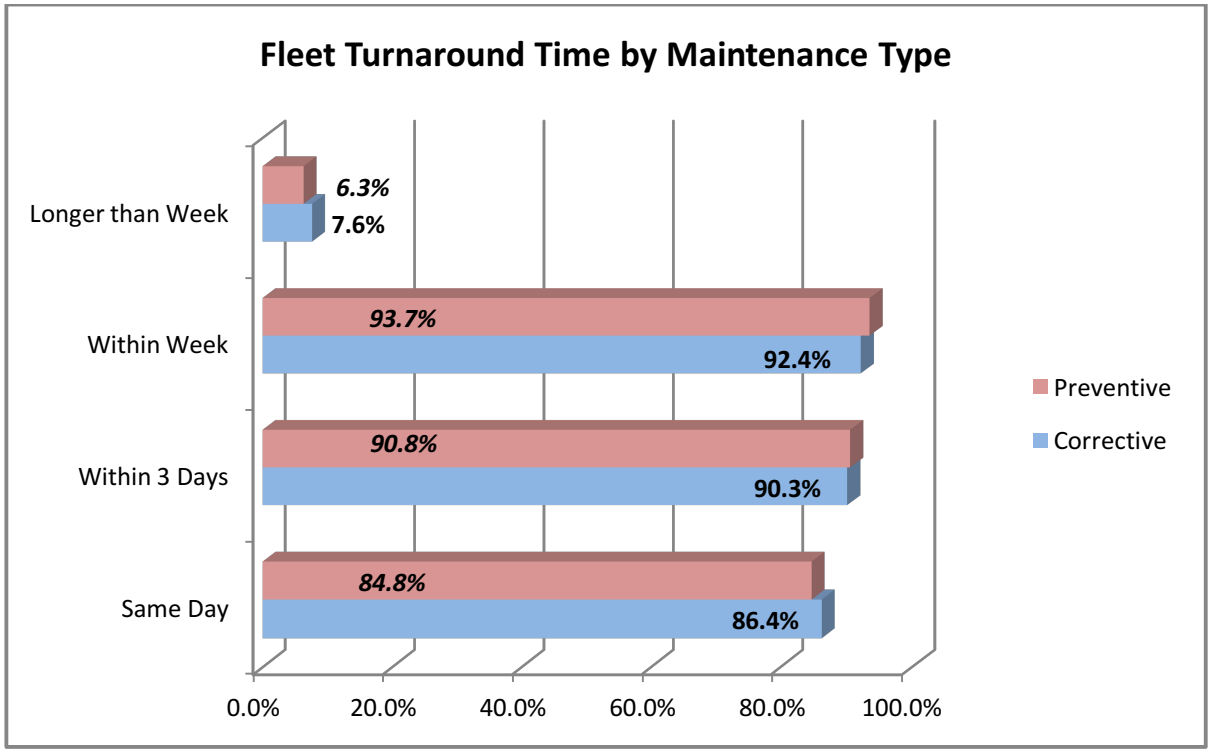
The Matrix Consulting Group conducted interviews of various City customers of the Ogden City Fleet Maintenance operations. These interviews were confidential and anonymous and as such, details with regard to various parties providing certain information is not attributed to the specific interviewees. However, interview observations were generally consistent with an anonymous customer survey completed by leadership of the various departments. Based upon the survey, the following positive sentiments, in descending levels of agreement, were generally noted.

- 92% of respondents agreed that Fleet Maintenance staff were professional and courteous.
- 75% of respondents are happy with the quality of maintenance and repair performed on vehicles and equipment.
- 67% of respondents are satisfied with the overall services provided by Fleet Maintenance.
- With regard to specific performance, 58% of respondents are satisfied with the amount of time it takes for Fleet Maintenance to complete repairs (e.g. turn-around time).
- Specifically, 50% of respondents believe a good job is done explaining the repairs and maintenance performed.
- Only 42% of respondents were confident that when repairs were made, that they were accomplished such that they would not have to bring back the unit for repeat repairs.

In summary, information suggests that Fleet Maintenance is well-regarded overall with respect to fleet-related service provision, particularly with respect to staff's professionalism with the client. However, there are some effectiveness issues as it relates to certain performance characteristics such as vehicle turn-around time and comeback repairs. Importantly, these customer observations generally do not coincide with a fleet maintenance operation that is understaffed, as in most instances under-staffed maintenance services would lean toward more negative opinions from the clientele. In sum, Fleet Maintenance has an overall positive reputation while recognizing there are some opportunities for service-level improvements.

(3) Based on Available Data, Vehicle Turnaround Time is Very Good but with Some Notable Outliers.

Vehicle turnaround time is another performance metric measuring effectiveness. The Matrix Consulting Group requested from Fleet Maintenance a specialized report from March 2015 – March 2016 regarding vehicle turnaround time. A calculation was performed to determine the number of calendar days transpiring between the time the vehicle was brought in for service to when it was available for pick-up. The following chart shows turnaround time by preventive maintenance work orders and corrective maintenance repair orders.



The results indicated that approximately 85-86% of preventive and corrective work orders were completed on the same day. Over nine-in-ten work orders were completed within the week, while "problematic" work orders extending over a week were 6.3% for preventive work and 7.6% for corrective work, respectively. The work orders taking longer than a week were largely due to parts on order, dealership warranty work, major repairs requiring significant time, etc.

Interestingly, despite this overall very good turnaround time, only a small majority of survey respondents indicated that this was a positive performance attribute of Fleet Maintenance. This is likely due to a few factors; one being that there is apparently inconsistent notification of the customer when vehicles are completed for service. This should be an important duty of the lead mechanic or supervisor and should be considered a vital service activity, as turnaround time is one of the primary measures upon which customers evaluate fleet operations.

Secondly, while infrequent, there are examples in which turnaround time exceeds a week, sometime excessively. In the one-year period there were over 125 work orders in which turnaround time exceeded four weeks, and while this is proportionally small compared to all work orders, it occurs frequently enough that customers will recall "poor service" with regard to getting their vehicle or other apparatus in a timely manner. As such, the lead mechanic and supervisor should proactively keep the customer informed on a weekly basis as to vehicles with extended maintenance requirements, articulating why such a delay is occurring.

Recommendation 25: Continue to accomplish effective overall turnaround times whereby 85%-90% of vehicles are serviced within the same or next business day.

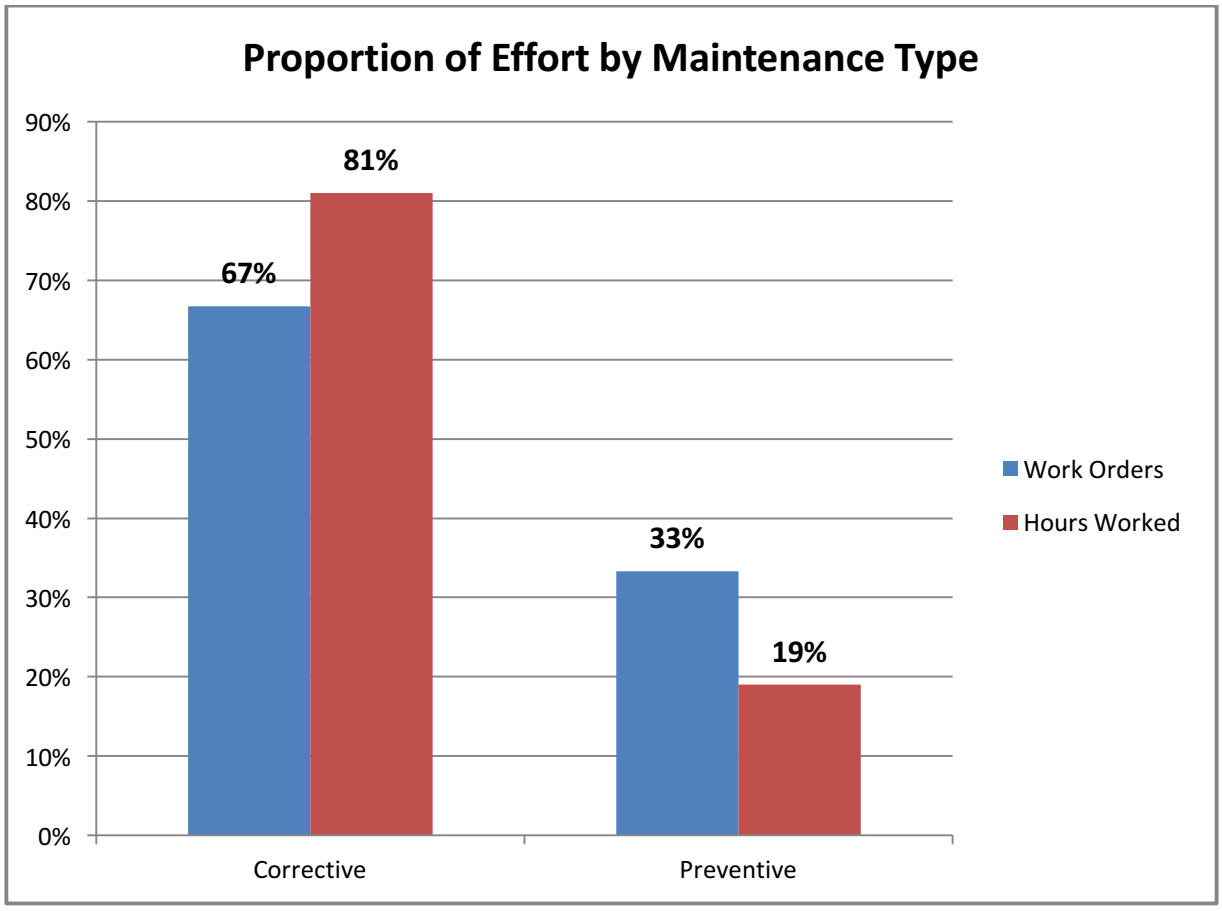
Recommendation 26: The lead mechanic or supervisor should inform all customers via e-mail upon the completion of maintenance or repair services on their fleet apparatus. Failure to pick-up after two business days should result in a follow-up phone call (with appropriate documentation of call).

Recommendation 27: For any service exceeding one week, the lead mechanic or supervisor should contact the customer via phone informing them of the specific reason for delay. This follow-up should occur weekly via phone or e-mail update until the fleet apparatus is delivered to the client.

(4) Metrics Related to Preventive Versus Corrective Maintenance Indicate Issues Related to Maintenance Focus.

Any vehicle maintenance operations should be focused on preventive maintenance (PM) duties which generally impact the necessity to perform corrective repairs. Generally, 50% or more of wrench-time and/or work orders should be dedicated to preventive maintenance activities. Fleet maintenance operations which have significant wrench-time dedicated to corrective maintenance may indicate staffing shortages, as insufficient time is available to complete preventive work and time is instead dedicated to "immediate" corrective work (CM). Emphasis on corrective

maintenance may also point to aged equipment, poor quality repairs (e.g. comeback repairs) or possibly the way varied work orders are created and managed. The following chart shows one year's (2/15 to 2/16) worth of maintenance workload by both number of work orders by type of work as well as hours dedicated to preventive or corrective maintenance activities.



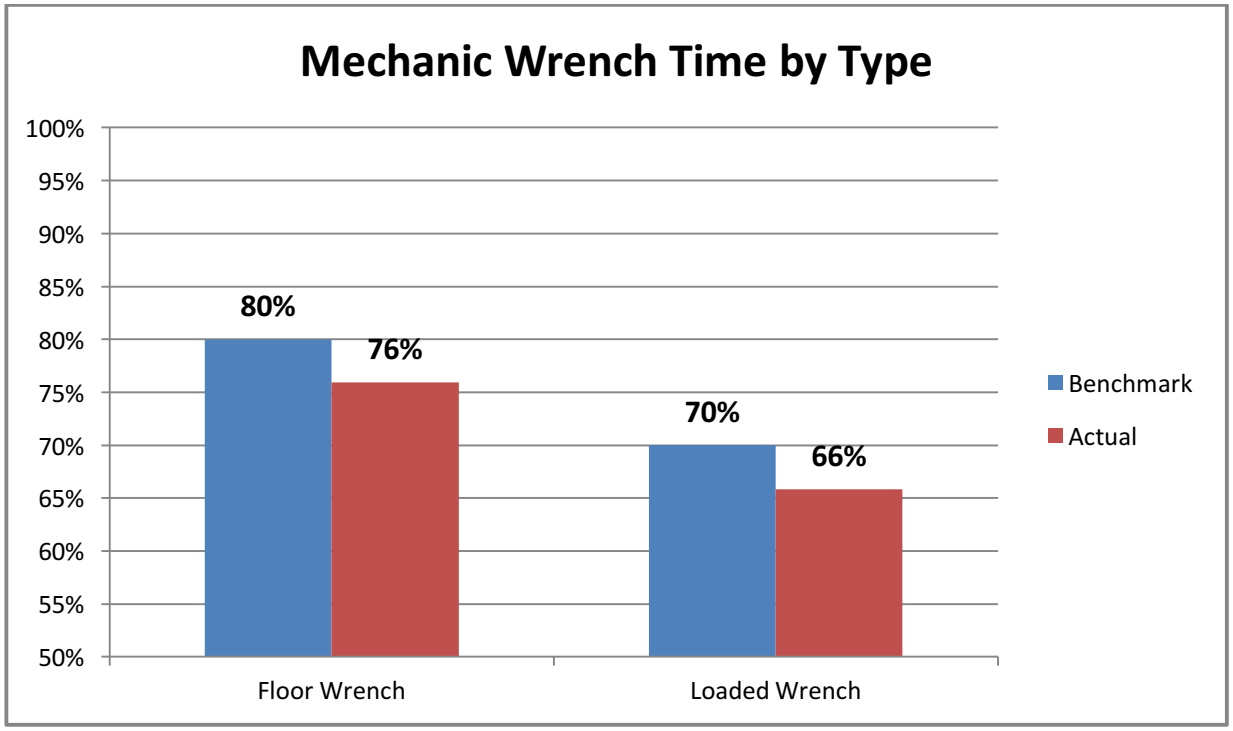
As noted by the chart, less work orders and mechanic time are dedicated to preventive maintenance activities, demonstrating an operational issue of some relevance. Ideally, these proportions should be near equal in a best-practices fleet maintenance operation. It is important that Fleet Maintenance, based on information contained in this report as well as their own internal diagnostics from actual

experiences, significantly improves the emphasis on preventive maintenance work to help ensure a well-maintained and cost-effective fleet.

Recommendation 28: Based on information contained in this report as well as institutional knowledge, identify corrective methods to significantly improve the emphasis on preventive maintenance work given the significant amount of effort that is currently dedicated to corrective maintenance activities.

(5) Fleet Maintenance Metrics Fall Within Guidelines for Performance.

Other metrics of efficiency and effectiveness are the various wrench time methodologies noted previously. Based on the aforementioned data provided, the following chart is shown.



Industry standards suggest a minimum overall 80% floor wrench time, whereby all leave (vacation, sick, holidays, etc.) are subtracted from 2,080 annual available hours and then maintenance hours recorded are divided by the resultant. This 80% target is for individual mechanics as well as the consolidation of all mechanics. As shown by the data, floor wrench time was 76% for all mechanics (excluding the lead).

This proportion approaches benchmark standards which indicate that ideally 80% of floor wrench time performance should be expected and dedicated exclusively to maintenance activities and recorded on work orders.

Industry standards further suggest a minimum overall 70% fully-loaded wrench time whereby maintenance work hours recorded on work orders are divided by an available 2,080 hours per year; this is equivalent to approximately 125 hours per month of work order service. This 70% fully-loaded target is for individual mechanics as well as an average for all mechanics. Similar to floor wrench time, fully-loaded wrench time of 66% approaches benchmarks standards. Both of these metrics indicate no issues of relevance with respect to work performance and tracking of time on work orders (assuming such tracking is accurate).

Recommendation 29: Continue to strive for wrench-time benchmark standards. Fleet Maintenance is very close to desirable standards of 70% loaded wrench-time and 80% floor wrench time performance.

(6) Summary of Fleet Maintenance Workload Information.

These wrench-turning results must be placed into context relative to other data items. As described previously, Vehicle-equivalent Units (VEU) indicate that Fleet Maintenance might be short-staffed; however this is in contrast to customer quality opinions and other fleet maintenance shops which have challenging VEU characteristics. Turnaround time is typically very good, but there are outliers which can create customer service problems. Wrench time is very reasonable, but the amount of time dedicated to the type of maintenance work—that is an overemphasis on corrective work versus preventive work—appears problematic. These characteristics are further evaluated in the context of Ogden City's fleet profile and more specific maintenance performance activities.

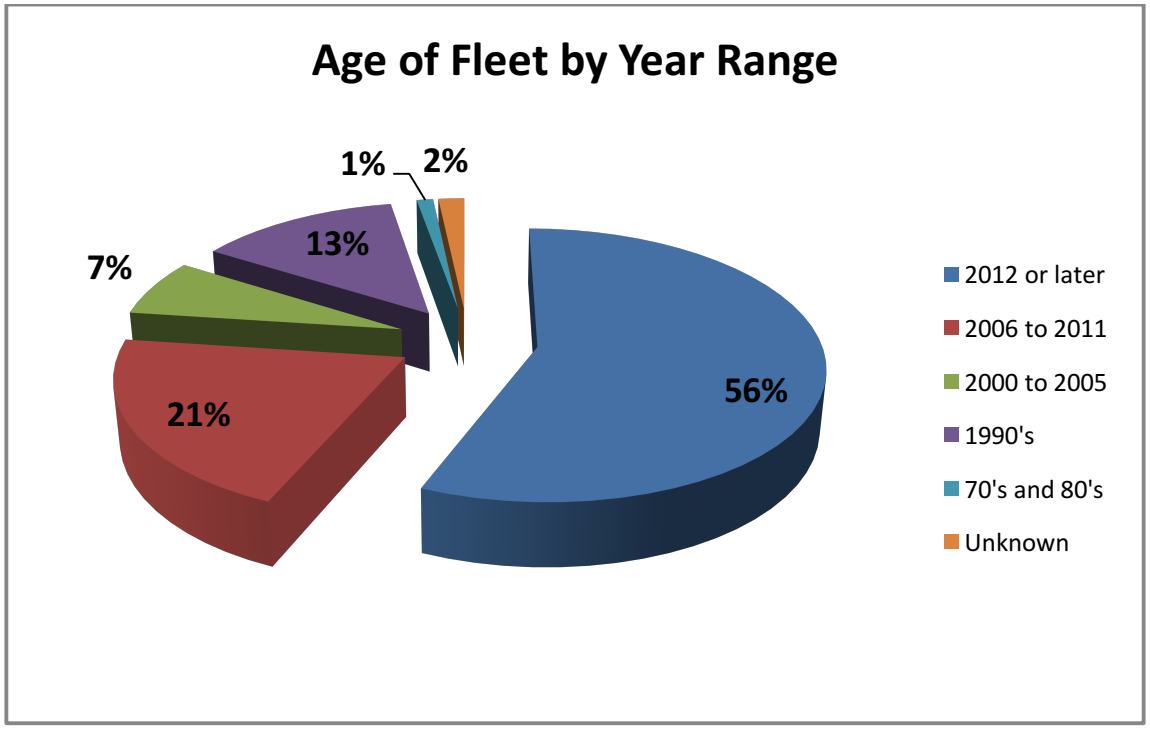
3. THERE ARE STRONG CORRELATIONS BETWEEN PREVENTIVE AND CORRECTIVE MAINTENANCE PROGRAMS, THE FLEET PROFILE, AND STAFFING REQUIREMENTS.

The totality of maintenance data noted above indicates generally positive findings with the exception of the emphasis on corrective work as opposed to preventive maintenance work. Oftentimes when the former is emphasized, there is a potential staffing issue as mechanics have insufficient time to focus on scheduled preventive work given corrective work must often take priority. Other explanations include a fleet that is underutilized and does not often need preventive maintenance, or alternatively skipped preventive maintenance cycles. With respect to hours on work orders, recordation practices might overemphasize the time spent on repairs but this does not reconcile the issue of significantly more corrective work orders being opened than preventive work orders. Finally an older fleet often requires more corrective maintenance activities. These factor impact how fleet maintenance operations are performed.

One important consideration impacting Fleet Maintenance operations is the age and utilization of the fleet. These, and other factors, are discussed further below.

(1) Ogden City's Fleet is Newer Compared to Many Other Jurisdictions.

The City's fleet is relatively young—representing an important maintenance advantage—with over 55% of fleet assets less than five years in age, as shown by the following pie chart.



As noted in the chart, a large portion of the assets were manufactured in 2012 or later, with over three-quarters of the units manufactured in 2006 or later indicating a Ogden City fleet profile largely consisting of apparatus ten or less years old. Importantly, older units are most often falling in the 0.5 VEU category which, as previously noted, covers trailers, light small equipment apparatus such as chain saws, weed-eaters, mowers, etc. Both age and utilization impact the need for mechanical staffing. An aged fleet typically requires more staff resources to maintain, whereas conversely, fleets that are younger typically require less staff resources.

During the Matrix Consulting Group's interviews it was noted that while Ogden City had for several years an aged fleet, the fleet was in many respects updated over the course of the last few years. Consequently, the City benefits from a comparatively young fleet when juxtaposed against many other governmental fleet operations. A younger fleet generally helps minimize fleet maintenance costs, both in labor and parts,

and typically allows staff the ability to service more vehicles per mechanic. This helps provide an explanation of why existing mechanic staff resources are able to attend to the fleet with a higher VEU profile than generally recommended. Nevertheless, the younger age of the fleet does not explain why there is an emphasis on corrective maintenance activities.

(2) Information and Operational Approaches Relating to the Performance of Preventive Maintenance Are Problematic, and Are Vital Issues Requiring Resolution.

Preventive maintenance is a cornerstone of fleet maintenance operations. Generally speaking, vehicles should be on a 3,000 to 5,000 mile PM cycle or 3 to 6 months, whichever is less. In order to identify the appropriateness of preventive maintenance, certain critical data features are necessary. These include accurate fleet utilization information in the form of odometer mileage, and effective technologies and/or practices to record such mileage at the driver level (when fueling) and the mechanic level (when performing maintenance). Our review of available data from the Cartegraph System and Fuel Master system indicates there are several issues surrounding the Fleet Maintenance's Preventive Maintenance program that impact the effectiveness of overall operations. Preventive Maintenance should be considered a cornerstone of effective fleet maintenance practices, and given the issues noted previously with the apparent under-emphasis in preventive maintenance versus corrective maintenance activities, it is vital to address the variety of opportunities for improvement noted herein. The various issues can be summarized as follows:

- Data was provided from the Cartegraph System for one year with respect to a 'PMA' preventive maintenance work orders opened for the fleet. PMA represents the basic preventive maintenance activities to include oil and filter change and

service inspection and should be conducted, at minimum, at least one time annually for all fleet apparatus. The following is noted:

- Based on the records from 3/15 to 3/16, only 56% of the fleet inventory received one or more PMA services.

- Of those apparatus receiving PMA service, 51% of the units received multiple PM services over the year. Interestingly, nearly half (49%) received only one service.

- 83% of PMA work orders had odometer (mileage) readings recorded by mechanics; however, approximately one-in-six did not have such recordings. This is problematic as such information is critical to help execute an effective preventive maintenance program. This proportion should approach 100% accuracy.

- While there are a variety of examples where preventive maintenance activities were performed within mileage or time parameters, there are an inordinate number of examples in which there were various problems related to conducting and/or recording effective and efficient preventive maintenance activities. Illustrative examples include:

  - Unit# 7490 (2007 International Dump Truck) recorded 42,000 miles in July 2015 yet over 96,000 miles one month later. An entry in January 2016 likely correctly recorded 100,500 miles on the apparatus.

  - Unit# 8020 (2008 Dodge Charger police unit) recorded 65,081 miles in August 2015 yet had another PMA service two months later in mid-October with only 66,000 miles recorded. Interestingly from a usage and PM perspective, the unit travelled only 8,200 miles in seven months yet had four PMA services conducted. Unit# 8023 another police Charger, had two PMA's within seven (7) weeks after travelling only 1,200 miles yet never recorded in the year another PMA service.

  - Unit# 9564 (2009 Dodge Twin Cab) had two different PMA work orders opened on 2/5/16 with different mileages indicating incorrect dating or duplicative work orders.

  - Unit# 13024 (2012 Freightliner 10-wheeler) had three PMA's performed with mileage errors. One PMA did not have an odometer entry and the remaining PMAs had more miles in June of 2015 than in January of 2016.

  - Unit# 9590 (2009 Dodge 3500) had two PMA's conducted within 10 weeks with only an 1,100 miles usage between these time periods.

- Unit# 14047 (2014 Ford Taurus police unit) had two PMAs conducted after driving nearly 5,000 miles in two months between service, but subsequently never had another PMA performed that year.

The totality of information surrounding preventive maintenance work indicates a program that has significant opportunities for improvement. Fleet apparatus are preventively being over-maintained, under-maintained, or not maintained at all, and information (e.g. odometer) is not as accurate as needed from a best management practices perspective. While the project team recognizes that some of this is exacerbated by a Cartegraph Computerized Maintenance Management System (CMMS) that is perceived as not user-friendly and also less than adequate, as well as a PM program that over-relies on the driver to ensure PMs are conducted in a timely manner (through a window sticker program), these preventive maintenance shortcomings need to be addressed and should be considered a vital few priority in improving fleet maintenance operations.

Recommendation 30: Improve the accuracy of recording vehicle mileage/hour usage among mechanics and drivers in Cartegraph and Fuel Master systems.

Recommendation 31: Ensure all fleet maintenance assets receive at least one PMA effort annually.

Recommendation 32: Reduce the occurrence of preventively over-maintained or under-maintained fleet apparatus.

Recommendation 33: Fleet Maintenance must devise a preventive maintenance program that is proactive, with Fleet Maintenance being responsible for notifying the customer when a PM is due and ensuring the apparatus is checked-in. The current PM "window sticker" is insufficient as a method and must be augmented to improve the City preventive maintenance program.

Recommendation 34: Adopt other preventive maintenance practices identified in the Best Management Practices matrix in this report.

(3) A Significant Portion of Ogden City Fleet Has Comparatively Limited Usage.

The Matrix Consulting Group examined mileage and fuel data provided by the City for fiscal year 2015. The results of this analysis confirm that not only is the fleet not particularly aged but that the fleet is not operated excessively. Only approximately 80 vehicles exceed 12,000 miles usage a year. This is proportionally small compared to the total inventory of 625 units. Of greater importance, a similar number of units appear to be well underutilized and are candidates for review.

Given the substantial asset investment that the City has in its fleet, it is critical that it be right-sized in terms of the number of rolling stock units. Since a fleet user's need for a vehicle or piece of equipment can continue to change over time, only justifying the initial acquisition and assignment of a vehicle does not ensure that a fleet of vehicles will remain properly sized nor the right mix of apparatus. It is important that Ogden City periodically analyze available information on the utilization of fleet assets and determine if there are opportunities to make adjustments to fleet size and/or share assets. This type of analysis should be conducted at least annually and include measurement criteria that is derived from actual experience. Such objective exercises can result in some of the most significant cost savings to a municipal organization that can range in the millions of dollars annually in real savings (e.g. operations and maintenance) and avoided costs.

The project team reviewed the listing of fleet profile assets and identified potential units for further exploration of alternative usage. These include rolling stock driven less than 5,000 miles annually or using less than 300 gallons of fuel per year. Such units deserve comprehensive unit by unit evaluation based on present utilization.

It should be noted that some low usage vehicles in the list will be readily explained; however, many vehicles are likely unnecessary based on their limited use as reflected by minimal mileage figures or, alternately, can be pooled based on these usage figures. It should be further noted that these do not represent all equipment types that could undergo an evaluation; rather this is one of several approaches to such an exercise. The following vehicle list is identified as units deserving usage review.

Potentially Under-utilized Ogden City Vehicles[17]

Unit #	Vehicle Description	Annual Miles	Annual Fuel Used
0000S106	DODGE RAM 1500	0	349
11002	DODGE RAM	0	28.6
2745	2002 HARLEY DAVIDSON FLHPI	0	3.8
1709	2000 Chevy Impala	0	12.3
9034	2010 FORD CROWN VIC	0	17
0000S100	Freightliner Boom Truck	0	31.1
2743	2002 HARLEY DAVIDSON FLHPI	60	14.1
1740	HARLEY-DAVIDSON	77	17.6
946	89 FORD (S-71) F250 (S71)	99	36.5
2746	2011 HARLEY ROAD KING	123	9
909	1999 DODGE (C-76) / OCS C76	186	38.7
9070	2010 DODGE AVENGER	220	25.5
9102	FORD RANGER	239	33
2330	FORD F-350	243	34.8
11042	DODGE RAM	349	71.4
973	PLYMOUTH (C-65) MINIVAN	368	53.4
00000S57	1991 Ford Ranger	489	76.7
11029	DODGE RAM	581	91.3
0000S111	CHEVROLET K 250 SILVERADO SCHOOLS	619	71.9
9597	2009 DODGE RAM	631	129.3
4751	2004 FORD CROWN VICTORIA POLICE INTERCEP	655	102.7
6744	HARLEY DAVIDSON ROAD KING	739	25.6
9032	2010 FORD CROWN VICTORIA	754	58.67
00000S97	2002 Ford Explorer	764	74.9
953	1997 FORD TAURUS OCS C78	772	34
981	MERCURY SABLE OCS C79	790	41.4
00000C83	Chevy Lumina, white C-83	1014	126

[17] This list was generated directly from information provided from Fleet Maintenance and may have recordation errors such as Unit # or inconsistencies in vehicle description.

Unit #	Vehicle Description	Annual Miles	Annual Fuel Used
339	1985 FORD F600 PARKS	1044	102.7
14268	CAN-AM POLICE	1062	86.4
1008	BATALLION CHIEF VEHICLE	1075	171
11025	DODGE RAM 2500	1091	149.3
11022	DODGE RAM 2500	1113	139.6
4338	VERMEER/PARKS/FORSTRY	1129	28.1
9029	2010 FORD CROWN VICTORIA	1141	128.4
14105	2014 FORD F 150	1162	128.6
939	1999 DODGE RAM (C-77) OCS / C77	1228	97.4
11017	DODGE RAM 2500	1235	152.2
950	CHEV MALIBU- C87	1244	70.2
00000C85	DODGE VAN	1262	19.1
6098	FORD WINDSTAR	1334	109.4
0000C100	TOYOTA COROLLA	1336	99.1
0000C101	TOYOTA COROLLA	1361	120.7
4503	Chevy Trailblazer	1482	111.8
7708	2007 FORD F-150	1542	156.3
7090	FORD ESCORT	1577	84.3
1114	FORD WINDSTAR	1682	151.5
972	CHEV (S-67) BLAZER	1686	137
14100	2014 FORD ESCAPE	1712	120
7113	FORD WINDSTAR	1809	116.3
11041	DODGE RAM	1820	194.6
00000C72	GMC VAN	1835	138.9
7114	FORD F361	1898	212.2
1115	FORD WINDSTAR	1954	141.5
14155	2015 FORD F250	2032	289.7
00000S91	1998 CHEVY C6500- WHITE	2044	181.7
1116	15 passenger chev van	2126	135.4
15015	2015 FORD TAURUS	2161	199.6
9049	NISSAN ARMADA	2178	118.5
4744	2004 CROWN VICTORIA POLICE INTERCEPTOR	2321	227
11056	DODGE RAM	2392	289.1
00000C92	CHRYSLER SEBRING	2419	153.5
4746	CROWN VIC POLICE INTERCEPTOR	2542	261.7
00000C98	Toyota Camry	2551	104.8
8028	FORD TRUCK	2579	246.8
0000S104	Ford F350 Super Duty	2740	822.8
00000C86	FORD VAN	2847	62.2
11046	DODGE RAM	3025	232
6310	2006 FORD F-250	3230	183.1
4045	FORD FREESTAR MINIVAN	3548	254.8

Unit #	Vehicle Description	Annual Miles	Annual Fuel Used
14101	2014 FORD ESCAPE	3590	214.8
00000C97	2011 TOYOTA CAMRY	3623	176.3
14008	FORD ESCAPE CED	3806	206.5
13011	Ford Fusion	4256	228.3
9505	2008 DODGE AVENGER	4385	236
9047	2009 DODGE AVENGER	4421	189.4
9083	2011 FORD ESCAPE	4690	247.4
13015	Chevrolet Impala	4714	245.6

The information contained above reflecting over 75 vehicles indicates the City should consider opportunities for fleet reduction and consolidation based on usage patterns. The noted vehicles above are traveling less than 400 miles per month—some significantly less. This is not excessive usage and demonstrates there are possibilities for elimination of units, further pooling of city vehicles, etc. Based on the data, the City should take a number of steps to potentially reduce the fleet. These steps include the following:

- **Vehicle utilization standards should be adopted**. The Fleet Supervisor and senior division management should develop vehicle utilization standards for the consideration by the City Manager. These standards would serve as an initial screening device along with a regular vehicle justification process. Caution should be exercised to define the proper benchmarks for monthly or annual vehicle usage standards. There is a tendency to define vehicles as needed or unneeded based exclusively on such standards; this tendency should be avoided. Mileage and daily or hourly usage amounts can be used to help identify potentially underutilized units; however, usage statistics alone can also be very poor indicators of the true need for a vehicle or piece of equipment, particularly if the asset has been fully depreciated and takes minimal maintenance effort. For example, a plumber's van loaded with supplies and equipment might fit this description. Its odometer will indicate that it is not driven frequently, but this clearly does not mean that the vehicle is under-utilized or not needed. For these reasons, vehicle assignment justification and utilization monitoring procedures should define the need for, and use of, vehicles and equipment from as many perspectives as possible. Mileage or hourly readings are only one metric. In addition, other utilization standards should be used to scrutinize vehicle assignments or vehicle purchase requests and should be tailored to the different types of vehicles and the different environments in which departments and divisions operate.

- **Economic incentives should be provided for reduction of vehicles assigned to departments.** In addition, economic incentives should be used to maximize the utilization of fleet assets (e.g. reduced rental rates). For example, as users eliminate fleet apparatus from their department inventory and the attendant costs, they should be allowed to retain a portion of the savings to be used elsewhere in the department (such as an enhanced training budget). In this manner effective fleet management benefits the end-using department, not just the City overall. Users that are aware of the actual costs associated with owning and operating a unit and are charged accordingly should ultimately recognize the value of eliminating unnecessary apparatus.

- **Develop a proposal for the reduction of the City's fleet.** The Fleet Supervisor should be assigned responsibility for the development of a proposal for consideration by the City Manager for downsizing the fleet. Basic steps involved in the analysis are as follows:

Steps in the Reduction of City Fleet

Interview managers in departments to whom the vehicles are assigned to gain an understanding regarding how each vehicle is utilized and assigned.
Establish criteria to test the cost-effectiveness of all components of the fleet. These criteria should include such items as:
• Utilization (mileage/hour) ranges by equipment class and assignment.
• Utilization patterns including seasonal peaks and valleys.
Identify specific units within the fleet which appear to be underutilized.
Once specific units have been isolated, explore opportunities to increase utilization and/or reduce costs through a variety of approaches such as:
• Expanded pooling.
• Replacing vehicle assignment with mileage reimbursement and/or car allowances for selected users.
Based on the above, develop an approved list of specific units that are candidates for either elimination or alternative usages.

The potential fiscal impacts of a well-designed and comprehensive fleet usage study cannot be underestimated. Elimination of vehicular assets from a fleet inventory can save a tremendous amount of money related to vehicle operations, maintenance, depreciation, and the attendant fleet staffing needed to maintain apparatus. In sum, the fleet usage study should incorporate multi-year use patterns; surveying of user departments and individual drivers; random site visits to observe the proportion of time vehicles are idle/parked; review of assignment strategies (i.e. individual versus pool); potential downgrading from larger vehicle models to smaller (e.g. standard or compact);

potential exchange to a "green vehicle;" cost comparisons to monthly stipends or mileage for use of personal vehicles on City business; sharing of heavy apparatus with adjoining jurisdictions; use of vehicle rentals instead of ownership; etc.

The reduction of the City's fleet provides an opportunity for Ogden City to reduce its annual costs for operations, maintenance and vehicle depreciation. Fleet down-sizing can also allow for future reduced staffing levels in fleet maintenance. Although savings would be dependent upon actual reductions, based on the objective noted, it is reasonable to assume 5% to 10% of the fleet's value could be saved or result in avoided costs.

Recommendation 35: Consistent with approaches discussed in this chapter, the Fleet Supervisor should conduct a comprehensive fleet usage study and develop strategies to reduce the size of the fleet both in terms of the number of vehicles and potentially the size of vehicles.

4. DATA SUGGEST THAT ACTUAL MECHANIC STAFFING OF ONE LEAD AND FOUR MECHANICS IS SATISFACTORY UNTIL OTHER OPERATIONAL CHANGES NOTED IN THIS REPORT ARE EXECUTED.

Based upon all previously analyses involving numerous variables, the Matrix Consulting Group recommends that the current actual contingent of four (4) mechanics and one (1) lead mechanic is satisfactory until various operational changes are undertaken that may warrant filling the current one (1) vacant mechanic position. As noted, data are contradictory, but the observations and analysis can be summarized as follows:

- While Vehicle-equivalent Units (VEU) and mechanic-to-fleet ratios seem to indicate staffing shortages, additional information suggests otherwise. Data and other in-depth analysis suggest that many units have limited mechanic service due to their mileage, usage history, or type of apparatus (e.g. 0.5 VEU). Given that VEU calculations are based on a fleet with average usage (approximately 10,000 or more miles per year) and that undergoes approximately 15-hours of maintenance per 1.0 VEU, it is reasonable to expect the Ogden Fleet

Maintenance mechanics can handle significantly more VEUs than the standard benchmark ranges noted previously.

- 75% of customers surveyed are happy with the quality of maintenance and repair performed on vehicles and equipment and two-thirds of respondents are satisfied with the overall services provided by Fleet Maintenance.

- While there are a small proportion of outliers with respect to the length of time vehicles are out-of-service, generally turnaround time is very good for Fleet Maintenance.

- Wrench-turning time is within benchmark standards demonstrating mechanics are actively engaged in work orders, but not excessively. There is some minor capacity for increased work based on wrench time calculations. With respect to the employee survey of the Division, only 1-in-9 staff believed "they were always busy and could never catch up." The same number indicated they could handle more work while the vast majority indicated work was busy or "balanced."

- The fleet's age and utilization rates indicate a fleet profile that does not require excessive maintenance work. Indeed, there appear opportunities to downsize the fleet to some degree.

- Despite these varied characteristics, Fleet Maintenance can significantly improve their preventive maintenance program. This will require additional work efforts on the part of all staff, but those efforts will likely not be excessive.

In summary, given current fleet practices, Fleet Maintenance mechanic staffing is presently adequate. However, staffing should be revisited upon implementation of a robust preventive maintenance program combined with the internal exercise of right-sizing the fleet. Upon completion of these two key initiatives, and the attendant operational changes, filling the authorized fifth mechanic position should be re-visited as it may indeed be warranted.

The Fleet Supervisor position directly oversees six (6) authorized line staff and now five (5) actual staff in Fleet Maintenance. Supervisory to staffing ratios are typically in the 1:6 to 1:10 range, dependent upon the complexity of the jobs supervised and the work balance between personnel supervision, administrative duties, and other special

projects. Based solely on the number of staff supervised, the Supervisor oversees the lower end of the personnel range, typically allowing adequate time to perform varied tasks beyond the common supervisory/managerial responsibilities associated with a supervisor position. As such, there should be adequate time for the supervisor, with support of the lead mechanic, to execute special projects and other customer service initiatives shown in this report.

Recommendation 36: Maintain the existing four (4) mechanics and one (1) lead mechanic staffing until preventive maintenance programming and fleet right-sizing initiatives are fully executed. Upon this implementation, re-visit the need for filling the currently vacant fifth mechanic position.

Recommendation 37: Maintain existing supervisory staffing of one (1) Fleet Maintenance Supervisor position.

5. FLEET MAINTENANCE SHOULD EMPHASIZE RESOLUTION AND IMPLEMENTATION OF PARTICULAR BEST PRACTICE APPROACHES.

As shown in the best practices matrix within this report, there are a variety of best practices that Fleet Maintenance has implemented, but there are others that could be implemented in the future. The following are the Matrix Consulting Group's suggestions with respect to what particular areas should be emphasized.

(1) The Division Should Emphasize Mechanic Training.

The Fleet Maintenance staff have not regularly undergone a variety of training that includes certifications in Automotive Service Excellence (ASE) areas—such as certification in hybrid vehicle systems, aerial devices, forklift operations, BIT inspections, and the like. Indeed, no formal skills assessment and training plan has been developed. Fleet maintenance staff received only 50 hours total training in 2015, much related to safety training with limited skill-set development. Training should be made available and encouraged on a regular basis. Currently the City does not reward maintenance

staff for the possession of various skill set certifications. The City should consider such rewards to encourage staff to maintain up-to-date certifications in applicable skill areas.

Recommendation 38: Enhance mechanic training and consider monetary rewards for maintaining relevant ASE and other certifications in various maintenance skill sets.

Recommendation 39: Ensure sufficient fire apparatus repair/maintenance training is provided given the complexities of these assets.

(2) Develop Fleet Policies and Procedures.

Fleet Maintenance presently does not have comprehensive written policies and procedures, otherwise known as a Standard Operating Procedures (SOP) manual. Development of this SOP product should occur, as eventual turnover in staffing will require the transition of operational knowledge to new personnel. An SOP is important to ensuring consistent operations now, and particularly in the future.

Recommendation 40: Develop a written Standard Operating Practices Manual for Fleet Maintenance.

(3) Implement Fleet Financial Best Practices.

Ogden City should consider the following financial best practices with respect to fleet operations. There are a variety of adjustments that can be made that are consistent with best-in-class fleet operations.

(3.1) The City Should Revisit the Structures and Use of its Internal Service Fund and Fleet Replacement Reserve.

Internal service funds (ISF) are used to account for the financing of goods or services provided by one department to other departments in the City and to other government units on a cost reimbursement basis. Costs in the internal service funds are allocated to the benefiting funds in the form of fees and charges. Fleet Maintenance is established as an ISF; however, it is not fully functioning as one per se. Fleet rates,

which drive ISF charges, were established in 2002 at $71.00 per hour regardless of staff position (line or supervisor) and have not changed in 14 years.

The Division segregates the fleet into "A bill" and "B bill" customers, and both are charged differently. "A bill" customers have procured their vehicles and equipment independently from the Fleet and Facilities Division, and are charged the hourly rate for service. This method of charge-back promotes some sense of cost recognition, as users are charged for services rendered in real time, yet this approach relies on the accurate capturing of mechanic time, parts cost, etc. Further, it places maintenance decisions with the customer who may forego such things as preventive maintenance activities in order to save money.

"B bill" customers are charged a monthly fee that includes pre-paid numbers of preventive maintenance services, tires, and other elements of service. Since these are charged irrespective of the numbers of services actually rendered, there is less cost recognition in the manner of billing "B bill" customers than is the case for "A bill" customers.

These two disparate systems create significant confusion beyond managing two completely independent charge-back approaches. In the customer survey 56% of respondents who offered a definitive opinion did not understand the rates charged to the department for fleet services. The experiences of the Matrix Consulting Group are uniform in suggesting that use of a properly designed Internal Service Fund is beneficial. Advantages include better signals to users to maximize vehicle utilization and minimize vehicle damage and better incentives for Fleet Maintenance to improve customer service and reduce costs. Most of these advantages flow from transparent,

auditable rates that allow comparisons with commercial vendors and pass full costs on to users. Use of an Internal Service Fund also enhances the accountability for the delivery of cost effective fleet services by Fleet Maintenance. Accountability will be enhanced because the ISF will provide departments with a clearer picture of what they are buying, enabling them in turn to make certain that Fleet Maintenance is providing all the services for which they are paying. There will be increased visibility of costs because all of the costs of the Division will be captured in published rates and budgeted in the ISF at their full cost.

Currently with a bifurcated ISF system that is outdated based on hourly rates, effective management of the fund (and an understanding of its charging mechanisms) is challenging.

Recommendation 41: The City should implement a single internal service fund approach with one charge-back mechanisms for the delivery of services provided by Fleet Maintenance. This should be based on a loaded monthly rental rate.

(3.2) The City Should Revisit the Structures and Use of its Fleet Replacement Reserve and Link to the ISF so that a Fully-Loaded Monthly Rental Fee Can Be Charged to End-Users.

The planned procurement and funding for replacement or new vehicles is a critical component in effective fleet management. Although the monthly fees charged to "B bill" users for their vehicles includes a replacement element, the amount of this replacement charge is not truly placed into a replacement fund. Rather, vehicle replacements are funded on a pay-as-you-go basis. Once a vehicle is procured, there is no recurring capital replacement cost to the using organization.

The key concerns associated with current financial management related to fleet operations is that with this approach the using departments do not see the recurring and

true cost of vehicle ownership. What should occur is that using departments should pay a monthly lease fee to the fleet for the use of each vehicle. The lease fee should represent an amount of money that when accumulated over the expected life of the vehicle will permit the vehicle to be replaced. The departments help determine the need for vehicles and prepare their annual budget requests with both the capital cost of the vehicles and the operating and maintenance costs taken into consideration. Certainly, Fleet Maintenance should play an important consulting role, but it is the departments that ultimately ask for and defend their requests for the funding.

If the departments get funded, they can continue to buy from the fleet the vehicles and services. If the departments have their budgets cut, they should have some latitude to determine whether they want to forgo ownership of particular units or forgo expansion of their fleet. If the department decides it can no longer afford all of its vehicles, it can turn them in to the fleet for disposal or re-assignment.

Recommendation 42: Reinstitute the Fleet Replacement Reserve. Fleet capital costs (i.e., replacement costs) should be included in an ISF, and fully-loaded charge-back rates should be calculated to include operations, maintenance, and vehicle depreciation (replacement cost).

(3.3) Recalculate Mechanic Hourly Rates.

Mechanic hourly rates have not been changed since 2002 and are thus very aged in the Cartegraph CMMS. Properly calculated mechanic hourly rates are a cornerstone in understanding the fiscal details of operating a fleet maintenance organization. Best-in-class mechanic hourly rates are “loaded” to include all overhead associated with operating a fleet maintenance organization. As such, these mechanic hourly rates should be updated annually and reflected in appropriate City information systems.

Recommendation 43: Recalculate mechanic hourly rates based on "loaded fleet maintenance operational costs" and update them on an annual basis.

(4) Implement Other Best Management Practices, as Practical.

In order to conduct business effectively, all organizations should implement Best Management Practices as practical. These go beyond what is considered common practice. It should be noted, however, that agencies may not be able (or are unwilling) to completely implement a best practice for a variety of reasons that include:

- Insufficient resources, whether personnel or fiscal, to adopt a best practice.
- Inadequate available time to emphasize and proactively implement new practices as a consequence of focus on managing critical day-to-day issues (core business).
- Insufficient support from political, executive, or managerial personnel to adopt a best practice.
- Inadequate buy-in from line staff to implement a best practice.
- Disagreement that the best practice, although successfully implemented in other agencies, would not be successful in the agency under BMP review (for various cultural, organizational, or local/regional issues), and therefore is not a "best practice" from said agency's perspective.

Although there are relevant reasons, as noted above, to not implement an identified best practice, the ultimate intent should be to strive for implementing as many practices as feasible within the capabilities of the organization.

As noted within this report, there are a variety of best management practices surrounding a numerous functional areas performed by the division; these practices go beyond preventive maintenance, training, and other areas previously detailed. Each of these practices that are presently not performed should be explored for possible implementation. For those areas not implemented, an explanation should be provided to City management as to the reasons implementation is not practical. In summary, the

implementation of Best Management Practices can help distinguish the average agency from those widely recognized as a best-in-class operation.

Recommendation 44: Implement fleet maintenance best management practices provided in this report to the extent feasible. Report to City management the outcome of implementing best-management practices efforts.

5. ANALYSIS OF STORES OPERATIONS

This chapter of the report analyzes the operations of the stores warehouse. The warehouse is charged with purchasing, stocking, disbursing, and accounting for all parts and supplies for the Fleet and Facilities Division as well as for all other departments of the City. The warehouse operates on the same schedule as the Fleet Maintenance section of the Division, which is 7:00 am till 6:00 pm. The warehouse is staffed with three Stores Clerks. It is administratively supported by an Office Supervisor.

1. THE STORES WAREHOUSE SHOULD INITIATE A COMPREHENSIVE ANALYSIS OF ITS INVENTORY.

During the course of on-site observations, the project team conducted a random sample of 20 parts line items in the warehouse to determine the degree to which the inventory levels in the Cartegraph automated system matched the actual counts on the shelves. Overall, the results were good, with 18 of the 20 items matching exactly. The following table provides the part numbers sampled, the description of the part, the number of parts on hand, the number showing in the Cartegraph inventory, and any discrepancy as of the date of the random sample, which was March 10, 2016.

Part No.	Description	No. On-Hand	Cartegraph Count	Discrepancy
9926	Filter	5	5	
6490	Filter	5	5	
ATFQC	Anti-freeze	36	36	
6300	WD 40	13	13	
8316	Alternator	2	2	
UP7574M	Brake pad	2	2	
6050A	Lighting	3	3	
68040496AA	Pigtail for light assembly	3	3	
NTN7154B	Circuit board for radio	2	2	
EGHST1J	Police ghost light	8	8	
ELUC2S010W	LED inserts for lights	60	58	(2)
C44-44G/Q	Compression fittings	20	20	
6CX7.5	Water main repair band	44	45	1
TAP56X3/4S	Tapping saddle	4	4	

Part No.	Description	No. On-Hand	Cartegraph Count	Discrepancy
KV23-332W	Angle valve flange	61	61	
BJC480	Bell joint clamps	7	7	
6SX12.5	Repair band	13	13	
63200	Galvanized slip joint union	8	8	
363539	Bushings	16	16	
30-015	Air filter for mower	4	4	

As the table shows, there were two discrepancies in the 20 line items sampled, and these were the two parts with the greatest item counts in the sample. Overall, the match between the automated system and the physical inventory count should be considered acceptable.

There is, however, another dimension to the performance of the parts warehouse, and that is in the stocking of the optimal parts mix. The staff in the warehouse are generally tracking and accounting for the movements of parts into and out of the warehouse in an acceptable manner. However, it is likely that there are many parts in the warehouse that are not meeting acceptable levels of turnover, which indicates that there are potentially either many obsolete parts in the inventory, or there are parts that are not needed for current operations.

The warehouse had an inventory of somewhat less than $1 million on hand during the course of the study. It orders somewhat more than $1 million annually in parts and supplies for placement on the shelves or directly to an internal customer. This equates to a parts turnover rate of less than 1 time annually, which is well below the typical range of 3.5 to 4.5 times annually. This indicates that there are many parts that are not moving from the shelves to an end user for very long periods of time. This not only consumes valuable space in the warehouse that might otherwise be occupied by a faster-moving part, but it is also costly to the City in that it has invested what is likely to be many thousands of dollars in non-productive assets.

The Stores Clerks should begin an analysis of the degree to which parts on the shelves are being disbursed to users. The decision to remove a part from stock should be a product of at least two dimensions:

- The activity of the part in the past 12 to 18 months.
- The risk to operations in eliminating the part.

There are undoubtedly some parts in the warehouse that are not used frequently but would cripple operations if the part were not immediately available. These parts should remain in stock, however the Stores Clerks should make critical assessments of the risk in conjunction with operational managers and staff who would be most affected by the absence of the part. Slow-moving and obsolete parts should be removed from the inventory, and sold back to the manufacturers. Many of these parts will likely fetch only a small percentage of their initial purchase prices, and this is to be expected. However, continuing to hold these items in the warehouse consumes valuable space, and receiving a return of any kind is more advantageous to the City than continuing to hold them in stock with little or no likelihood of being used.

Recommendation 45: The Stores Clerks should initiate an analysis of the degree to which each part in the warehouse is being utilized. Slow-moving and obsolete parts should be removed from stock.

2. THE DIVISION SHOULD ELIMINATE THE REQUIREMENT FOR STORES CLERKS TO BE ON CALL.

The three Stores Clerks rotate being on call for 16 hours per week. These Clerks are called in on occasions for which operational personnel require parts for after-hours calls.

During the 16 hours that Clerks are on call, they are compensated at a rate that is 1.5 times their regular hourly rate. At the midpoint of the salary range for this

position, the regular compensation equates to $14.11 per hour, and is $21.17 at the overtime rate.

Although the project team was unable to obtain documentation for the actual numbers of times the Clerks were called in after hours, interviews indicate that it is exceptionally rare for this to occur, and is possibly only two to three times in a typical year. Given that the Division pays for 832 hours annually (16 hours per week * 52 weeks per year), at an average rate of $21.17 per hour, this equates to approximately $17,613 per year for the Stores Clerks to be on call, and to return to the warehouse two to three times per year.

The project team recommends that the Fleet and Facilities Division discontinue the practice of placing Stores Clerks on call, at an annual savings of about $17,613 per year. During those times for which the Stores Clerks would have been called, the Division may elect either to call the Clerks as needed, or to create a standard procedure for selected operational personnel to retrieve parts and to document their removal from inventory.

Recommendation 46: The Fleet and Facilities Division should discontinue the practice of placing Stores Clerks on call for after-hours emergency call outs.

3. THE WAREHOUSE SHOULD CHARGE A MARKUP FOR THE PARTS IT SELLS TO CUSTOMERS.

Currently, as the Stores Clerks issue parts and supplies from the warehouse, these parts are charged out at cost. Given that the Fleet and Facilities Division serves the entire City with this service, and is charged with recovering its full cost of operations, it is recommended that the Warehouse calculate an administrative mark-up for all parts, and assess this on each parts sale.

The following table provides the calculation of an estimated markup for parts issued from the warehouse.

Budget Item	Total FY16 Budget	Allowable for Mark-Up
Full Time Employees	$94,425	$94,425
Overtime	$15,000	$15,000
Workers Comp	$2,825	$2,825
FICA	$7,950	$7,950
Retirement	$19,725	$19,725
Insurance	$27,050	$27,050
Disability	$600	$600
Total Personal Services	**$167,575**	**$167,575**
Office Supplies/Outside	$200	$200
Postage/Outside	$10,000	$10,000
Gas, Oil, Garage	$1,750	$1,750
Other Operating Supplies	$2,000	$2,000
Total Supplies	**$13,950**	**$13,950**
Wellness Program	$450	$450
Travel	$200	$200
Education	$500	$500
Outside Services/Temp	$2,400	$2,400
Total Charges for Service	**$3,550**	**$3,550**
Fleet Vehicle Lease	$12,850	$12,850
Parts Purchased-Resale	$950,000	
Total Other Operating Expenses	**$962,850**	**$12,850**
Data Processing Service	$9,250	$9,250
Total Data Processing Service	**$9,250**	**$9,250**
Total Stores Budget	$1,157,175	$207,175

As the table shows, the total Stores budget for FY16 is $1,157,175. In calculating the estimated markup for parts issued from the warehouse, it is necessary to calculate the total allowable charges, and divide these by the parts issued from the warehouse. As the right-hand column shows, the parts purchased for resale ($950,000) is eliminated from the total budget, leaving allowable expenses of $207,175. This yields a calculation of 21.8% ($207,175 / $950,000). Thus, for example, a part issued by the Warehouse with a direct cost of $100 would be charged to the customer at $121.80 to cover the costs associated with operating the Warehouse.

Having made this preliminary calculation of the mark-up on parts issued from the warehouse, the project team notes that one of the Stores Clerks expends a large

amount of available time performing functions that are unrelated to the core mission of the Stores section of the Division. These duties relate to serving as a courier for the City for two hours per day, as well as processing nuisance abatements that are transmitted to the Fleet and Facilities Division from the Code Enforcement Department. Although this latter duty consumes an amount of time that varies greatly depending upon the season, during the course of a 12-month period, it consumes as much as 5% to 10% of the position's available time. Combined with the time spent by the position in delivering mail to 12 different locations in the City, these activities may account for 30% to 35% of the position's available time.

The project team recommends that, should this position remain in the Stores section, the Division should make a precise calculation of the time spent in unrelated activities, and remove the cost of these services from the calculation of the parts markup percentage.

Recommendation 47: The Division should calculate a precise percentage markup on all parts and supplies issued from the Warehouse. This markup should be sufficient to recover all costs associated with the operation of the Warehouse.

4. THE CITY SHOULD ISSUE AN ADMINISTRATIVE ORDER REQUIRING ALL DEPARTMENTS TO UTILIZE THE FLEET AND FACILITIES DIVISION'S WAREHOUSE FOR PARTS AND SUPPLIES.

During the course of the study, there were multiple reports of some City departments going directly to parts suppliers for parts that could reasonably have been issued from the Fleet and Facilities Division Warehouse. The City has established its central warehouse operation within the Fleet and Facilities Division, and if it is to continue to operate cost-effectively as a central warehouse facility, City departments

should be required to utilize the warehouse for its parts and supplies needs under all but the most unusual circumstances.

The benefit of a central warehouse is that it minimizes overhead costs associated with administering the City's inventory. Moreover, the centralization of the inventory allows for a more efficient use of space, as only one facility is used for this purpose, as opposed to multiple smaller facilities, or portions of facilities. Larger municipalities and counties spread over large geographical areas may reasonably establish multiple facilities at which inventory is stored for the convenience of users. However, Ogden City covers a land mass of only approximately 26 square miles, and employees requiring parts have no more than a 10 minute drive from anywhere in the City to arrive at the Warehouse on West 29th Street.

In the experience of the project team, departments generally begin to order parts directly from parts providers when they perceive that the central parts warehouse is failing to assist them in obtaining needed parts in a timely manner. However, this does not appear to be a major issue for departments if the results of the customer survey are a true indication of the opinions of the Warehouse's customers. Although the full customer survey is provided in Appendix XXX of the report, the following table provides the responses to three questions related to the issuance of parts that the project team asked of customers. (Note that "SA" means "Strongly Agree" with the statement, "A" means "Agree", "N" means the respondent was "Neutral on the statement, "D" means the respondent "Disagrees", and "SA" means the respondent "Strongly Disagrees.")

Statement	SA	A	N	D	SD
1. I can generally get the materials, parts and supplies I request from the Central Warehouse.	1	3	3	0	1
2. The Central Warehouse provides the materials, parts and supplies that I request in a timely manner.	1	3	3	0	1
3. The staff members at the Central Warehouse are helpful in assisting me to get the materials, parts and supplies I need.	1	1	4	0	2

As the table shows, although the responses from customers does not reflect a strong endorsement of the performance of the Warehouse, neither does it indicate wide dissatisfaction, with the preponderance of responses clustering around the Neutral-to-Slightly-Positive area.

The project team has, in a previous section of this report, recommended that the entire Fleet and Facilities Division institute a system of performance measures that both guide management in decision-making, as well as inform customers of the Division's performance. For the Warehouse, the proposed measures should include, at a minimum, the following:

- **Parts turnover ratio.** This is the "velocity" with which parts move into and out of inventory, and can be calculated by dividing the total value of parts issued from inventory in a year by the total value of parts on hand.
- **Parts fill rate.** This is the percentage of customer requests for parts that can be immediately filled from existing inventory.
- **Fleet downtime awaiting parts.** The fleet maintenance operations is the single largest customer of the Warehouse, and a key measure of success of any parts inventory operation is the reduction of downtime of the fleet. Vehicles and equipment can naturally be out of service for a variety of reasons, however the Cartegraph system should facilitate an analysis of the degree to which this downtime is a result of lack of sufficient parts in the Warehouse inventory.

The City should issue an administrative order requiring all City departments to utilize the central Warehouse operated by the Fleet and Facilities Division. The

centralization of parts and supplies at a single location minimizes overhead associated with administering the inventory, and also minimizes the space consumed by the inventory. Further, the centralization of the parts inventory minimizes the number of errors that can occur in accounting for parts.

Recommendation 48: The City should issue an administrative order requiring that all City departments utilize the central Warehouse operated by the Fleet and Facilities Division.

APPENDIX A – DESCRIPTIVE PROFILE OF OGDEN CITY'S FLEET AND FACILITIES DIVISION

The City of Ogden City engaged the Matrix Consulting Group to conduct a study of the staffing, organization and operational practices of the Fleet and Facilities Division of the Department of Management Services. During the initial phase, our project team has conducted research and spent time on site to gather research and data related to operations, and conducted interviews of management, staff and departmental customers of fleet and facilities services. This document presents the project team's understanding of the current organization, staffing, operations and costs of the services provided by the Fleet and Facilities Division.

1. INTRODUCTION

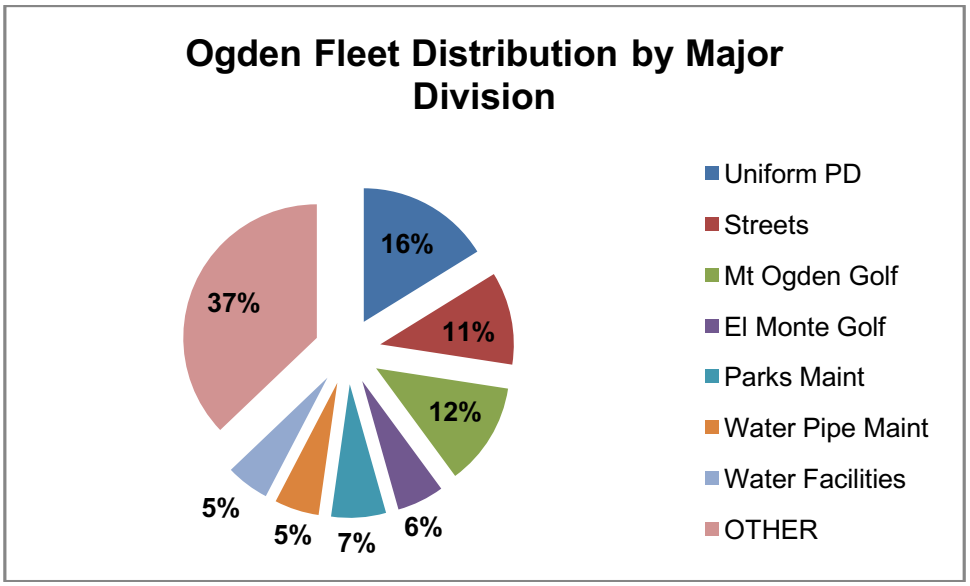
The Fleet and Facilities Division is responsible for maintaining the City's fleet of vehicles and equipment, as well as its facilities. In addition, the Division operates the central stores warehouse from which it issues automotive parts, as well as parts and supplies related to street maintenance and repair, water and sewer line maintenance and repair, supplies, and other items.

The following table provides a summary of the department's facilities that are located throughout the City.

Facility	Area (sq ft)
Airport	12,400
Fire Station 2	5,600
Fire Station 3	6,500
Fire Station 4	5,600
Fire Station 5	5,600
Fire Station 6	1,400
North Parking Structure	211,958
South Parking Structure	401,600

Facility	Area (sq ft)
Marshall White Center	45,000
Public Works 2/Sewer Ops	6,000
Public Works 5/Refuse Ops	8,000
Public Works 6/Sign Shop/Facils. And Comm.	11,000
Public Works Building 8	23,000
Public Works 9/Wash Bay	3,000
Public Works 11/Stores Warehouse	7,200
Community Services Building	8,784
Francom Public Safety Center	66,000
Golden Hours Senior Center	22,500
Municipal Building	166,000
Public Works 1/133 W 29th	36,000
Ogden City Justice Court	18,662
TOTAL	**1,053,804**

The fleet is composed of 625 vehicles and pieces of equipment assigned to the numerous divisions within the City. The following pie chart shows the distribution of the fleet apparatus for the top seven (7) divisions.



As to be expected, police and streets maintenance reflect key fleet customers; however, the number of golf apparatus that is maintained in proportion to other fleet units is somewhat unusual for a community of this size. The composition of the fleet is reflected in the table below.

Unit Category	Number
Sedan, Van	43
Heavy Van, Pickup	128
Patrol Vehicle	98
Heavy Equipment (incl. forklift)	50
Trailer, non-motorized attachments	57
Pump, Generator	42
Mower, Small Engine, golf cart	182
Fire Apparatus	8
Ambulance	7
Boat, Motorcycle	10
Total	**625**

2. BUDGET

The following table shows the Fleet and Facilities Division's actual expenditures for 2014, and the current and previous year's budgets.

Description	Actual 2014	Adopted 2015	Budget 2016
Personal Services	$1,349,011	$1,456,675	$1,529,650
Supplies	$134,546	$181,975	$181,975
Charges for Service	$2,266,285	$1,870,500	$1,870,500
Other Operating Expense	$6,044,477	$5,308,075	$5,308,075
Data Processing	$114,850	$114,850	$114,850
Debt Service	$50,592	$1,309,400	$1,225,475
Equipment	$6,213,364	$1,068,550	$1,018,550
Infrastructure Transfers	$(6,173,102)	$0	$0
Total	**$10,000,023**	**$11,310,025**	**$11,249,075**

As can be seen in the table, the total budget for 2016 is $11,249,075, which represents a, increase of $1,249,052 from 2014, or about 12.5%.

3. BENEFITS

The following table provides the benefits provided to employees of the Fleet and Facilities Division. The figures are based on family coverage.

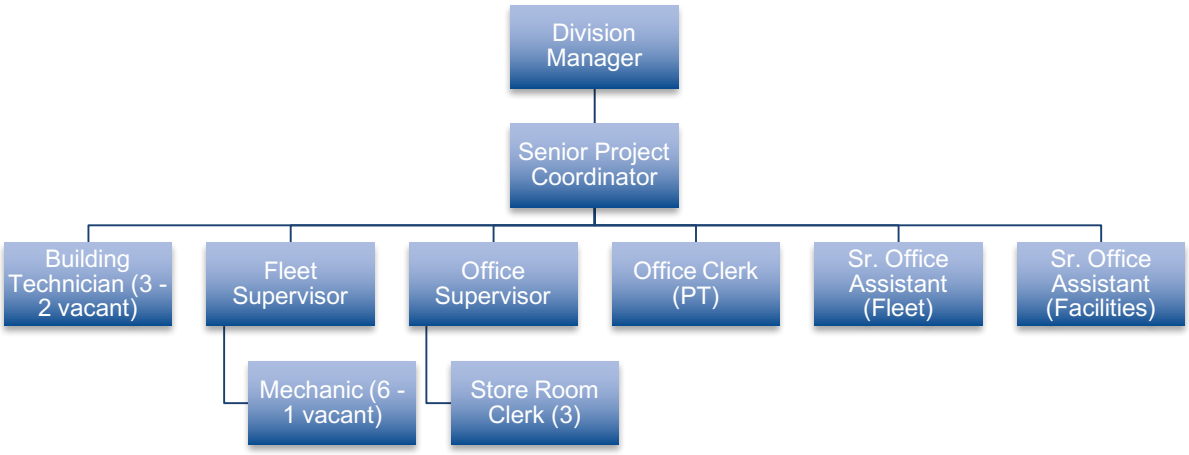
Description	Monthly Amount	Percent of Salary
Health Insurance	$1,211.60	
Health Savings Account	$137.89	
Dental Insurance	$76.36	
Life Insurance	$6.35	
Long Term Disability		0.52%
Retirement		18.47%
Social Security		6.20%
Medicare		1.45%

4. STAFFING AND ORGANIZATION

The Division has 18.5 authorized staff, of which three (3) are vacant. The current staff allocations are listed in the table below.

Position Title	Positions	
	Authorized	Actual
Division Manager	1.0	1.0
Senior Project Coordinator	1.0	1.0
Office Supervisor	1.0	1.0
Store Room Clerk	3.0	3.0
Senior Office Assistant	2.0	2.0
Office Clerk (PT)	0.5	0.5
Building Technician	3.0	1.0
Fleet Supervisor	1.0	1.0
Mechanic	6.0	5.0
TOTAL	**18.5**	**15.5**

The following organizational chart shows a general view of the Division's current organizational structure.



The following section presents the primary roles and responsibilities of the positions within the Fleet and Facilities Division.

5. SUMMARY OF ROLES AND RESPONSIBILITIES

The following table shows the positions allocated to the Division's fleet and facilities functions and lists the key roles and responsibilities of each position.

Position Title	# of Staff	Key Roles and Responsibilities
Division Manager	1.0	• Provides overall executive management and administrative leadership for the Division • Responsible for developing the overall priorities of the Division, including performance goals and objectives, and budget development and monitoring. • Oversees the development of policies and procedures. • Addresses and resolves personnel issues in the Division. • Directs the preparation of the Division's operating budget and confers with the Management Services Department Director to formulate the Division's capital improvement requests. • Meets with Division staff on a regular basis to discuss operations, issues, performance, etc. • Reports to the Management Services Department Director.
Senior Project Coordinator	1.0	• Supervises the operations of the Division, filling the role of Division Manager in that position's absence. • Completes special projects and analyses at the request of the Division Manager • Gathers data for analysis of fleet and facilities operations • Oversees projects that are constructed or rehabilitated by contractors • Involved in the acquisition of properties
Office Supervisor	1.0	• Writes RFPs for certain services • Facilitates demolitions of properties in cooperation with Code Compliance • Researches invoices (e.g., unpaid, outstanding types, ensures that services received match what is billed, etc.) • Trains new employees • Inputs demolitions of structures and special abatements into I Works automated system. • Oversees the operations of the inventory room, making adjustments to inventory, creates purchase requests for small equipment, etc. • Enters employee time into Eden system for payroll • Answers phones, sorts mail, files correspondence • Monitors levels of office supplies and re-orders as necessary • Processes fuel import errors

Position Title	# of Staff	Key Roles and Responsibilities
Store Room Clerk	3.0	• Issues parts upon request • Monitors the levels of parts and supplies on hand, and re-orders as necessary • Conducts periodic counts of inventory on hand • Retrieves parts from parts suppliers as required • Enters the receipt and issuance of parts and supplies into the Cartegraph automated information system • One Stores Clerk retrieves inter-office and outgoing mail, delivering inter-office mail to 12 City locations, and delivering outgoing mail to mail vendor. This Clerk also e-mails contractors in instances for which nuisance abatement services are needed. • One Clerk works from 9:30 am till 6:00 pm. Two Clerks work from 7:00 am till 4:00 pm.
Senior Office Assistant	2.0	• One employee is assigned to the Fleet section, and one to Facilities. • The Fleet Sr. Office Assistant is responsible for: - Scheduling preventive maintenance - Registering vehicles and equipment - Scheduling safety and emissions tests - Entering new equipment data into Cartegraph - Developing base charges for equipment - Maintaining an inventory of radios - Entering work order data - Logging all "How's My Driving" calls - Tracking all business and personal mileage - Tracking vehicle accidents - Making vehicle keys for Fuel Master - Billing customer monthly for fuel. • The Facilities Sr. Office Assistant is responsible for: - Recording facilities service requests from customers - Creates and distributes work orders, based on requests, to facility staff. Notifies customers of work progress. Records work order time in system and closes. - Billing facility maintenance activities to departments - Billing fleet maintenance activities to departments - Running Cartegraph reports for manager - Ordering of fuel for two sites and updating Fuel Master software records. - Maintaining fuel keys - Performing special projects, as assigned.

Position Title	# of Staff	Key Roles and Responsibilities
Office Clerk	1.0 PT	• Compares parts and service invoices to packing slips and contracted services (e.g. elevator, pest control, etc.); reconciles any differences • Receives invoices for gas, water, electric, for municipal buildings; bills charges. • Files invoices • Works 29 hours per week – 6 hours on Monday through Thursday, 5 hours on Friday.
Building Technician	3.0 (2 vacant)	• Repairs and maintains City facilities. • Performs some light plumbing repairs • Performs some light electrical repair such as changing ballast, changing breakers • Identifies repair issues in building automation systems; makes some repairs and calls contractor for major maintenance and repair • Hangs pictures, moves furniture • Performs carpentry repairs such as trim, doors, walls, sheetrock • Performs some locksmith functions, pulling cores and determining problems; utilizes contractor for more complex repairs. • Purchases parts and supplies for maintenance and repair tasks; has limit of $50 on purchase order, and up to $500 on credit card purchases.

Position Title	# of Staff	Key Roles and Responsibilities
Fleet Supervisor	1.0	• The Fleet Supervisor supervises the fleet maintenance program for the Division and performs several primary and ancillary duties and responsibilities. • Oversees staff and operations of fleet maintenance, operating a split-shift Monday – Friday 7:00 a.m. to 6:00 p.m., providing preventive maintenance, corrective maintenance, regulatory emission checks and inspections, fueling, vehicle up-fitting (e.g. police cars) and vehicle purchasing/disposal on City rolling stock and small equipment apparatus to include fixed equipment (e.g. green-waste site). • Interfaces regularly with City fleet customers. • Makes regular decisions regarding use of contracted fleet maintenance services as ensures warranty work is performed consistent with terms and conditions. • Coordinates the preparation of equipment specifications, fuel ordering and purchases, and development of fleet replacement plans. • Periodically acts in a service-writer capacity for fleet. • Serves as first line supervisor for 6 direct reports, including training (e.g. FEMA), mentoring and performance evaluation and coordinates planning and scheduling with the Senior Mechanic responsible for such activities. • Oversees PD impound and nuisance abatement towing programs. • Performs special projects as assigned by public works management.
Lead Mechanic	1.0	• One (1) Lead Mechanic is assigned to fleet maintenance with varying responsibilities. • Acts in a service writer capacity, performing customer interface such PM due telephone calls; opening preventive maintenance and corrective maintenance work orders and verifying vehicle mileage; assigning work to staff; reconciling vendor service invoices with work orders; verifying WO time allocation; QA/QC on mechanic entered information. • Completes paperwork surrounding PM hard cards, daily time cards, warranty work, contracted service work, etc. • Performs mechanical work on fleet in a supporting capacity. • Performs as Fleet Supervisor, as assigned, in his absence.

Position Title	# of Staff	Key Roles and Responsibilities
Mechanic	5.0 (1 vacant)	• Five (5) Mechanic positions perform preventive maintenance and repair services on all City vehicles and other assigned apparatus. • While mechanics are generalists and work on the entire fleet, they typically have focus in certain service areas dependent upon their individual skill sets (e.g. heavy diesel). • Staff perform a variety of preventive services and corrective repairs in maintenance of the City's fleet based on initiative and work direction provided by the Lead Mechanic and Supervisor. • Enter work order information on work orders including hours of service by task, text comments, and maintenance stocked parts information. Additionally completes daily time cards.

6. TECHNOLOGY UTILIZED

The Division utilizes a number of software applications to facilitate administrative tasks and track operational data generated by the fleet and facilities functions. These include the following:

- Eden is the City's financial system, which the Division utilizes to create purchase requests and enter all financial information.
- Cartegraph is the Divisions fleet and parts management system, as well as the system utilized to record facilities maintenance and repair events. It is used to maintain inventory of vehicles, vehicle parts, and equipment, and to record maintenance and repairs performed on vehicles and facilities.
- Fuel Master is the Division's fuel management system. It records the mileage and fueling events of each of the City's vehicles and pieces of equipment. Employees enter their PIN and odometer reading to fuel a vehicle. Data are imported into Cartegraph from the Fuel Master system.

7. BASIC WORKLOAD DATA.

The following table provides certain workload and performance data for the Fleet and Facilities Division.

Description	Amount
Fleet stock (as of 2/23/16)	5001 line items valued at $1,084,302
Parts accuracy rate	18 of 20 physical line item counts sampled by the project team matched the amounts in Cartegraph on March 10, 2016
Fuel	Division dispensed 331,290.2 gallons in 2014 Division dispensed 308,557.3 gallons in 2015
Training	Division provided 20 in-service training courses from Feb., 2015 through Jan., 2016
Vehicles and Equipment	625
Vehicle Equivalent Units (VEU)	925
Mechanics	6
VEU per Mechanic	154.2 to 1
Maintainable Facility Space (sq. ft.)	1,053,804

APPENDIX B – BEST PRACTICES ASSESSMENT OF THE FLEET AND FACILITIES DIVISION

While the Operations Study of the Ogden City Fleet and Facilities Division is designed to provide an analysis of organizational structure, staffing and management of the Division, this interim report represents an important step for the project team to report its preliminary findings and issues. In order to make the assessments of organizational, management and operational strengths and improvement opportunities, the project team developed a set of performance measures which we call “best management practices” against which to evaluate the various functions performed by the Fleet and Facilities Division. These performance measures comprise the main thrust of this best practices assessment.

The measures utilized have been derived from the project team's collective experience and represent the following ways to identify divisional strengths as well as improvement opportunities:

- Statements of "effective practices" based on the study team's experience in evaluating operations in other agencies or “industry standards” from other research organizations.

- Identification of whether and how departments meet the performance targets.

The purpose of the diagnostic assessment was to develop an overall assessment of the Division.

In completing this best practices assessment for the Division, certain themes emerged, and these are summarized in the following table.

ADMINISTRATIVE / FINANCIAL
The Division has not developed any formal policies and procedures relating to operations, customer service, rate structure development, and many other topics.
Although the Division is nominally established as an internal service fund (ISF), it is not functioning as a true ISF. Some customers are charged directly for services provided, while others are assessed an annual amount. However, neither of these methods is ensuring that the separate Fleet and Facilities sections of the Division is recovering its own costs of operations.
The Division does not monitor and report performance against standard measures.
The Division does not monitor customer satisfaction with its services.
ORGANIZATIONAL
The Facilities section of the Division has been established as the single provider of facilities services in the City. However, there are reports of some City departments performing their own facilities services due to the perceived high cost of services provided by the Facilities section.
STAFFING
There is no formal and routine skills assessment of Facilities Technicians or Fleet Mechanics.
There are insufficient resources allocated to the maintenance and repair of the City's facilities. Including both internal staff (3 FTE) and contractors (approximately 1.2 FTE), there are 4.3 FTEs responsible for the City's 829,311 square feet of maintainable space. This equates to over 192,000 square feet of space per FTE.
The Fleet section of the Division is under-staffed to provide adequate levels of maintenance and repair. The section's six (6) mechanics are responsible for the City's 625 vehicles and pieces of equipment. These units equate to 925 vehicle equivalent units, resulting in an average of about 154 VEU per Mechanic.
OPERATIONAL
The only preventive maintenance performed in City buildings is performed on contract, and only for HVAC equipment. This is likely a result of insufficient internal staffing. Preventive maintenance is critical for all major serviceable equipment in City facilities and if not performed on a routine basis, this could result in very costly repairs, or even critical system failures.

Although the incidence of work is recorded on work orders, there is no routine analysis of the data contained in these work orders to identify mechanic and/or technician productivity, time of repair, downtime, needed training, and other critical indicators.
The Division has not developed a formal asset management plan for facilities and fleet.
There is no central City organization responsible for monitoring energy consumption and savings related to energy management systems
TECHNOLOGY
Although the Division's computerized maintenance management system, Cartegraph, is capable of performance management reporting, maintenance management, cost reporting, and other facets, many of these have not been implemented in previous years.
There are limited numbers of Division personnel capable of generating reports from the Cartegraph system.

1. FACILITIES MAINTENANCE

Best Management Practice	Strength	Opportunities for Improvement
ADMINISTRATIVE/FINANCIAL		
Policies and procedures are well documented.		The Division has not documented its policies and procedures. These should, at a minimum, include such topics as work prioritization, performance standards and goals, work order system, required skills and training standards, long-range facilities planning, preventive maintenance program and objectives, contracted services, and others.
A replacement reserve or sinking fund is used to insure the timely replacement of structural assets.		This is not the case, as there is no capital replacement element embedded in the rates charged. This forces a pay-as-you-go approach to funding significant repairs and capital replacement.
Charge-back rates promote cost recognition and control.	The "Unfunded" facilities tenants pay on an individual service basis for services rendered, and this enforces a certain degree of cost recognition and serves as a constraint on requested services. It is also true, though, that the hourly rates charged for these services are insufficient to recover the full cost of services.	

Best Management Practice	Strength	Opportunities for Improvement
Charge-back rates are empirically calculated and updated on at least an annual basis.		The funding received for each of the "funded" buildings has remained constant for many years, although this will reportedly be increased by approximately $200,000 this fiscal year. However, there is no indication that these funding amounts are based on any empirically-calculated basis. Further, the hourly rate charged for services rendered in the "unfunded" buildings ($41.50) has been in effect for many years. No current employee of the Division is aware of the basis on which this rate was developed.
All technician time is recorded and monitored on a daily basis.	Maintenance Technicians record their time, by building and by task. This is input into the Cartegraph CMMS.	
Existence of performance measures to evaluate effectiveness of work performed.		There are no established performance measures. These would include such measures of efficiency as: • Percentage of work orders completed within 3 days of receipt • Average time of work order completion, by type of repair • Cost per square foot of maintainable space • User satisfaction rate

Best Management Practice	Strength	Opportunities for Improvement
Operating and capital costs are segregated within the fleet ISF.		There is no indication that there is a capital element included in the rates. Rather, as significant capital funding is required, it must be found in other areas of the City's overall budget. One recent example included the repairs to the Municipal building elevators, which the City's Risk Management department funded.
Annual surveys are conducted to assess customer satisfaction.		The Division has not conducted any surveys of customer satisfaction with facilities maintenance services.
Formal service level agreements have been negotiated with primary customer groups.		
Customers receive regular and useable facilities costs reports.	Customers in "unfunded" buildings receive reports on all services rendered in their buildings.	Customers in "funded" buildings do not receive reports of services provided.
Customers receive a monthly schedule of PM services forecast to be due.		Customers do not receive notification when PM services are to occur in their facilities.
ORGANIZATIONAL		
Facilities organization is administratively centralized to capture economies of scale.	The City has nominally centralized all facilities maintenance and repair services under the Fleet and Facilities Division.	There are reports of "rogue" facilities services being performed by certain City departments due to the perception of the high costs charged by the Fleet and Facilities Division.

Best Management Practice	Strength	Opportunities for Improvement
An Internal Service Fund (ISF) is in place for the facilities maintenance program.	The Facilities function is nominally established as an ISF.	An ISF should be designed to "break even" at the end of each accounting period. However, this is not the case with the Facilities section of the Division, as it provides services to two categories of facilities that include "Funded facilities" and "Unfunded facilities", both of which are charged for services on different bases – neither of which is likely to be recovering full costs of services. The "Funded" facilities receive an annual allocation of funds that is intended to be sufficient to cover the costs of maintenance during the year. As maintenance costs are accumulated, they are not directly charged back to these buildings, but rather the funding allocation is drawn down as charges are accumulated. "Unfunded" building tenants are charged $41.50 per hour for maintenance services as they are rendered, and as such, the Division is functioning more as an ISF. However, it is also true that the hourly rate of $41.50 has not been updated in many years, and is unlikely to be recovering the full cost of services.
STAFFING		
Technicians are encouraged to keep skill levels current through financial incentives.		The Division has not established minimum skill levels for Maintenance Technicians, and there are no incentives for attaining greater levels of training.

Best Management Practice	Strength	Opportunities for Improvement
Technician staffing levels are in the range of one trades staff member per 45,000 to 50,000 square feet of space maintained (excluding large open space such as garages, etc.)		The Division is responsible for the maintenance and repair of 27 facilities encompassing 1,207,269 square feet, 377, 958 of which are unheated space in two parking garages. This equates to 829,311 square feet of maintainable space. This is maintained by 3 Maintenance Mechanics, equating to an average of 276,437 square feet of space per Technician. In addition to the maintenance services provided by internal staff, however, the Division contracts for services equating to an average of $400,615 since 2010. Assuming that 50% of these costs are for labor, this equates to $200,308 (the other 50% is for parts and supplies). Further assuming a contracted labor rate of $100 per hour, this equates to 2,003 hours of maintenance and repair services, or about 1.2 FTE (assuming a full FTE is available for 1,650 hours per year.) Adding 1.2 contracted FTE to the 3 internal FTE equates to 4.2 effective FTE maintaining 829,311 square feet, or 192,863 square feet per effective FTE, which is well above the 45,000 to 50,000 that are suggested by best practices.
A formal skills assessment and training plan has been developed to keep employees current with changes in the facilities maintenance and management industry.		There is no formal skills assessment or training plan in place. This plan should be designed to ensure that staff acquire and retain required certifications, but should also ensure that the staff are exposed to advancements in the facilities maintenance industry on an ongoing basis.

Best Management Practice	Strength	Opportunities for Improvement
OPERATIONAL		
Building replacement cycles are reasonable and in accord with standard industry practice.	The City recently engaged a private firm to identify all major maintenance equipment in each municipal building, as well as the condition of the asset, the severity of replacement need, and the costs associated with replacement.	The Division should adopt a policy of routinely evaluating assets, and establish replacement cycles, as well as funding and funding sources, for the timely replacement of each structural asset under its management.
The focus of the organization is clearly on PM services.	Preventive maintenance services are outsourced for HVAC assets.	No electrical, plumbing or structural assets receive PM on any regular basis.
The ratio of scheduled to unscheduled services is at least 1:1.		There are no data available to calculate this metric, however it is unlikely that the Division meets the benchmark of a 1:1 ratio, as only HVAC assets receive PM on a regular basis.
A formal quality assurance process is in place that includes periodic review of technician work and monitoring of repeat-call rates for rework.		There has historically been no direct QA process that ensures that repairs are completed accurately and in accordance with instruction. The Division has, however, instituted a system by which it analyzes work orders that are opened for repairs of the same asset within a short period of time.
Routine reports of corrective, preventive and deferred maintenance are issued and analyzed by management and supervisors		The Division does not generate reports related to various categories of maintenance such as corrective, preventive and deferred maintenance. The Division Manager has requested periodic reports of re-work on the same piece of equipment in response to a suspected issue, however, there are no routine reports otherwise. All HVAC PM is performed by a contractor, and deferred maintenance is not tracked.

Best Management Practice	Strength	Opportunities for Improvement
The organization has established a numerically-based priority system for call-in response.		The Division does not prioritize incoming work requests according to severity, and has not established any targeted response times for any particular category of work.
Effective safety procedures are in place.	The Fleet Shop Supervisor provides monthly safety meetings, and covers OSHA topics, CPR, bloodborne pathogens, etc. The Division has reported over 2,900 consecutive days without the loss of days due to injury, which is a key indicator of the impact of the program.	
Custodial services in range of $2.00 - $2.25 per square foot	(Data to be provided by Division)	
Existence of a preventive maintenance program for building maintenance	The Division outsources all PM on HVAC units.	The Division's staff do not perform any PM. All work is in response to work requests.
Existence of an energy management plan	The City has installed certain building automation systems in the Municipal buildings, Public Safety, DPW, Golden Hours and Marshall White buildings. The City has also engaged an ESCO to look at certain other initiatives such as replacing street lights with LEDs.	There is no central City organization responsible for monitoring energy consumption and savings related to energy management systems.

Best Management Practice	Strength	Opportunities for Improvement
Periodic evaluation of feasibility of contracting and/or "in sourcing"		The Division routinely outsources services that are either outside the capabilities of internal staff, or exceed the capacity of staff to complete. These have historically included services such as HVAC, overhead doors, electrical systems, alarms, elevators, and fire suppression systems. The Division has not articulated a clear outsourcing philosophy, but rather is typically forced to outsource services based on availability of staff, as well as staff capabilities.
Facilities asset management receives appropriate organizational priority		The Division has not developed a comprehensive asset management plan that outlines: • What facilities assets the City possesses • Where the assets are located • What are the targeted life cycles for the assets • What service levels need to be applied to achieve target economic life cycles • What are the risks of not applying the required resources for maintaining the assets
TECHNOLOGY		
The CMMS provides up to date functionality asset management, maintenance management, performance measurement, business planning, customer relationship management, and cost reporting.		The Division utilizes the Cartegraph CMMS, and will be replacing this system in the near future. Although Cartegraph is capable of performance management reporting, maintenance management, cost reporting, and other facets, many of these have not been implemented in previous years.

Best Management Practice	Strength	Opportunities for Improvement
Access to the Facilities Maintenance System is readily available to all staff.	The Facilities Technicians and administrative staff have access to the Cartegraph system	
Additional facilities maintenance business tools, such as electronic repair manuals, document imaging, and e-commerce, are part of the facilities management organization's technology strategy.		There are no electronic repair manuals or document imaging available.

2. FLEET MAINTENANCE

Best Management Practice	Strengths	Improvement Opportunities
ADMINISTRATIVE/FINANCIAL		
Policies and procedures are well documented.		The Division has not documented any policies and procedures related to fleet maintenance and management. These policies and procedures should cover such topics as assignment criteria, disposal, minimum utilization, driver eligibility, vehicle use, vehicle accidents, fueling, invoicing for services, and others. An illustrative example can be found: http://www.dbm.maryland.gov/Documents/FleetManagementServices/fleet_mgmt_manual.pdf
Operating and capital costs are segregated within the fleet ISF.	Operating and capital costs are nominally segregated in the monthly fees charged to customers.	Although the replacement cost of each unit is embedded in the monthly fees, these fees are charged each month that the unit is in service, over-charging users for replacement. Further, it is not clear that operating costs are calculated with any precision.

Best Management Practice	Strengths	Improvement Opportunities
A replacement reserve or sinking fund is used to insure the timely replacement of fleet assets.		Although the monthly fees charged to users for their vehicles includes a replacement element, the amount of this replacement charge is not placed into a replacement fund. Rather, vehicle replacements are funded on a pay-as-you-go basis.
A charge-back system is in place.	The Fleet and Facilities Division charges users for services rendered based on multiple model types.	Streamlining of the charge-back system can be advantageous to simplify administration and understanding on the part of fleet internal customers.
Charge-back rates promote cost recognition and control.		The Division segregates the fleet into "A bill" and "B bill" customers, and both are charged differently. "A bill" customers have procured their vehicles and equipment independently from the Fleet and Facilities Division, and are charged an hourly rate ($71) for service. This method of charge-back promotes some sense of cost recognition, as users are charged for services rendered in real time. "B bill" customers are charged a monthly fee that includes pre-paid numbers of preventive maintenance services, tires, and other elements of service. Since these are charged irrespective of the numbers of services actually rendered, there is less cost recognition in the manner of billing "B bill" customers than is the case for "A bill" customers.
Charge-back rates are empirically calculated and updated on at least an annual basis.	The operational elements of the charge-back rates are calculated annually and include cost estimates for the probable numbers of services each will incur in the upcoming year.	"A bill" clients are charged an hourly rate for service, however the rate has reportedly not been updated in many years.

Best Management Practice	Strengths	Improvement Opportunities
Multiple year bids are routinely used in order to reduce purchasing administrative costs and to standardize the fleet.	Certain vendors are covered under state contracts so the Division can order under blanket purchase orders. Must obtain three bids for any parts/supplies not covered under state contracts.	
A professional auctioneer is used to organize, market, and conduct sales.	The Division uses Gov Deals as its on-line auctioneer, charging 10% of the value of sales.	
Sales are conducted frequently, at least on a semiannual basis.	The Division reports that it will begin quarterly auctions on Gov Deals.	
A formal policy exists governing home assignment of vehicles and compliance with IRS tax reporting requirements.		There is no policy governing the assignment of take-home vehicles. City executives have personal use assignments, as do some division managers as well as all Police Officers.
A formal process exists for ensuring compliance with State and Federal commercial driver license requirements.	Human Resources and Risk Management oversee this.	
A formal program exists for driver and operator training in general and for problem drivers.		There is no formal identification of problem drivers and no remedial training. Further, there is no formal training of operators of specialized equipment.
Are fleet procedures disseminated to the appropriate departments?		The Division has not developed policies and procedures, or any service level agreements with departments.
Annual surveys are conducted to assess customer satisfaction.		There have been no surveys of customer satisfaction in recent years.

Best Management Practice	Strengths	Improvement Opportunities
Outside customers are solicited in order to spread shop overhead and provide additional billable work during slack periods.		The Division has not actively pursued outside customers such as neighboring municipalities, non-profits, etc.
Customers participate in managing the fleet business through a Fleet Advisory Board.	The City appoints a committee, chaired by the Police Chief, which approves equipment replacement.	There is no user group that provides formal input on operations. The fleet supervisor does not sit on the committee. Many fleet maintenance operations benefit from the establishment of a fleet advisory group that provides input on topics such as service turnaround time, PM notification procedures, customer services, and others. In turn, Fleet Maintenance has the opportunity to discuss issues such as user habits, rate structures, upcoming replacements, notification processes for service requests, and others.
Formal service level agreements have been negotiated with primary customer groups.		The Division has not established formal service levels agreements with its users.
Customers receive regular and useable fleet cost reports.	All "A bill" customers are provided with reports of services performed on their vehicles and equipment. These reports provide a description of services, parts used, and the total cost of repairs.	"B bill" customers are not provided with any regular reports on services and costs.
ORGANIZATIONAL		
Fleet organization is administratively centralized to capture economies of scale.	All of the City's vehicles and equipment are overseen, maintained and/or repaired by the Fleet and Facilities Division of the Management Services Department.	

Best Management Practice	Strengths	Improvement Opportunities
An Internal Service Fund (ISF) is in place for the fleet program.	Fleet lease rates were established in 2002.	The fleet repair section is established as an ISF, however it is not functioning as one per se. Although the Fleet and Facilities Division charges its customers a monthly fee, the components of the fee do not ensure the recovery of all costs associated with service provision and, in fact, are subsidizing the facilities repair function.
STAFFING		
A formal skills assessment and training plan has been developed to keep employees current with changes in the fleet management industry.	Approximately 50 hours of training was provided to staff in 2015; however, the vast majority of this training was safety or other training unrelated to skill enhancement.	There is no formal skills assessment administered on an ongoing basis, and there are no longer financial incentives for mechanics to engage in any advanced training such as ASE certifications. Many staff have allowed ASE certifications to lapse given no incentive/reimbursement.
Technicians are encouraged to keep skill levels current through financial incentives to obtain ASE certification.		There are presently no certification requirements as part of Ogden fleet job descriptions. Such certifications are not compensated for or reimbursed. Current skills training is overall lacking based on training records.
Technician staffing levels are consistent with the size, age and type of vehicles in the fleet.	A large portion of the fleet is relatively new in age. This helps to facilitate minimal corrective repairs.	The 625 units in the City's fleet equate to 925 Vehicle Equivalent Units (VEU), which is a measure of the intensity of effort required to repair and maintain each piece of equipment. With six (6) Mechanics on staff, this equates to 154.2 VEU per Mechanic, which is well above the typical range of 90 to 110 per Mechanic.
Ratio of supervisory and support positions to technicians is reasonable.	The ratio of one Fleet Supervisor to six staff is reasonable and appropriate.	

Best Management Practice	Strengths	Improvement Opportunities
Ratio of parts personnel to technicians is reasonable.		There are three (3) Parts personnel in the Division, however they support more than the six (6) mechanics in the Fleet and Facilities Division. Parts and supplies in Stores is valued at just under $1M. The total compensation of the three Stores Clerks is $125,785, which is approximately 13% of the total value of the inventory.
OPERATIONAL		
Vehicle replacement cycles are reasonable and in accord with standard industry practice.	The Division has developed a proposed multi-year replacement spreadsheet that estimates costs associated with the replacement of each unit.	The City has not funded replacement vehicles in a timely manner, and through a replacement fund, for many years.
Cooperative purchasing agreements are used in order to take advantage of volume pricing.	The Division utilizes state contract pricing when available, and also has access to WSCA and HCAC buy cooperatives.	
A policy exists requiring that vehicles that are replaced are removed from service and not kept by users.		Although there is no stated policy, it is understood that all replaced units are to be removed from the fleet. Data suggest that this directive may not being consistently followed as a few dozen vehicles exceed 130,000 miles and were manufactured in the late 90's and early 2000's
Efforts are taken to maximize the residual value of used vehicles.		The most effective way to maximize equipment residual value is to adhere to a routine and predictable replacement schedule. This has not been the case in many years in the City of Ogden, however.

Best Management Practice	Strengths	Improvement Opportunities
The focus of the organization is clearly on PM services.	Philosophically the emphasis is placed on the importance of preventive maintenance activities. These are typically prioritized in service above corrective maintenance.	There is no fleet managed PM schedule for City vehicles. Users typically call the garage when PM is due, rather than the garage contacting the user to schedule a time to PM the vehicle. PM records are still tracked on hard cardstock as a result of apparent FMIS deficiencies.
PM services are completed after normal working hours in order to increase convenience to customers.		While the shop operates on a split shift concept until 6pm, this cannot be considered "after-hours" with respect to best practices.
The PM program incorporates multiple echelons of progressive services.	Some mechanics have a "check everything" mentality as part of PM servicing.	Apparently the present system does not facilitate well multiple PMA, PMB , PMC and PMD categorization, nor flagging of units due for PM.
PM intervals are based on both time and use and mirror manufacturer recommendations.	PM is based on mileage or hourly vehicle use.	PM completion relies exclusively on the ability of the customer to identify PM need and bring the vehicle in for service.
Customers receive a monthly schedule of PM services forecast to be due.		Customers are not notified for PMs. Customers typically notify the Fleet and Facilities Division of the need for PM.
A list of missed/overdue PM services is regularly sent to user groups.		Users do not receive notification of missed PM. Users typically notify the Fleet and Facilities Division of PMs when they are due.
The organization focuses on scheduling services in order to avoid disrupting customer operations. The ratio of scheduled to unscheduled services is at least 1:1.		Anecdotally, the Division does not meet this metric, however there are no data to verify this.

Best Management Practice	Strengths	Improvement Opportunities
Quick fix services are available to customers for simple repairs and PM services.		The Division does not offer a quick fix service. These services, when available, allow users to call ahead for repairs that are expected to consume fewer than 30 minutes of mechanics' time, and take priority when they arrive.
Work orders are used to record all maintenance activities.	All mechanic work is recorded on work orders and stored in the Cartegraph FMIS.	Warranty history and PM history are still maintained on cardstock due to apparent limitations of Cartegraph FMIS.
A procedure is in place at the time of work order creation to identify vehicles scheduled for replacement, to check for overdue PM's, and to check for warranties.	Vehicles are checked for PM due when they enter the shop for repairs.	Given customer expectations, a vehicle in for repair service that has an overdue PM may not get a PM service due to alleged vehicle need. Overdue PMs should always be accomplished.
The expected time for completing repairs are routinely given to customers.	Once a work order is assigned, the customer is notified to inform them as to the probable about of time it will take to repair.	
Customers are always called when repairs are complete.	The Division periodically calls customers when repairs are complete.	Customers are not always notified when work is completed. Periodically customers have to call to check on vehicle availability.
The status and downtime of vehicles is monitored on a consistent basis.		The Division does not issue any formal reports regarding downtime. The Division Manager makes spot checks on the status of certain vehicles to determine any reasons for excessive repair time.

Best Management Practice	Strengths	Improvement Opportunities
A formal performance measurement system is in place to monitor the efficiency and effectiveness of the maintenance program.		The Division has not developed a set of performance measures that it reports. These measures should include: • Downtime • Mechanic productivity • PM compliance rate • Parts fill rate • Parts turnover rate • PM as percentage of total repairs
Field service is available for construction equipment.	Although the policy is unwritten, Fleet Maintenance responds within 30 minutes to field service calls, which typically involve heavy equipment in either the Water Department or in Public Works. The Division provides 24/7 on-call service as necessary without compensation.	The response time for field service should be codified in a formal Service Level Agreement with users of fleet services.
Warranty recoveries are actively pursued for both repairs and parts.	The Division has ready access to a Ford and other dealerships at which warranty repairs are performed.	
Minor warranty repairs are completed in-house in order to expedite the repair process.		The Division cannot complete warranty repairs in-house, but rather sends these out to private dealerships. As a substantial portion of the fleet is Ford products, this is not viewed as a limiting factor, since the dealership is very close to the shop.
The organization has a clear outsourcing strategy that focuses on core competencies and service improvements.	The Division has established that some services will be routinely outsourced. These include all auto body repairs, many fire apparatus repairs, alignments, glass and upholstery work.	

Best Management Practice	Strengths	Improvement Opportunities
A formal quality assurance process is in place that includes periodic review of technician work and monitoring of comeback rates.		There is no formal QA program in place that is documented. Comeback repairs are not documented largely due to apparent limitations in the FMIS.
A formal performance measurement system is in place to track the effectiveness of service outcomes, and performance levels compare reasonably well to industry benchmarks.		The Division has no performance measures or goals. These should include such measures as total fleet downtime, PM compliance, returned work as a percentage of total work orders, turnaround time, mechanic hours charged to work orders, and others.
Size and layout of facilities promotes efficient maintenance operations.	The fleet facility was constructed in 1974 and upgraded in 2000.	Despite rehabilitation during the facility's useful life, it suffers several shortcomings that should eventually be addressed in a modernization effort.
Effective safety procedures are in place.	Until recently, the Division has held weekly safety meetings for all employees, led by the Fleet Supervisor. These are now held monthly.	There are no formal safety policies and procedures in place in the Division.
Shop tools and equipment are up to date.	Most shop tools are purchased by the mechanics. The Division provides an annual tool allowance. Shop lifts, hoists and diagnostic equipment are all relatively new.	Shop tool stipends may be insufficient for many mechanics. Additional tools could create operational efficiencies.
A formal policy exists governing utilization monitoring including establishment of minimum use levels and approval of spare ratios.		The Division has not established minimum utilization criteria, and does not monitor the utilization of vehicles and equipment.

Best Management Practice	Strengths	Improvement Opportunities
A review of utilization is completed at least on an annual basis.		The Division does not formally monitor the utilization of vehicles and equipment. Typically, utilization is monitored through user input of odometer or hour meter readings at the time of fueling. The data are analyzed through the FMIS to determine miles (or hours) per period, as well as fuel efficiency.
User organizations must present a business case for keeping low use vehicles in service.		Since utilization is not monitored at any level in the system, the identification of low-use vehicles is anecdotal.
TECHNOLOGY		
Fleet system utilizes modern technology including an open database compliant design, a graphical user interface, and a modern custom report-writing tool.		The present Cartegraph FMIS has limitations according to most end-users.
System provides up to date functionality asset management, maintenance management, performance measurement, business planning, customer relationship management, and cost reporting.		The Cartegraph FMIS does not support this advanced functionality.
Access to the Fleet System is readily available to all staff, including parts clerks and technicians.	Access is available to all staff.	Mechanics must share one laptop computer impacting efficiency of administratively maintaining the FMIS.
Additional fleet business tools, such as electronic repair manuals, document imaging, and e-commerce, are part of the fleet organization's technology strategy.		The Division has not taken advantage of computerization with respect to advanced business tools.

Best Management Practice	Strengths	Improvement Opportunities
All members of staff have been appropriately trained in the use of the system.	Staff received initial training on the FMIS product.	Remedial and refresher training has not been made available. There is only one "Power User" of the FMIS capable of generating various information reports.
The fleet organization has reengineered its business processes to take advantage of improvement opportunities afforded by the fleet management system.		The FMIS is apparently not robust enough to facilitate improved fleet management practices; rather, it is seen as an impediment to effective fleet management.
Information produced by the system is routinely used to make management decisions.		Information, of which much is limited, is not routinely used to make management decisions. The inability to effectively use an FMIS in Ogden is one of the vital issues requiring resolution.

APPENDIX C – FLEET AND FACILITIES DIVISION EMPLOYEE SURVEY ANALYSIS

As part of the Matrix Consulting Group's study of the Ogden City Fleet and Facilities Division, the project team distributed a survey to the employees of the Division to gauge their opinions on a number of topics related to fleet and facilities maintenance operations in the City. This report summarizes the results of the survey.

1. INTRODUCTION

The survey was divided into two sections. The first section asked respondents to indicate their level of agreement with several statements about the Division and their work for Ogden City. This section also included a question asking employees to indicate how they perceive their workload levels. The second section asked employees to express in their own words their opinions about the Division's strengths and opportunities for improvement. The survey was emailed to 15 employees in the Division during the month of March, and a total of 9 responses were received, for a response rate of 60%.

While responses to the survey were confidential, the project team asked respondents to indicate their work group within the Division in order to provide the project team and the City with a sense of the respondents' backgrounds. The tables below outline the responses of survey participants to these questions.

WORK GROUP	
Group	**# Responses**
Administration	2
Fleet	4
Facilities	1
Central Stores	2
Total	**9**

While the survey did receive at least one response from every group, it should be noted that 9 total responses is a small overall volume. Because of this, the survey's contents cannot necessarily be deemed representative of all the Division's employees.

2. MULTIPLE CHOICE STATEMENT RESPONSES

The first section of the survey asked respondents to indicate their level of agreement or disagreement with twenty-five (25) statements on a number of topics regarding the Fleet and Facilities Division, including:

- Level of Service to the City
- Division Operations and Communication
- Employee Experience
- Management and Supervision
- Staffing and Workload
- Resources and Technology

Each of the following sections focuses on the statements about one of these topics. The response options were "strongly agree", "somewhat agree", "neither agree nor disagree", "somewhat disagree", and "strongly disagree". In the tables below, these choices are depicted as SA, A, N, D, and SD, respectively.

(1) Staff Have Mixed Opinions on the Division's Level of Service to the City.

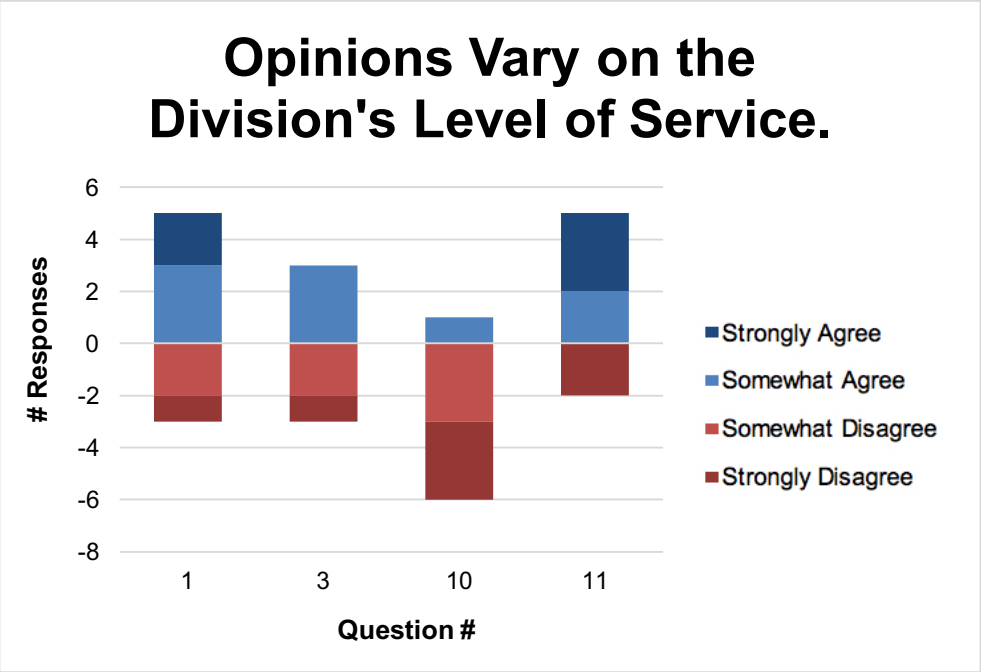
The statements in the table and chart below addressed the level of service provided to the customer departments and divisions of Ogden City.

LEVEL OF SERVICE TO CITY						
	Statement	**SA**	**A**	**N**	**D**	**SD**
1.	My Division is innovative in the way it provides services and products to its customers.	2	3	1	2	1
3.	I feel encouraged to come up with new and better ways of doing things in my Division.	0	3	3	2	1
10.	My Division promotes a culture that continuously improves the quality of services and products delivered.	0	1	2	3	3
11.	My Division provides high levels of service to the residents of Ogden City.	3	2	2	0	2

Statements #1 and #11 focused on innovation within the Division and the level of service that it generally provides to the City. Both of these statements received strong positive feedback with a few disagreeing and strongly disagreeing responses, indicating that most staff are pleased with the Division's commitment to innovation and quality service.

Statement #3 asked whether employees felt encouraged to come up with new and better ways of doing their jobs, and it was met with mixed responses. Statement #10, regarding the Division's culture of improvement, received strongly negative feedback. These responses suggest that while employees believe the Division does a good job of providing high-quality and innovative service, the employee culture does not emphatically promote daily improvement.

The results are portrayed in the chart below.

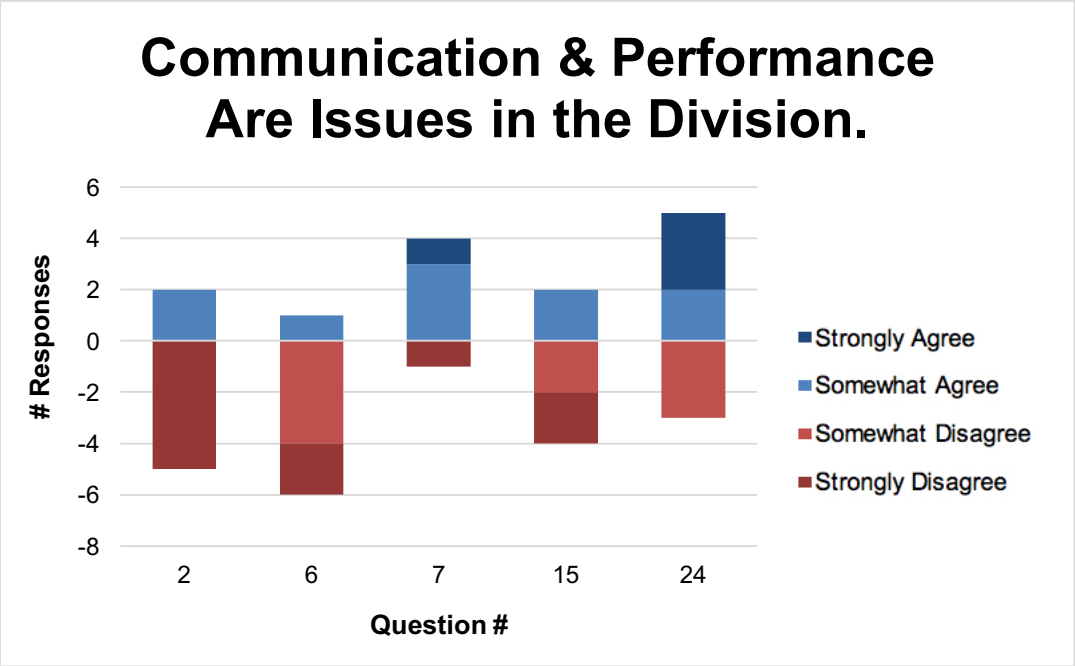


The next section provides the results and analysis of staff perceptions of communications and cooperation in the Division.

(2) Staff Feel That Cooperation and Informal Expectations Are Strong, While Formal Communication and Performance Management Are Issues in the Division.

The statements in the table and chart below focused on the effectiveness of operations and communication within the Fleet and Facilities Division.

OPERATIONS AND COMMUNICATION					
Statement	**SA**	**A**	**N**	**D**	**SD**
2. My Division has clear, well-documented policies and procedures to guide my day-to-day work.	0	2	2	0	5
6. Important information is communicated to me in a timely manner.	0	1	2	4	2
7. I understand clearly what is expected of me at work.	1	3	4	0	1
15. My Division takes steps to deal with poor performers.	0	2	3	2	2
24. The employees I work with cooperate to get the job done.	3	2	1	3	0



(3) Most Employees Are Comfortable in Their Current Work Assignment, But They Do Not Feel That They Have Opportunities to Improve Their Skills, Advance in the Organization, or Participate in Meaningful Decision-Making.

The statements in the table and chart below deal with the experience of employees in the Division and the degree to which they feel personally and professionally valued.

EMPLOYEE EXPERIENCE					
Statement	**SA**	**A**	**N**	**D**	**SD**
17. I am given real opportunities in my Division to improve my skills.	0	1	3	1	4
18. Opportunities exist in the Division for career advancement.	0	1	0	2	6
20. I am given a real chance to provide input into decisions that affect my work.	0	1	2	1	5
21. Overall, I understand how the work I do relates to the overall goals and priorities of my Division.	1	3	3	2	0
22. I feel that I am valued as a member of my Division.	0	1	2	4	2
23. My current work assignments enable me to apply and practice my knowledge and skills.	2	2	3	2	0
25. My Division is open to new ideas suggested by others or myself.	0	0	3	2	4

Statement #2 asked whether there are documented policies and procedures for the Fleet & Facilities operation, and Statement #7 asked whether staff understand what is expected of them at work. While both of these statements addressed similar topics, they received very different responses. A majority of staff strongly disagreed with Statement #2, while only one disagreeing response was received to Statement #7 related to expectations. This suggests that employees have a clear understanding of their responsibilities and expectations, but that these are communicated informally rather than by an established manual or policy handbook. Statement #6 asked whether communication on important matters is timely within the Division, and most respondents stated that it is not.

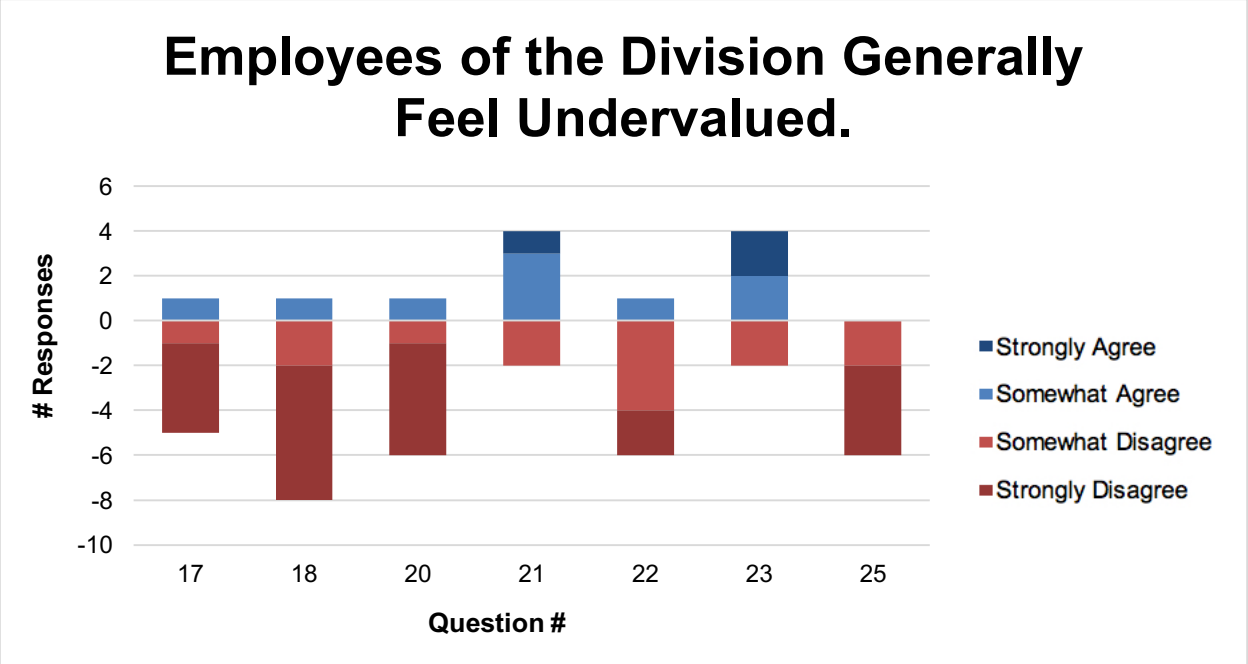
Statements #15 asked employees about performance management. Nearly half of respondents disagreed with this statement, saying that the Division does not take steps to deal with poor performers. Statement #24 focused on employee cooperation, and it received mostly agreeing and strongly agreeing responses, with a handful of employees expressing disagreement. These responses indicate that staff feel formalized communication and processes for performance management are weaknesses in the Division, while cooperation is good and they have a strong informal understanding of expectations.

Most statements in this section were met with heavy disagreement. Employees stated that they do not have opportunities to improve their skills or advance in the organization (Statements #17 and #18, respectively). They also said that they do not have meaningful input into decisions that affect them, and that the Division is not open to new ideas (Statements #20 and #25, respectively). Additionally, six respondents said

that they do not feel valued as a member of the Division (Statement #22), while only one said that they did. These responses suggest serious issues with employee morale and a perceived lack of agency.

Statement #21 asked whether employees understand how their work relates to the goals and priorities of the Division, and Statement #23 asked whether their current work assignment allows them to practice their skills. Both of these statements received twice as much agreement as disagreement, indicating that staff feel a sense of direction and utilization in their current work assignment, even if they do not feel heard or professionally valued.

The results of the above analysis provided in the chart below.



The next section provides the results and analysis of questions related to working supervisory relationships and professional performance.

(4) Most Staff Have Good Working Relationships with Their Supervisors, But They Have Many Issues with Their Professional Performance.

The statements in the table and chart below addressed employees' satisfaction levels with the management and supervision of the Division.

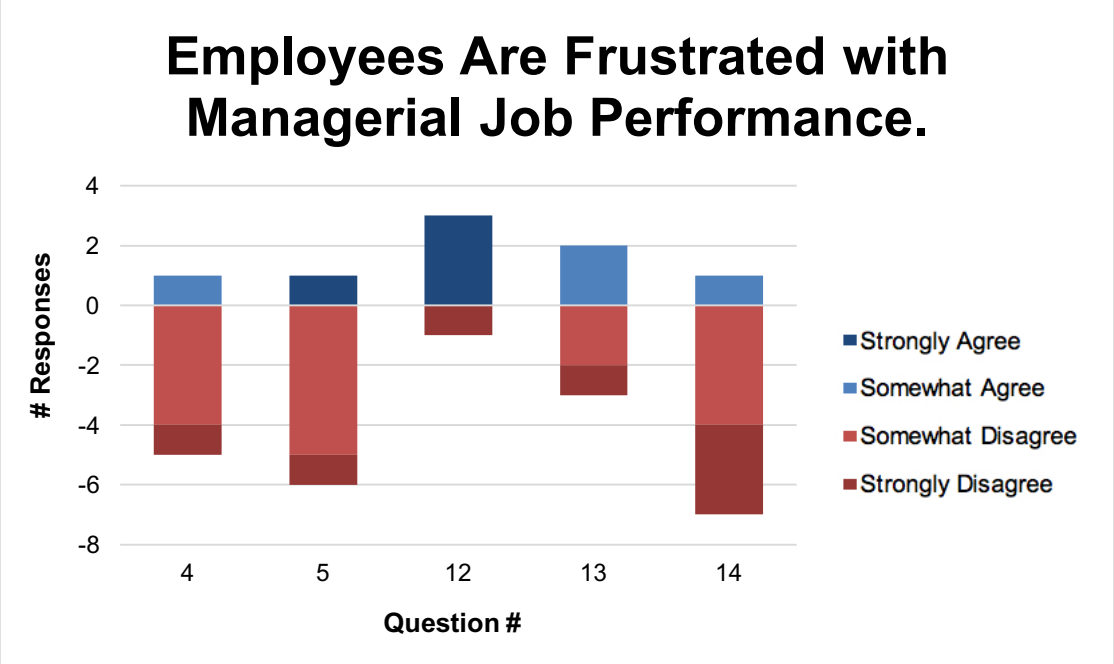
MANAGEMENT AND SUPERVISION						
	Statement	**SA**	**A**	**N**	**D**	**SD**
4.	My immediate supervisor clearly communicates performance expectations to me.	0	1	3	4	1
5.	My immediate supervisor gives me timely feedback about my job performance.	1	0	2	5	1
12.	I have a good working relationship with my immediate supervisor.	3	0	5	0	1
13.	My immediate supervisor holds employees accountable for their job performance.	0	2	4	2	1
14.	Managers and supervisors in my Division are held accountable for their job performance.	0	1	1	4	3

Most of the statements in this section received a majority of disagreeing and strongly disagreeing responses. Staff gave negative responses on Statements #4 and #5, saying that supervisors do not clearly communicate expectations or provide timely feedback to them. These opinions are consistent with those shared in response to Statement #6, above, that employees do not receive timely communication about important information.

On the topic of accountability, the responses to Statements #13 and #14 suggest that staff feel their supervisors do not consistently hold employees accountable for their job performance, and are, in turn, not held accountable for theirs. This sentiment aligns with responses to Statement #15 from the previous section, regarding the Division's steps to deal with poor performers.

In spite of the negative feedback on the professional performance of management, only one employee said that they did not have a good working relationship with their supervisor (Statement #12). So, the frustrations that staff have with the Division's management and supervisory ability have not translated into personal animosity.

The chart below provides a graphical portrayal of the results.



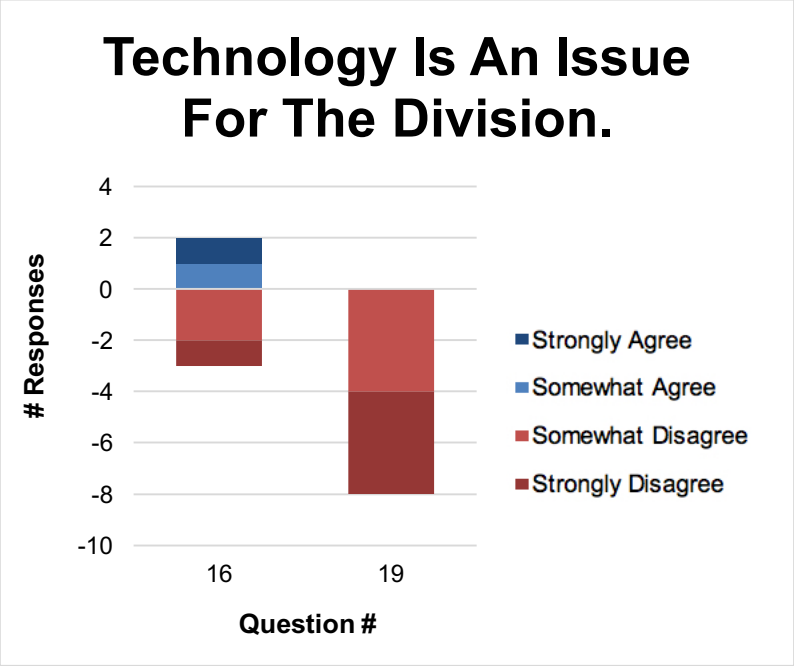
(5) Employees See a Strong Need for Improved Tools, Equipment and Technology in the Division.

The statements in the table and chart below dealt with the resources and technology made available to employees of the Division.

RESOURCES AND TECHNOLOGY					
Statement	**SA**	**A**	**N**	**D**	**SD**
16. I have the tools and equipment I need to efficiently provide service.	1	1	4	2	1
19. My Division strives to provide its employees with the latest technology required to do our jobs.	0	0	1	4	4

In summary, tools, equipment and technology appear to be issues for staff. Statement #16 received more disagreement than agreement, suggesting that employees see a need for better tools and equipment to provide high quality service. Statement #19 received no agreement at all, indicating that staff see technology as a major weakness of the Division. Both of these issues, the need for capital investment and improved technological capability, were brought up by employees later in the survey, in their responses to open-ended questions.

The chart below provides a graphical portrayal of the results of this set of questions.



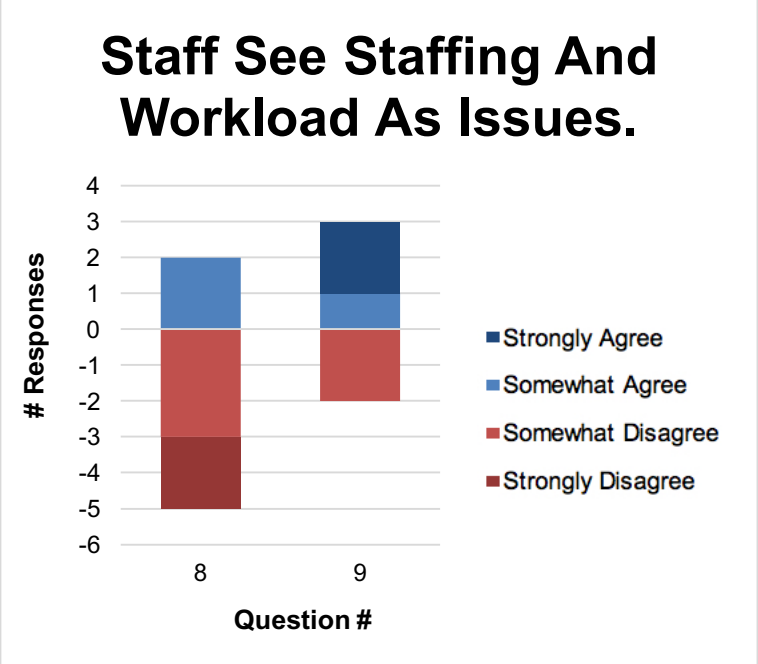
(6) Employees Generally Feel That the Division Lacks Adequate Support Staff and Frequently Operates in Crisis Mode.

The statements in the table and chart below focused on the adequacy of staffing and the workload handled by the Division's employees.

STAFFING & WORKLOAD						
	Statement	**SA**	**A**	**N**	**D**	**SD**
8.	My Division has the secretarial and clerical support it needs to accomplish its goals and objectives efficiently and effectively.	0	2	2	3	2
9.	My Division is frequently in a crisis mode due to workload that exceeds staff resources.	2	1	4	2	0

Statement #8 asked employees whether the Division has adequate secretarial and clerical support, and most staff said that they do not. Likewise, there was agreement than disagreement for Statement #9, regarding whether the Division frequently finds itself in crisis mode. The responses to both of these statements suggest that employees feel the Division's workload exceeds the capacity of the staff resources available.

The results of the responses to the questions in this section are graphically provided below.



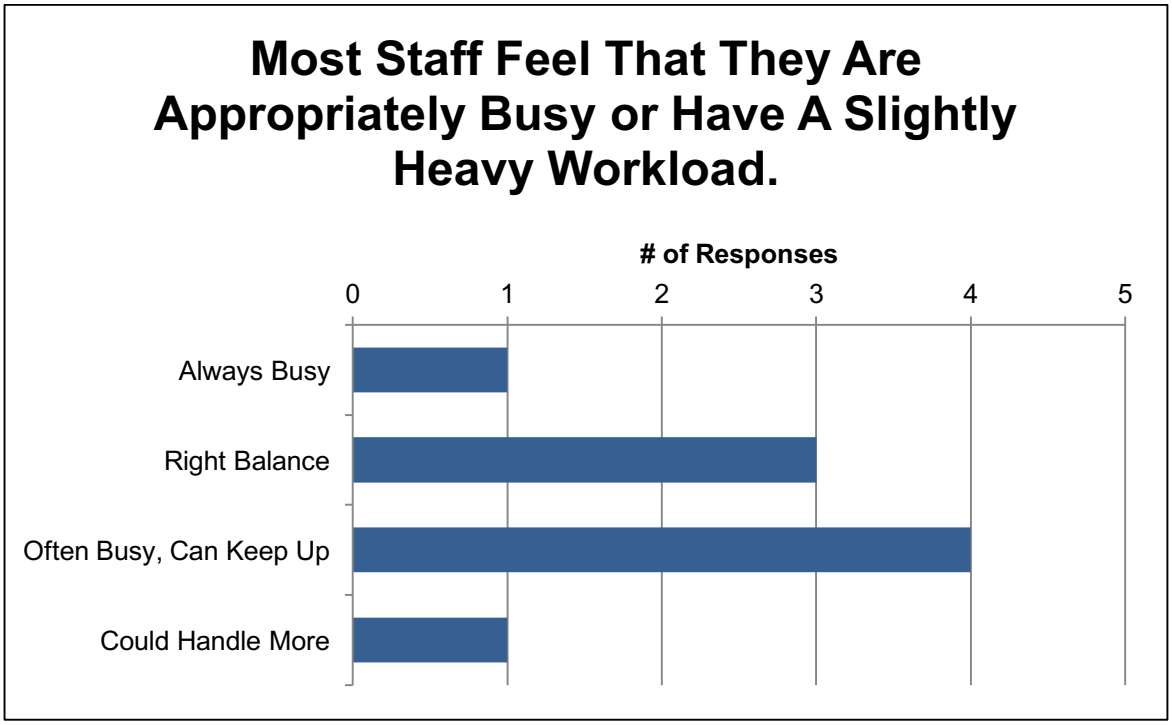
(7) Most Staff Feel That They Are Appropriately Busy or Have a Slightly Heavy Workload.

The final multiple choice question asked employees to choose from four statements describing their current workload. The statements and their responses are depicted in the table and chart below.

WORKLOAD PERCEPTION	
Statement	**# Responses**
I am always busy and can never catch up.	1
I have the right balance of work and time available.	3
I am often busy but can generally keep up.	4
I could handle more work given the available time.	1

While responses to Statements #8 and #9 suggest that staff feel overworked, their responses to this multiple-choice question paint a somewhat different picture in that employees of the Division feel their workload is either slightly heavy or appropriate for the amount of time they have. So, employees perceive that there is an inadequate level of staff support, with frequent crises in the Division, but that does not translate into the perception of an excessive workload for most individual staff members.

The results of employee responses in this section are graphically portrayed in the following chart.



The next section provides a summary of employee responses to open-ended questions.

3. OPEN-ENDED QUESTION RESPONSES

The final section of the survey asked respondents to explain in their own words what they felt were the greatest strengths and most urgent opportunities for improvement in the Fleet and Facilities Division. They also had space to provide any additional thoughts that they wished to convey to the project team.

(1) Staff Believe the Division's Employees, Teamwork, and High Level of Service are Its Greatest Strengths.

When asked what employees felt were the greatest strengths of the Division, the following responses were received:

- Talented/skilled employees (6 responses)
- Teamwork and cooperation (5 responses)
- Quality service (3 responses)
- Independent operation
- Employee loyalty

- Camaraderie in the Division

Staff generally believe that the Division's primary strengths lie in the competency of its employees and their ability to work together in providing reliable, timely service to the City. All of the responses indicated some variation of these themes.

(2) Employees Suggested a Wide Range of Potential Opportunities for Improvement.

When employees were asked what they perceived to be the greatest opportunities for improvement in the Division, the following responses were received:

- Improve training (3 responses)
- Change management (2 responses)
- Improve compensation (2)
- Invest in facilities and tools/equipment (2)
- Improve employee morale
- Improve employee understanding of Cartegraph
- Implement user-friendly software
- Utilize employee strengths
- Focus more on tasks
- Implement written policies and procedures
- Commit to excellent service
- Increase management support of staff
- Cease unprofessional employee behavior

Employees suggested a wide variety of potential improvements to the Division. They ranged from improved job and technology training to changes in management, increased compensation, and changing the way employees are utilized. These responses indicate that there are a number of improvement opportunities for the Division, but none of them stand out as consensus or highly urgent issues.

APPENDIX D – FLEET AND FACILITIES CUSTOMER SURVEY ANALYSIS

As part of the Matrix Consulting Group's study of the Ogden City Fleet and Facilities Division, the project team distributed a survey to the internal customers of the Division to gather their opinions and satisfaction levels with fleet and facilities maintenance operations in the City, as well as with central warehouse operations. This report summarizes the results of the survey.

1. INTRODUCTION

The survey was divided into three sections.

- The first section asked respondents to share about their interactions with the fleet maintenance section by indicating the frequency with which they take vehicles to the shop and stating their level of agreement with several statements about fleet maintenance in the City.

- The second section asked respondents about their interactions with the facilities maintenance section by having them select the frequency with which they request facilities maintenance service and indicate their level of agreement with several statements about facilities maintenance in the City.

- The third section asked respondents about their interactions with the central warehouse by asking them the frequency with which they request parts and materials from the warehouse and their level of agreement with a few statements about the warehouse.

The confidential survey was distributed via web link to department heads and key staff whose input they wanted to include. A total of 12 responses were received.

2. FLEET MAINTENANCE

The first section of the survey asked respondents about their interactions with the fleet maintenance section of the Division. The first two questions focused on the size of the responding Department's fleet, and the frequency with which they take vehicles to the garage for maintenance or repair. The following tables show the responses received.

SIZE OF DEPARTMENT FLEET	
Response	**# Responses**
1-5 units	2
6-10 units	1
11-50 units	3
More than 50 units	6
Total	**12**

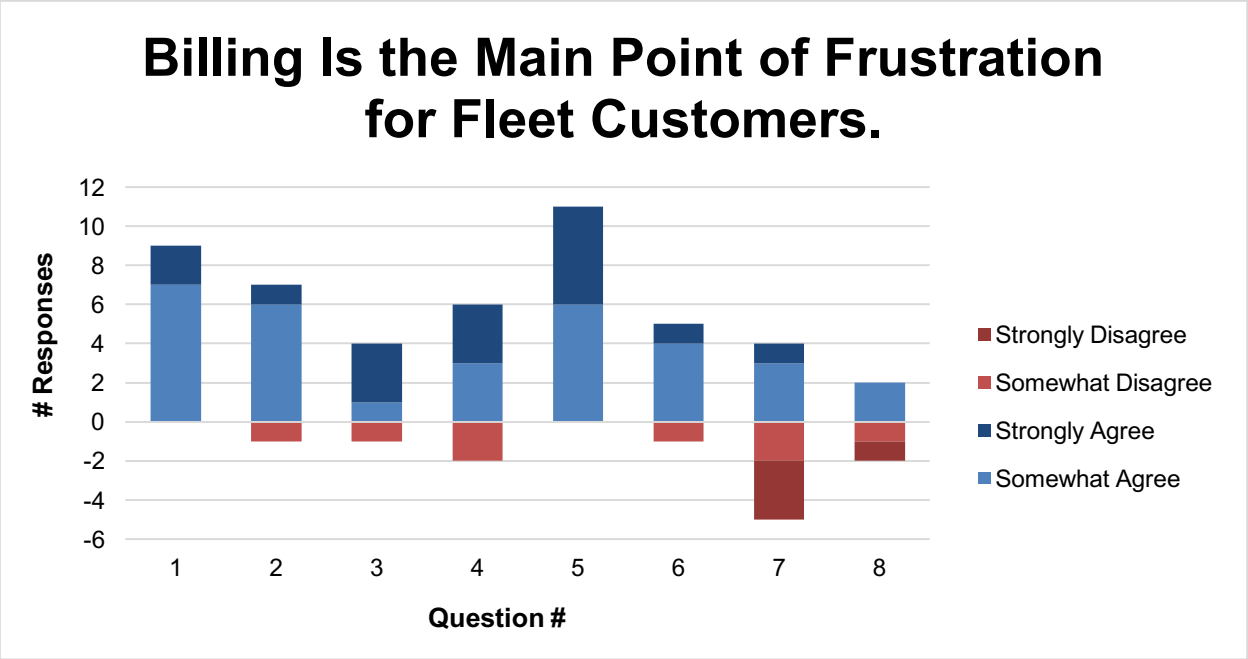
FREQUENCY OF UNITS TO SHOP	
Response	**# Responses**
Daily	4
A handful of times per week	3
A handful of times per month	1
Every one or two months	0
Every 3 months or less	4
Total	**12**

The responses to these questions show that most (75%) of the respondents represent departments with more than 10 vehicles, and most (66%) also have multiple interactions with the Fleet and Facilities Division per month.

The remaining questions in this section gave respondents the opportunity to indicate their level of agreement or disagreement with a number of statements about the fleet maintenance operation. They could choose "strongly agree", "somewhat agree", "neither agree nor disagree", "somewhat disagree", or "strongly disagree". These responses are depicted in the table and chart below.

FLEET MAINTENANCE STATEMENTS						
	Statement	**SA**	**A**	**N**	**D**	**SD**
1.	I am happy with the quality of repair and maintenance performed on our vehicles and equipment.	2	7	3	0	0
2.	I am pleased with the amount of time it takes for the vehicle maintenance shop to complete repairs of our vehicles and equipment.	1	6	4	1	0
3.	In general, I am satisfied with the services provided by the fleet maintenance shop.	3	5	3	1	0
4.	The fleet maintenance staff do a good job of explaining the repairs performed on my vehicles and equipment.	3	3	4	2	0
5.	The fleet maintenance staff I interact with are professional and courteous.	5	6	1	0	0
6.	When repairs are made to one of my vehicles or pieces of equipment, I can be confident that I will not have to bring it back soon for the same problem.	1	4	6	1	0
7.	I understand the rates charged to my department for fleet services.	1	3	2	2	3
8.	The charges for fleet repair and maintenance are reasonable.	0	2	7	1	1

Statements #1 through #6 all received high levels of agreement and only scattered disagreeing responses, demonstrating that customers generally feel fleet maintenance service is timely, high quality, and provided by friendly, professional staff. However, Statement #7 and #8, both of which dealt with the billing of fleet services, received negative responses that matched or outweighed the agreement and strong agreement. These responses show that customers of the Division aren't sure how their fleet maintenance bills are calculated, and they don't necessarily believe them to be reasonable. The responses are presented in graphical form below.



The next section provides a summary of responses relating to facilities maintenance services.

3. FACILITIES MAINTENANCE

The second section of the survey asked respondents about their interactions with the Facilities Maintenance section of the Division. The first question addressed the frequency with which respondents request facilities maintenance services. The following table shows the responses received.

FREQUENCY OF FACILITIES SERVICE	
Response	**# Responses**
Multiple times per week	3
A handful of times per month	5
Every one or two months	3
Every 3 months or less	0
Total	**11**

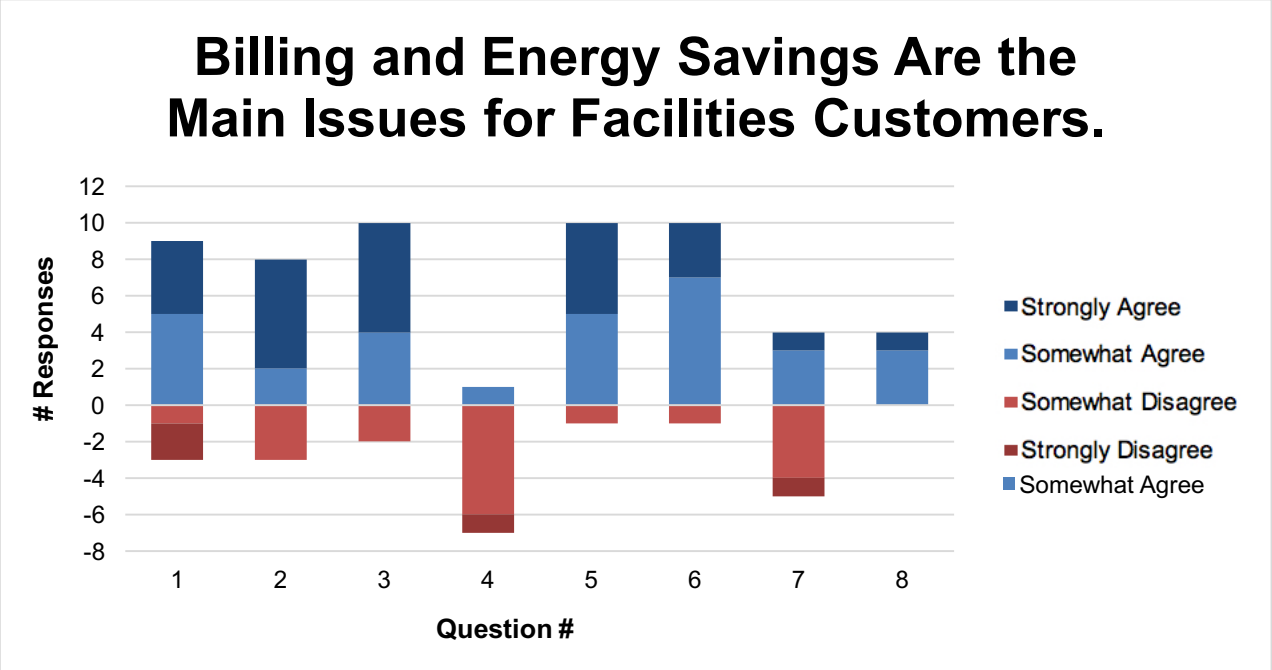
The responses to these questions show that most (73%) of the respondents request facilities service frequently, more than once per month.

The remaining questions in this section gave respondents the opportunity to indicate their level of agreement or disagreement with a number of statements regarding facilities maintenance services. They were given the same options for responses as in the fleet maintenance section, above. These responses are depicted in the table and chart below.

FACILITIES MAINTENANCE STATEMENTS					
Statement	**SA**	**A**	**N**	**D**	**SD**
1. I am pleased with the quality of facilities repair and maintenance we receive in our building.	4	5	0	1	2
2. I am pleased with the time it takes for facilities maintenance technicians to respond to our requests for service.	6	2	1	3	0
3. In general, I am satisfied with the services provided by facilities maintenance technicians in the Fleet and Facilities Division.	6	4	0	2	0
4. I receive information on energy saving measures in my building/office from the Fleet and Facilities Division.	0	1	3	6	1
5. The staff members I interact with are professional and courteous.	5	5	1	1	0
6. When repairs are made to my facility, I generally don't have to call back soon for the same problem.	3	7	1	1	0
7. I understand the rates charged to my department for facilities maintenance services.	1	3	2	4	1
8. The charges for facilities maintenance are reasonable.	1	3	7	0	0

Most statements in this section received at least twice the number of agreeing and strongly agreeing responses as disagreeing and strongly disagreeing. Customers view the facilities service they receive as timely, polite, and of high quality. Statements #4 and #7 were the only ones to receive a notable number of negative responses compared to the amount of agreement. These responses suggest that customers do not regularly receive suggestions for energy savings, and that only some of them have a

clear understanding of the methodology for determining billing rates. The responses are presented in graphical form below.



The next section provides a summary of the responses related to the Warehouse and Central Stores function.

4. WAREHOUSE AND CENTRAL STORES

The final section of the survey asked respondents about their interactions with the warehouse / central storehouse. The first question dealt with the frequency with which they get parts and materials from the warehouse. The following table contains their responses.

FREQUENCY OF WAREHOUSE UTILIZATION	
Response	**# Responses**
Daily or multiple times per day	1
A handful of times per week	2
A handful of times per month	2
Every one or two months	2
Every 3 months or less	4
Total	**11**

The responses to these questions show a distribution of respondents, with nearly half of them using the warehouse more than once a month, and slightly greater than half of respondents using it less frequently.

The remaining questions in this section gave respondents the opportunity to indicate their level of agreement or disagreement with a number of statements about the warehouse. They were given the same options for responses as in the sections above. These responses are depicted in the table and chart below.

	Statement	SA	A	N	D	SD
1.	I can generally get the materials, parts and supplies I request from the Central Warehouse.	1	3	3	0	1
2.	The Central Warehouse provides the materials, parts and supplies that I request in a timely manner.	1	3	3	0	1
3.	The staff members at the Central Warehouse are helpful in assisting me to get the materials, parts and supplies I need.	1	1	4	0	2

Eight respondents provided answers to this section of statements, with many providing neutral responses. Where respondents did indicate an opinion, they suggested that the Central Warehouse provides the materials and supplies they need, and does so in a timely manner, but that the staff at the warehouse may be able to take step to become more helpful to customer departments.

APPENDIX E – FLEET AND FACILITIES COMPARATIVE SURVEY ANALYSIS

As part of the Matrix Consulting Group's study of the Fleet and Facilities Division in Ogden City, the project team conducted a survey of comparable agencies in other cities in order to determine how the Division in Ogden City compares to its peers in terms of reporting structure, staffing, budget, and operational practices. The survey was conducted in March of 2016 by reaching out to key staff members of 10 Utah cities: Bountiful, Layton, Logan, Murray, Orem, Provo, Sandy, South Salt Lake City, West Jordan, and West Valley. Of these, eight cities (Layton, Orem, West Jordan, West Valley, Logan, Murray, Provo, and Sandy) responded to the project team's request for information in whole or in part. The results are summarized below.

1. FACILITIES MANAGEMENT COMPARISON

The following tables focus on the facilities management operations of the responding cities. They show the building inventory, financial structure and budget, technology usage, and staffing of each responding city.

(1) Facility Inventory and Technology Comparison

The following table compares the square footage maintained at each level (facilities maintenance, custodial service, and both) by the facilities maintenance operation in each responding municipality. It also shows the computerized facilities management system, if any, in use by each responding municipality.

City	Facilities and Custodial	Facilities Only	Custodial Only	Facilities System
Layton	150,000	24,000	0	Maintenance Manager

City	Facilities and Custodial	Facilities Only	Custodial Only	Facilities System
Logan	302,000	0	0	None
Provo	0	857,000	0	Managers Plus
Sandy	200,000	0	0	Excel
West Jordan	131,000	118,000	0	Trakit
Ogden City	**892,000**	**180,000**	**0**	**CarteGraph**

The facilities maintenance staff in Ogden City are responsible for the maintenance of more total square footage than any of the responding municipalities, with a total of 1,072,000 square feet. While just over 600,000 square feet of that space is comprised of parking structures, the Division still maintains 458,000 square feet in other buildings, which is more than in any of the responding comparable municipalities other than Provo. Custodial services in Ogden City are provided on a contractual basis.

The responding entities utilize a variety of software applications for tracking and managing their facilities maintenance operations. No two comparable cities reported using the same system, and Ogden City was the only municipality to list CarteGraph as its application for facilities maintenance.

(2) Financial Comparison

The following table presents a comparison of the operating and capital facilities budgets in each responding city, as well as the utilities budget and any contractor expenditures. Additionally, it notes whether each facilities maintenance operation is operated as an internal service fund and the charge-back methodology of each.

City	Operating Budget 2016	Capital Budget 2016	Contractor Expenses	Utilities Budget	ISF?	Charge Back Methodology
Layton	$235,000	$28,000	$18,000	$170,000	Yes	Fixed annual rate based on time/material spent on the department over a 5 year period.
Logan	$1,137,000	$65,000		$237,000	Yes	Inter-department budget transfer, for custodial service only.
Provo	$1,076,000	$710,000	$83,000		Yes	Hourly rate + material costs invoiced to departments.
Sandy	$837,000	$250,000	$78,000	$333,000	No	N/A
West Jordan	$683,000	$308,000	$192,000	$342,000	No	N/A
Ogden City	**$1,457,000**[18]	**$232,500**[19]	**$414,000**[20]	**$900,000**[21]	**Yes**	**Partially burdened rate for "unfunded" departments, fully burdened hourly rate for departments receiving facilities maintenance allocation**

As the table above shows, the Facilities Maintenance budget is generally greater in Ogden City than in peer municipalities.

- Ogden City's facilities maintenance operating budget was 28% greater than that of any responding comparable city, a difference which corresponds approximately to Ogden City's 25% more square footage of maintenance responsibilities than its peers.

[18] Total operating expenses (pg. 3 of Fleet & Facilities Budget) less gas, water, and electric (pg. 2)
[19] Facilities Cap Budget
[20] 5-year average
[21] Gas, water, and electric (pg. 2 of Fleet & Facilities Budget)

- Ogden City's capital budget for facilities is smaller than three of the five responding municipalities; it is just below the capital budgets of West Jordan and Sandy, and far below that of Provo. Layton and Logan, meanwhile, have much smaller capital budgets than Ogden City.

- Ogden City reports contracted expenses of just over $400,000, far greater (by 109%) than those of any survey participant. This may be a result of position vacancies in the recent past in the Division.

- The utilities costs in Ogden City are far greater than any responding city. The $900,000 in Ogden City's utilities budget exceeds that of its closest peer by 163%, which is a significant gap considering the fact that Ogden City maintains only 25% more square footage than its peers.

The financial structures of responding cities varied, with three of the five reporting that they function as an internal service fund (ISF) of some kind, while the other two operate as part of their cities' general funds. In Ogden City, a unique ISF model is in place that divides customers into "funded" and "unfunded" departments. The "funded" departments pay fully-burdened facilities maintenance rates out of an annual facilities allocation, while the "unfunded" departments receive no allocation but pay only a subsidized hourly rate for maintenance service.

(3) Staffing Comparison

The following table compares the number of staff at each level in the facilities operation of each responding city.

City	Manager	Admin Assistant	Facilities Lead/ Supervisor	Facilities Technician	Custodial Lead/ Supervisor	Custodian
Layton	1			1	1	2 FT 4 PT
Logan	1			1.5		0.5 FT 9 PT
Provo	1	1		5 FT 1 PT		
Sandy	1	1	1	2	1	2 FT 17 PT
West Jordan		1	1	3 FT		
Ogden City	**0.5**	**1**	**0.5**	**3**		

As is shown in the table above, Ogden City's staffing arrangement in the facilities maintenance operation is comparable to its peer cities. The three authorized building technicians in Ogden City are surpassed only by the 5.5 technicians in Provo, which is a city with more than 850,000 square feet of building space. Excluding parking structures, Ogden City's staff maintains just 458,000 square feet, placing its three technicians well within the typical staffing range of the comparable agencies.

While the combined structure of the Ogden City Fleet and Facilities Division requires the Division Manager and Senior Project Coordinator to split their time and duties between building maintenance and fleet management operations (hence the half FTE's in those roles), the total amount of supervisory and support for facilities maintenance in Ogden City (2 FTE's) is comparable to other responding municipalities.

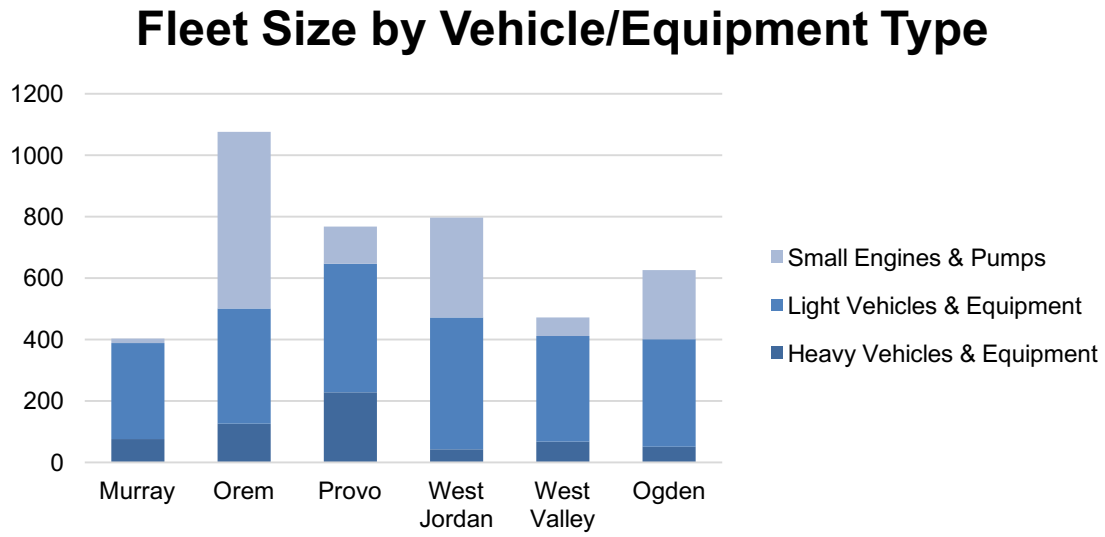
2. FLEET MANAGEMENT COMPARISON

The following tables focus on the fleet operation of the responding cities. They present comparisons of their fleet sizes and composition, financial structure and budget, technology use, and staffing.

(1) Vehicle and Equipment Comparisons

The following table and chart compare the size and composition of the fleet maintained by the fleet divisions in each of the responding comparable cities.

City	Heavy Vehicles & Equipment	Light Vehicles & Equipment	Small Engines & Pumps	Total
Murray	76	311	Few	387+
Orem	126	375	575	1,076
Provo	228	418	122	768
West Jordan	42	429	326	797
West Valley	67	344	60	471
Ogden City	**50**	**351**	**224**	**625**



As the table and chart show, the overall size of Ogden City's fleet is near the midpoint of responding municipalities, while its composition is most similar (though not identical) to that of the fleet in West Jordan.

- The reported number of heavy vehicles and equipment varied widely from 42 pieces in West Jordan to 228 pieces in Provo. The average was 108. At 50 pieces, Ogden City was well below this average, but was similar to Murray, West Jordan, and West Valley. The average of those three municipalities was 62 pieces. The overall average was skewed to the high end of the range because of the large number of heavy vehicles and equipment in Orem and Provo.

- Most responding cities have a similar number of light vehicles and equipment, with a range of 311 pieces in Murray to 429 pieces in West Jordan. The average was 375. At 351 pieces, Ogden City is very close to this average and approximately in the middle of all respondents.

- The number of small equipment pieces like sign boards, pumps, generators, and chainsaws varied widely from just a few pieces in Murray to over 500 pieces in Orem. Two respondents had many more pieces than Ogden City's 224, while the three others had many fewer. The overall average was 219, a figure extremely close to Ogden City's total.

Ogden City is similar to three other cities in the number of heavy fleet pieces. It is comparable to all of the responding municipalities in its light vehicles and equipment. And while the number of small engines in Ogden City is far from the number reported by any respondent, it does sit close to the overall average. The disparity is also somewhat mitigated by the fact that this equipment type takes the least amount of mechanic time and expense to maintain.

(2) Financial and Technology Comparison

The following table presents a comparison of the operating and capital fleet budgets in each responding city, as well as any contractor expenditures. Additionally, it notes whether each fleet operation is operated as an internal service fund, the charge-back methodology of each, and the computerized fleet management system in use for each municipality.

City	Operating Budget 2016	Capital Budget 2016	Contractor Expenses	ISF?	Charge Back Methodology	Fleet System
Murray	$303,000	$680,000		Yes	Departments invoiced to cover costs of staffing and parts.	NaviLine

City	Operating Budget 2016	Capital Budget 2016	Contractor Expenses	ISF?	Charge Back Methodology	Fleet System
Orem	$640,000	$1,609,000		Yes	Departments invoiced, dept fleet budget determined by history of past usage.	Built in-house
Provo	$2,800,000	$1,800,000	$225,000	Yes	Departments invoiced for time, parts, & fuel at rates marked up to cover costs.	CFA, switching to Caventa
West Jordan	$2,705,000	$2,600,000		Yes	Departments invoiced, dept fleet budget determined by history of past usage.	FASTER
West Valley	$821,000	$1,000,000	Up to $60,000 $150,000 in work for other cities	No	Parts charged back at cost	CFA
Ogden City	**$3,186,000** [22]	**$1,019,000** [23]	**$425,000** [24]	**Yes**	**Some depts. charged fully burdened rate, others charged annually for repair/ maintenance and capital replacement.**	**Carte-Graph**

As was the case with facilities maintenance, Ogden City's expenses for fleet maintenance (with the exception of capital improvements) generally exceed those of its peers.

- The fleet maintenance operating budget in Ogden City of nearly $3.2 million is 14% greater than its closest peer (Provo), despite the fact that Provo's fleet is

[22] Fleet & Facilities Budget, total operating expenses (pg. 6) less depreciation (pg. 6)
[23] Fleet & Facilities Budget, bottom line of pg. 6
[24] Fleet & Facilities Budget, 2nd line of pg. 6

23% larger than Ogden City's, and contains many more heavy vehicles and equipment pieces.

- The capital budget in Ogden City is smaller than that of three of five respondents, all of which surpass Ogden City by 58% or more. West Valley's $1 million capital budget for fleet is in the same range as Ogden City's $1.019 million, while the capital fleet budget in Murray is significantly smaller.

- Ogden City contracts out $425,000 of fleet work annually, 89% more than any of its peers.

Like four of the five responding cities, Ogden City's fleet maintenance function operates as an ISF, although the structure in Ogden City differs slightly from the more traditional ISF approach in most of those peer cities. Ogden City charges some departments an annual fee, while others are charged a fully burdened labor rate as work is done on their vehicles and equipment.

Ogden City was the only city to report using CarteGraph as its fleet management software application. Ogden City was also the only city to report using the same software application for both facilities maintenance and fleet management. While this is to be expected in a City with Ogden City's organizational structure (a combined Fleet and Facilities Division), it does not necessarily mean that the software is the most effective for meeting the City's needs in both areas.

(3) Staffing Comparison

The following table compares the number of staff at each level in the fleet operation of each responding city.

City	Manager	Admin Assistant	Shop/Parts Supervisor	Lead Mechanic	Mechanic
Murray			1		2
Orem	1			1	4
Provo	1		1	1	4
West Jordan	1	1	1		5
West Valley	1		1		7
Ogden City	**0.5**	**1**	**1.5**		**6**

The fleet staffing arrangement in Ogden City is favorable compared to its peers. The six FTE's in mechanic roles exceeds the number of mechanics in every responding municipality except for West Valley. The project team conducted a simple comparison to determine the number of mechanics per 1,000 vehicle equivalency units (VEU's) in each municipality, as depicted in the table below[25]. As the table shows, Ogden City is generally favorably staffed in terms of the number of mechanics per 1,000 VEU's:

City	Heavy Fleet VEU's	Light Fleet VEU's	Small Engine VEU's	Total VEU's	Total (lead + line) Mechanics	Mechanics per 1,000 VEU's
Murray	380	622	5	1,007	2	1.99
Orem	630	750	190	1,570	5	3.19
Provo	1,140	836	40	2,016	5	2.48
West Jordan	210	858	108	1,176	5	4.25
West Valley	335	688	20	1,043	7	6.71
Ogden City	**250**	**702**	**74**	**1,026**	**6**	**5.85**

While the combined structure of the Fleet and Facilities Division requires the Division Manager and Senior Project Coordinator to split their time and duties between building maintenance and fleet management operations (hence the half FTE's in the manager and supervisor roles), the total amount of supervisory and support for fleet operations Ogden City (3 FTE's) is favorable in comparison to other responding

[25] In this simplified calculation, heavy vehicles/equipment were assigned 5 VEU's each, light vehicles/equipment were assigned 2 VEU's each, and small engines were assigned 0.33 VEU's each.

municipalities. Only one respondent (West Jordan) listed three FTE's in support or supervisory capacities over the fleet operation, and each of the others had fewer than 3 FTE's.

(4) Parts Room, Warehouse and Central Stores Comparison

The following table compares the warehouse inventory, turnover, and staffing of the parts room/warehouse/central stores operation in each responding city.

City	Inventory Value	Annual Value Purchased	Staffing	Fleet Only?
Murray	$60,000		1	Fleet
Orem			2	All Depts
Provo	$78,000	$450,000	1	Fleet
West Jordan	$175,000	$495,000	1	Fleet
West Valley	$89,000	$1,000,000	2	Fleet
Ogden City	**$1,084,000**		**3**	**All Depts**

The scale of the central storehouse in Ogden City is unlike any of its peers. Ogden City's storehouse inventory of over one million dollars is more than six times the size of the next closest responding municipality, although it should be noted that Ogden City's storehouse serves all departments (not just the fleet shop) and that Orem, the only other respondent to indicate a similar arrangement, was not able to provide inventory value to the project team for comparison.