Fleet Management Performance Audit: The Water Fleet Operation Exhibits Some Industry Best Practices & Can Enhance Various Aspects of its Current Operation

LONG BEACH CITY AUDITOR

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CITY OF LONG BEACH INCORPORATED 1897

Fleet Management Performance Audit: The Water Fleet Operation Exhibits Some Industry Best Practices & Can Enhance Various Aspects of its Current Operation

Report Summary

Why This Audit Is Important

The City of Long Beach's Water Department has its own fleet operation in its Support Services Bureau (Water Fleet). The Water Fleet operation provides services to other divisions within the Water Department. Water Fleet conducts repairs and maintenance and provides fueling for about 280 vehicles and equipment. Water Fleet assets are critical to Water operations, for example, vehicles are assigned to its water and sewer services, treatment plant, construction, and security sections of the department to help them carry out their functions.

Audit Objective

The audit assessed the fleet operation against best practices across multiple areas: vehicle utilization, take-home vehicles, replacement planning, funding approach, maintenance and support positions, and information system capabilities. The audit was performed by Matrix Consulting Group on behalf of the City Auditor's Office.

Acknowledgement

We thank management and staff at the Water Department for their collaboration, assistance, and cooperation during this audit.

What Was Found

The audit found that the Water Fleet operation exhibits some industry best practices for a fleet operation, such as running a state-of-the-art fueling station and installing telematics on all vehicles to track location. However, Water Fleet does not have several pillars necessary for a best-in-class fleet operation, including a robust policy framework, a fleet replacement plan, a preventative maintenance program, and a Fleet Management Information System. The audit identified other specific areas that could be improved, including creating a program to track and review vehicle usage, centralizing a process for fleet replacement decisions and budget, increasing maintenance staff to meet the recommended service level, and reporting data on inventory, maintenance, parts, and performance measures.

What Was Recommended

Recommendations were made in six key areas, including:

- Governance: Develop a Fleet Policy Manual, a Driver's Handbook, and Service Level Agreements
- Utilization: Track vehicle usage consistently and review annually for compliance with optimum lifecycles
- Replacement Plan: Develop and maintain a 10+ year fleet replacement plan and seek purchasing efficiencies through centralization and cooperative agreements
- Maintenance: Review number of mechanics with their salaries and their training, as well as develop a schedule for preventative maintenance
- Rates: Expand Water Fleet's role in determining when vehicles will be replaced and what the new asset will be
- Information Technology: Acquire a Fleet Management Information System that will track and report on key performance measures

Final Audit Report

CITY OF LONG BEACH, CA – WATER DEPARTMENT

April 25, 2022

matrix consulting group

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1 Introduction and Executive Summary

Matrix Consulting Group was engaged to conduct an audit of the Fleet Services Bureau (FSB), Harbor Department and Water Department at the City of Long Beach. This report covers the Water Department and separate reports cover Harbor and FSB. Between December 2021 and April 2022, Matrix collected and analyzed pertinent data and interviewed stakeholders in support of this audit.

1. Overview

The Long Beach City Auditor's Office engaged Matrix Consulting Group to conduct a performance audit on their fleet operations across the three departments. This performance audit involves seven objectives:

- Assess vehicle utilization by department and asset type.
- Determine the effectiveness of current utilization guidelines.
- Evaluate the reasonableness of take-home vehicle policies and practices.
- Determine the adequacy of maintenance and support positions.
- Assess the effectiveness of the replacement plan including lifecycles, budget, and guidelines.
- Review funding approach and chargeback system adequacy.
- Evaluate Fleet Management Information System capabilities and data usage.

2. Study Methodology

The methodology employed in this audit involved analyzing and comparing the Water Department's fleet data to a series of industry norms or best practices. These industry norms are derived from industry associations such as the American Public Works Association (APWA) and NAFA Fleet Management Association, as well as the project team's experience working with hundreds of government jurisdictions. The study approach also included:

- Collection of basic data on the Water Department's fleet including asset type, assigned department, acquisition date, meter reading, and maintenance and replacement costs.

- Development of statistics on fleet operations such as historical utilization for fleet assets, average age, replacement funding, compliance with maintenance inspections, downtime, etc.

- Assessment of fleet management practices and comparison to industry best management practices in the areas of governance, utilization, replacement planning, maintenance, rates, and technology.

- Assessment of fleet utilization.

- Development of interim, draft and final reports.

This represents the final audit report for the Water Department fleet organization.

3. Water Fleet Profile

The Department's service area encompasses the boundaries of the City of Long Beach, the seventh largest city in State, with an area of approximately 50 square miles and a population of 467,354 with some water customers outside the City limits. The Department meets the needs of its customers through an increasingly diverse portfolio of water resources. Local groundwater, combined with imported supplies, water recycling and water conservation are used in combination to meet the water demands within the service area.

The Water Department fleet includes 281 vehicles and pieces of equipment. It is overseen by the Manager of Support Services. The Water Department currently has its own fleet maintenance shop. This shop is responsible for conducting repairs and maintenance on the Water Department's vehicles and equipment. The following table shows the total number and average age of active vehicles and equipment assigned to the various divisions/units of the Water Department.

Organization	Number
Water Construction	
Main	32
Service	27
Other	17
Service Con.	16
Main Con.	14
E.side	1

Organization	Number
Water Services	
Meter Shop	16
Emergency Services	14
Valves	5
Valve Ops	2
Sewer	
Sewer	40
Sewer Fog	2
Support Services	
Support	12
Pool	6
Warehouse	4
Garage	3
Salvage Shop	1
Welder	1
Treatment Plant	
Treatment Plant	50
Telecom	3
Engineering	
Inspector	12
Engineering	1
Security	
Security	1
Unassigned	1
Total	**281**

The Water Department is working towards a more sustainable fleet composition and has made some purchases of alternative fueled vehicles. The following table displays fleet assets by type of fuel used.

Fuel Type	Count
Gas	153
Diesel	57
n/a	43
LNG	17
CNG	4
Electric	3
Propane	3
MIX	1

Total	**281**

The average age of the fleet is 10 years, and 60% of the fleet is model year 2010 or newer. 75% of the fleet runs on gasoline or diesel, but 10% of units are hybrid, fully electric or CNG/LNG/propane vehicles.

4. Key Findings and Recommendations

As an overall assessment, the fleet and maintenance services provided to the Water Department exhibit several best practices such as access to an onsite state-of-the-art fueling station and the installation of telematics on all vehicles. Our audit findings are aimed at bringing other areas of fleet and maintenance management to this standard. The Water Department does not have several of the pillars in place that are necessary for a best-in-class fleet operation – a Fleet Management Information System (FMIS), fleet policy framework, fleet replacement plan, and a Preventive Maintenance program.

The focus of this report is the changes necessary to improve performance or operations. A summary of the recommendations from each chapter of this report grouped by functional area follows.

Governance

The Water Department has a centralized maintenance organization and several policies that govern fleet and maintenance management. They could benefit from a policy framework with a Fleet Policy Manual, Driver's Handbook, and Service Level Agreements (SLAs) with their customers.

Utilization

Tools are in place to track utilization (Geotab), but there is no policy or program to ensure annual review of vehicle usage. The utilization review noted that end users are not proactive in tracking utilization and may attribute low utilization to COVID. Vehicle usage should be tracked consistently and reviewed annually for compliance with optimum lifecycles to ensure efficiency.

Replacement Planning

The organization does not have a department-wide feet replacement plan or fund as replacement decisions and budgets are held by divisions. Replacement funding has been very limited so optimum lifecycles are not observed. The Department should develop and

maintain a 10+ year replacement plan, and seek purchasing efficiencies through centralization and cooperative agreements when possible.

Maintenance

Maintenance staffing is below that recommended by industry best practice and should be increased through a combination of filling vacant positions, outsourcing and overtime. Mechanic salaries and training should be improved and a schedule developed for preventive maintenance. Most tasks would be facilitated by an improved maintenance management system.

Rates

The Water Department does not charge user fees for the use of fleet services which is acceptable for a small fleet. There should, however, be a fleet replacement plan and the fleet organization needs to play a bigger role in determining when vehicles will be replaced and what the replacement asset will be.

Information Technology

The Water Department has a new, state-of-the-art fuel system and telematics installed on all vehicles. They have a maintenance management system that is barely meeting rudimentary maintenance tracking requirements as it is only accessible by the Garage Supervisor and is not connected to the other systems. The Department would benefits from a modern fleet management information system which can track and report on inventory and work orders, PM's, fuel, parts, and performance measures.

2 Audit Checklist

In compliance with the Request for Proposal, data analysis and staff interviews were conducted in order to make recommendations in the following areas:

- Organization and policies
- Take-Home Vehicles
- Utilization guidelines
- Replacement planning
- Maintenance staffing
- Rates/funds
- Fleet Management Information Systems

Each of the topics is addressed in the summary best practices table and further details follow in subsequent chapters on each subject. The best practice in each area is stated, in column one and assessed in the middle column. The right column describes the practice at the city. A ✓ indicates that the city complies with best practice and a ~ indicates partial compliance with room for improvement. No mark in the column means that the practice is not met. Criteria with this rating are discussed in the narrative that follows each section.

3 Governance

Fleet governance includes the fleet organization, reporting structures and policy framework. Fleet operations are normally more efficient when they are centralized as management functions do not have to be replicated for separate organizations. A common FMIS can ensure that there is a single repository for all fleet data. Best practice fleets communicate regularly with their customers and have a robust policy framework to facilitate decision making.

The following table shows how the Water Department compares to best practices in fleet governance.

Criteria	Status	Comment
1. The fleet program is centralized to capture economies of scale.	~	The Water Department's maintenance operations are centralized under the Manager of Support Services who is responsible for procurement and repair of vehicles. Replacement planning is decentralized, and divisions determine fleet replacement needs.
2. There is a Fleet Steering Committee with representatives from all customers who meet regularly to discuss fleet issues including vehicle replacement and safety.		There is no Fleet Steering Company. The Manager of Support Services meets informally with Divisions on fleet matters.
3. A Fleet Policy Manual is in place that defines program objectives, responsibilities, and service standards.	~	Water has no Fleet Policy Manual. There are a number of administrative/Personnel and Safety Polices that deal with aspects of fleet.
4. A Driver's Handbook outlines key driver responsibilities and drivers sign to acknowledge compliance annually.		There is no Driver Handbook in place and existing policies do not adequately cover the full range of a driver's responsibilities.
5. Service level agreements (SLAs) are in place to ensure that the fleet organization and its customers are working in a collaborative manner.		The fleet organization does not have SLAs in place with their customers.

Criteria		Status	Comment
6.	Annual surveys are conducted to assess customer satisfaction.	~	The garage shop maintains communication with other divisions but does not conduct a formal survey.
7.	Take-Home Vehicle Policies are reasonable, communicated and understood.	✓	Water allows vehicles to be taken home for on-call employees. Those employees complete a form that has to be signed off by the Division or Bureau Manager.
8.	Departments ensure that take-home vehicles are not used for personal use.	~	The policy stipulates that personal use is not allowed but no formal verification is done for on-call vehicles.
9.	The approval process for Take-Home vehicles is reasonable, communicated and followed.	~	The process is clear and documented but could have tighter controls.
10.	A list is maintained of all approved Take-Home vehicles and reviewed annually.	✓	The Department maintains a list showing vehicle numbers and distance travelled.

The following points discuss our findings and recommendations related to governance of the Water Department's fleet operation.

1. Centralization (BP 1)

Support functions such as fleet services are more efficient when organized in a consolidated and centralized manner. This organizational alignment provides economies of scale, reduces duplication of effort, and ensures that fleet management expertise is applied to all important fleet issues, across all departments.

Maintenance and vehicle purchasing are centralized under the Manager of Support Services. Replacement planning, however, is at the discretion of the separate divisions.

2. Fleet Steering Committee (FSC) (BP 2)

An FSC is a valuable tool to ensure that fleet customers are heard, and the fleet organization's priorities and plans are communicated. Specific functions include:

- Replacement planning - Review the annual replacement plan and discuss any changes.
- Sustainable conversion - Discuss opportunities for Electric Vehicle conversion.

- Safety - Review accident statistics and primary causes.
- Maintenance concerns - Discuss issues of concern to all customers.

Most importantly, the use of a FSC ensures that customers designate a representative who can talk knowledgeably about fleet. That representative should be familiar with the inventory, vehicle utilization, condition, safety concerns, budget and sustainable goals. In the conduct of the utilization interviews, it was clear that several divisions did not have someone with this focus on fleet.

The Water Department does not have a committee or formal meetings on fleet topics.

3. Fleet Management Policies (BP 3, 4 and 5)

Municipal organizations benefit from a robust fleet policy framework comprised of a Fleet Policy Manual, a Driver's Handbook and Service Level Agreements (SLAs) with all customers.

The Policy Manual provides a reference for managers and staff to refer to as different situations arise and serves as a baseline for all employees to understand the mission, requirements, and constraints of the fleet management program. Without a policy manual, departments are left to exercise their own judgment on a range of important fleet issues such as the type of vehicles that will be purchased, when vehicles will be replaced, and whether replaced vehicles are sold or kept in service to meet other program needs. This situation inevitably leads to wide variations in fleet practices among end users and limits the ability of the fleet manager to implement best management practices.

A Driver's Handbook is a supporting document that contains the information that needs to be readily available to drivers. It should include a signatory page indicating that a driver is aware of and will comply with its contents. Drivers should be required to review and sign the document annually, and their signature should also allow management to access their Motor Vehicle Record (MVR). Information in this document should include detailed instructions and requirements for pre- and post-trip inspections, service and fuel procedures, actions in case of collision and driver obligations to report all driving infractions on a timely basis.

SLAs are written agreements between fleet and each of their customers that specify the responsibilities of each party. In a typical SLA, fleet may be responsible to ensure a specific availability of vehicles, accomplish repairs in a specified timeframe and have final sign-off on vehicle acquisitions. Each fleet customer, on the other hand, will be

responsible to make vehicles available for scheduled preventive maintenance, keep vehicles in a clean state, and pay for at-fault vehicle collision repair or abuse.

The Department's fleet operation currently operates without all these elements. The following policies govern Water's fleet operations:

Number	Policy Title	Elements
1.15	Vehicle Inspection Procedure	Monthly inspection, Unserviceable rating
1.16	Vehicle Repair and Services	Roadside repairs, accident
11.2	Assignment and Use of Automotive Equipment	Motor Vehicle Records, license, take-home, reimbursement
11.8	Driver License Requirements	Hours of Service, drug screening, license classes
111.19	General Vehicle Restrictions and Requirements	Speeding, distracted driving, fines and backing
119.20	Vehicle Incident and Property Damage	Preventable, Non-preventable

The documents reviewed do not provide a thorough overview of fleet management responsibilities and policies in areas such as vehicle acquisition, disposal, fueling and repair. In some areas, specifically 1.15 Vehicle Inspection Procedures, the requirement for monthly (instead of trip) inspections is not in accordance with industry best practice and the requirements concerning keeping paperwork where defects are noted is vague.

A separate handbook, designed specifically for drivers, can ensure important information such as the need for a daily trip inspection and what to do in case of an accident, is not missed. The creation of a Driver's Handbook was also a recommendation for the city fleet managed by the Fleet Services Bureau (FSB) and this document could be developed in cooperation with FSB.

4. Customer Survey (BP 6)

An annual customer survey is an efficient way to gather information that can improve fleet service levels. A simple five-point scale can be used to gauge satisfaction with key fleet functions. The results can be used to measure progress over time. An example of the results of a customer survey appears below:

Customers/ Function	Transit	Roads	Parks	Water Tmt	Bylaw	Facilities	Rural	Rural Ops	Bylaw	Solid Waste	WWTP	ES - Landfill	**Average**
Cust Service	4	4	3	4	4	4	4	3	4	4	5	4	4.00
Facility	5	3	4	4	4	4	4	2	4	4	3	3.5	3.75
Quality	3.5	3	3.5	2	4	4	4	4	4	4	5	3	3.66
Communication	4	2	2.5	2.5	4	4	4	3	4	3.5	5	4	3.61
PM	4	3	5	3	2.5	3	4	4	2.5	3.5	5	2	3.57
Parts	4.5	3	2.5	3	4.5	3	4	3	4.5	3	4	3	3.50
Fuel	4	5	2	4	1	5	4	1	1	4	5	4	3.54
Availability	5	3	1	2	4.5	4	4	3	4.5	3	3.5	2	3.34
Acquisition	4.5	4	3	3	N/A	5	4	3	N/A	4	3	N/A	3.70
Time to repair	5	3	1.5	1	4	4	3	1	4	4	4	2	3.09
Technicians	5	3	1	2	2	3	3	3	2	4	4	3	2.93
Overall Average	4.4	3.3	2.6	2.8	3.5	3.9	3.8	2.7	3.5	3.7	4.2	3.1	**3.5**

5. Take-Home Vehicles (THVs) (BP 8)

Take-home vehicles can be very costly for an organization if not tightly controlled. Best practices in the control of take-home vehicles include a reasonable policy and approval process that is consistently applied, limitations on the maximum commuting distances, maintenance and regular review of a register of approved employees and safeguards against personal use. The Water Department has policies to allow take-home vehicles for employees who make after-hours emergency calls. These staff are permitted to use their work vehicles for their commute during periods when they are required to be available for on-call response.

The policy clearly states that personal use of these vehicles is not permitted but no regular checks are performed. A list of the vehicles used for this purpose is maintained. There are 85 vehicles on the list, ten designated as permanent use and 75 as occasional. Seven vehicles on the list travel 25 miles or more each way. The policy could be strengthened by doing verifications on personal use and setting a mileage threshold.

Recommendations:

1. **Centralize replacement planning so divisional replacement plans are merged into a single organizational-wide ten-year plan.**

2. **Institute a FSC with bi-annual meetings to discuss fleet maintenance, management and replacement.**

3. **Create a Fleet Policy Manual outlining regulations on fleet acquisition and disposal, utilization, safety, PMs, repairs, communication, and points of contact.**

4. **Develop a Driver Handbook with information specific to the driver. Copies of the Handbook should be kept in every vehicle. The handbook may be developed in tandem with the City's FSB driver handbook.**

5. **Create SLAs with fleet customers and meet regularly with fleet representatives to discuss issues.**

6. **Conduct annual customer service surveys and track performance improvements.**

7. **Begin tracking mileage for on-call and emergency take-home vehicles to ensure that they are not used for personal use.**

4 Utilization Guidelines

Utilization reviews call for organizations to have a mobility mindset. When a transportation requirement is identified, the default should not be to purchase an additional resource. Management and users should first ask whether that requirement can be met more efficiently by other means such as leasing, renting, public transportation, employee reimbursement or loaner pools. Vehicle ownership should be the last resort. Where ownership is the best option, care should be taken in matching the asset to the requirement in a way that promotes efficiency and sustainability.

Across the industry, vehicle utilization over the past two years has not been consistent due to the impacts of COVID on staffing and operational practices. In some cases, vehicles were parked because staff was working from home, or had left the position and not been replaced. In other cases, utilization increased as employees could not travel together so had to each take a vehicle. Potential impacts of the pandemic on fleet utilization were sought through the interview process. In many cases, end users mentioned that the pandemic has altered utilization and that usage would return to pre-pandemic levels in the future. It is important to put a deadline on these cases and the onus should be on end users to justify utilization levels by the end of the budget year.

The approach used to assess fleet utilization was comprehensive. Interviews were conducted with all divisions to discuss fleet needs in general, the types of vehicles used, and each vehicle in their fleet. Asset criticality must always be considered in studying emergency fleet utilization. A specialized pumper truck may be used only once a month, however, if it is the only asset of its type and is critical to operations, it cannot be eliminated.

After analysis and interviews with vehicle users, one of the following recommendations for each asset was made:

Retain	Keep current unit in service and replace according to a multi-year replacement plan based on optimum lifecycles.
Replace	Asset is overdue for replacement and should be replaced immediately.
Right-Type	The current asset is not the best or most economical for the job. It should be replaced with a different asset at the end of the current lifecycle.
Eliminate	Utilization does not justify retention of the asset. The asset should be sent to auction and not replaced.

Re-Examine Post-Covid	Review once normal operations resume.
Other	Other recommendations may include borrow, pool, rent or additional analysis.

The following table summarizes the recommendations for fleet right-sizing for the Water Department. There has not been fleet growth or replacement for three years so very few opportunities for savings arose.

Vehicles	Retain	Re-exam post COVID	Other - Pool	Inventory Adj
281	273	1	2	5

The following table shows how the Water Department compares to best practices in fleet utilization.

Criteria	Status	Comment
1. Asset utilization policies and guidelines are clearly defined to ensure that vehicles and equipment are allocated properly based on job requirements.		There are no formal policies on asset utilization.
2. Processes are in place to capture utilization data from available sources and to validate and analyze the data. Annual utilization reviews are conducted, and vehicles are replaced, eliminated, pooled or rotated as needed.	~	Geotab has the ability to track utilization but not all divisions access and review utilization data.
3. Motor Pool vehicles are available for occasional transportation needs. Motor Pools are located and managed to provide efficient service.	✓	There are pooled assets available for occasional use.
4. Vehicles that are replaced are disposed of immediately.	✓	Vehicles are disposed of in a timely manner.
5. Fleet users are proactive in identifying vehicles with low utilization.		Users do not track utilization.

1. Utilization Policies (BP 1 and 5)

The Fleet Policy Manual should include directives for reviewing the utilization of each division's vehicles on an annual basis along with the replacement review outlined in the Green Vehicle implementation Plan. Vehicles with utilization well below the average for their vehicle class should be pooled or replaced as appropriate to ensure that the size and composition of the fleet are optimized. This practice will also create an annual opportunity to further the Department's conversion to an electric fleet.

The following issues associated with utilization were identified:

- **COVID impacts.** The Engineering Group has more vehicles than staff due to hiring impacted by COVID. A decision should be made by the end of the fiscal year whether the position will be filled and if the vehicle is needed.

- **Lack of meter readings.** Hour/odometer reading were available for most vehicles and equipment. The usage of most trailers, however, is not being tracked. Trailer tracking is important to determine location, usage and opportunities to pool assets.

- **Odometer readings.** Although divisions stated that they do not have odometer readings for their vehicles, they have access to Geotab which has odometer readings for all on-road vehicles.

- **Vehicle lifecycles.** Optimum lifecycles for all vehicle classes should be established and followed (i.e., SUVs are eight years). Individual divisions determine when vehicles will be replaced which can impact the requirement for maintenance services.

The end users are key to identifying low utilization vehicles and being proactive in eliminating or pooling them.

2. Implementing Utilization Recommendations (BP 2)

An annual review of utilization is not effective unless the recommendations from the review are implemented. After these recommendations are implemented, divisions should prioritize keeping up to date on the management and utilization of the fleet units assigned to them.

Recommendations:

8. **Implement the recommendations in the utilization review, which were summarized in the table on page 14.**

9. **Include a directive for an annual review of each vehicle in the fleet, by division, to identify those which are aged, under-utilized, or otherwise candidates for replacement with more appropriate and sustainable mobility options in the Fleet Policy.**

10. **Conduct annual fleet reviews without adjustment for covid-related decreases in utilization.**

11. **Track the utilization of all fleet units including trailers to identify location, usage and opportunities to pool assets.**

12. **Make Divisions aware of the methods to access odometer readings to track utilization.**

13. **Calculate and adhere to optimum lifecycles by vehicle class to avoid excessive maintenance as a fleet ages.**

5 Replacement Practices and Plan

Establishing optimum lifecycles and a corresponding multi-year replacement plan are fundamentals of fleet management. The theory of effective capital asset management is well established in the fleet industry and is based on these principles.

- The failure to replace vehicles on time costs an organization more money, both in hard dollars and in indirect costs, than replacing them according to schedule.

- An old fleet has a negative impact on staff productivity, as unreliable vehicles are frequently in the shop and not available for work.

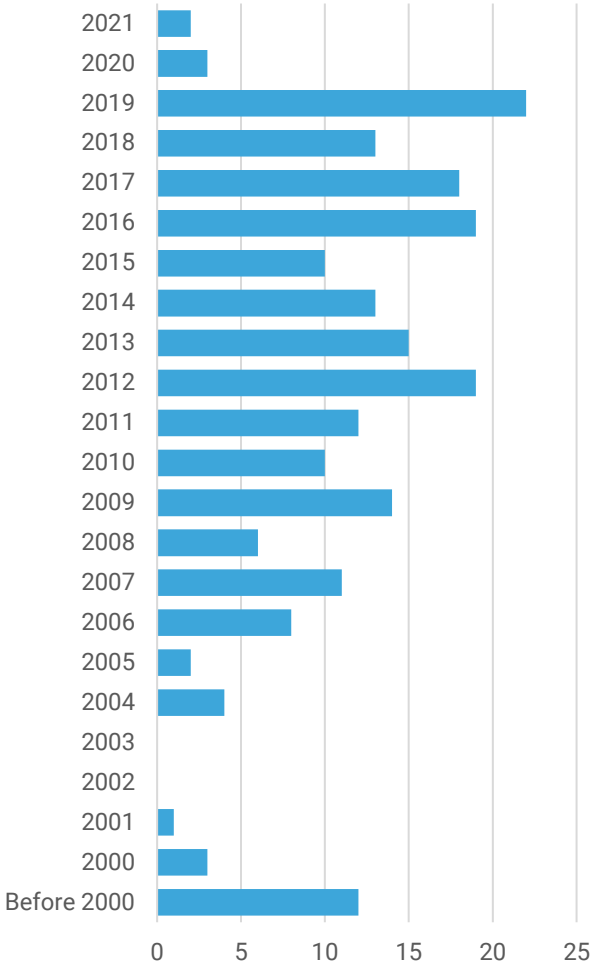
- If a fleet is old, departments seek to keep extra vehicles to act as backups and spares, so they can survive the increased unreliability of front-line vehicles. As a result, there are often more vehicles in service than are needed.

- The older vehicles in a fleet use more fuel and emit more pollution than newer vehicle, because standards for emissions and fuel economy were lower in the past than they are now.

- Older vehicles are not as safe as new ones as they lack many of the advanced safety features that are standard with new cars (such as cameras, sensors, lane departure warning, collision avoidance systems, side curtain air bags, etc.).

The next graph shows vehicles and equipment by model year. Spikes in replacement in 2017 to 2019 were followed with lows in 2020 and 2021.

Year	Count
2021	2
2020	3
2019	22
2018	13
2017	18
2016	19
2015	10
2014	13
2013	15
2012	19
2011	12
2010	10
2009	14
2008	6
2007	11
2006	8
2005	2
2004	4
2003	0
2002	0
2001	1
2000	3
Before 2000	12
None	64
Total	**281**



The following table shows how the Water Department compares to best practices in fleet replacement.

Criteria	Status	Comment
1. Vehicles are procured to meet specific customer job requirements and customers are given ample input into the specification process.	~	Divisions determine their needs and are the final authority in fleet procurement. The fleet organization provides advice.
2. Non-technical requirements such as parts lists, repair manuals, diagnostic tools, and training are included in vehicle specifications.	✓	All are included in tenders for fleet vehicles.

Criteria	Status	Comment
3. Cooperative purchasing is used in order to take advantage of volume pricing.		The Water Department does not use fleet cooperative agreements.
4. Vehicle upfitting processes minimize the use of in-house resources and put newly acquired vehicles into service as quickly as possible.	✓	Inhouse upfitting is appropriate and does not cause delays in delivery of new vehicles to end users.
5. Vehicle decommissioning practices ensure that vehicles are disposed of in the most efficient and cost-effective manner possible. Vehicles determined to no longer be needed are physically removed from service so as to control fleet size.	✓	Vehicles are removed from service and sent to auction in a timely manner.
6. Funds from vehicle disposal are returned to the equipment replacement fund.		There is no equipment replacement fund.
7. Replacement cycles have been determined for all vehicle classes.	~	Replacement cycles have been established for most vehicle classes, but they are not always followed.
8. Replacement is based on Total Cost of Ownership (TCO) which includes the capital and operating costs of assets.		The Water Department does not have systems capable of tracking the TCO of all assets.
9. Replacement cycles are based on age, usage, condition, or some combination of these criteria and are reasonable and appropriate.	✓	The organization considers age, mileage and condition to prioritize replacement.
10. A ten-year replacement plan exists and is updated regularly.		There is no consolidated ten-year plan. Users determine their needs and funds are allocated annually.
11. Customers are involved in decisions regarding replacement of their vehicles.	✓	Customers lead the decision on vehicle replacement.
12. Sustainability is considered in the replacement decision.	✓	Sustainability is increasingly important as a factor in vehicle replacement.

The following points discuss our findings and recommendations related to the Department's replacement plan and practices.

1. Customer Involvement in Purchasing (BP 1 and 11)

Best Practice in replacement planning is that fleet, procurement, finance and customers cooperate to determine needs and funds available. Fleet maintains a ten-year replacement plan, making annual adjustments as user needs or budget available changes. Ultimately, the fleet manager signs off on new vehicle purchases as they have the responsibility to onboard the vehicle, plan for its lifetime maintenance and report and remarket the vehicle at the end of its lifecycle.

For the Water Department, the end user takes the lead in vehicle replacement and has the final say in determining when assets will be replaced. They maintain separate replacement plans for their areas of responsibility.

2. Cooperative Purchasing (BP 3)

Cooperative purchasing practices such as "piggybacking" on contacts already established by another government entity, is a proven way to streamline the vehicle acquisition process, secure the availability of vehicles even as a smaller customer, and obtain advantageous pricing. The Water Department does not currently use cooperative purchasing, although they have begun examining the possibility of doing so. The Department should continue to pursue this strategy, partnering with the City's FSB, other cities, or neighbouring counties to join their purchasing arrangements.

4. Replacement Funding (BP 6)

As outlined in Section 6, there is no separate Fleet Replacement fund within the Water Department, and this should be instituted. When vehicles are disposed of (either auctioned or sold for scrap), the proceeds from these sales should be cycled back into this vehicle replacement fund. This will incentivize the department to quickly dispose of old vehicles, and it will reinforce the linkage between vehicle disposition and the total cost of ownership.

5. Optimum Lifecycles (BP 7, 8 and 10)

The TCO of each vehicle type in each use scenario should be used as the basis for replacement planning. Where data is not captured, due to the lack of an adequate Fleet

Management Information System, industry benchmarks can be used. A consolidated multi-year replacement plan should be maintained by a central authority and updated regularly to reflect changing requirements.

The Water Department take a decentralized approach to replacement planning and each Bureau creates and maintains their own plan. Replacement parameters of 10 years/100,000 miles are applied to all vehicles as a general policy, but actual replacement depends on vehicle condition and budget available.

Recommendations:

14. **Assign the final sign-off on vehicle specifications to a central authority who will ensure they are needs-based.**

15. **Consolidate Divisional fleet replacement plans into a departmental plan covering a minimum of ten years.**

16. **Pursue cooperative purchasing methods for vehicle acquisition to streamline the process, secure vehicle availability, and obtain advantageous pricing.**

17. **Place funds from vehicle auctions or sales in the Water Department's vehicle replacement fund.**

6 Maintenance

Fleet maintenance and repair processes have a significant impact on vehicle availability, reliability, safety, economy, and environmental integrity. The principal components of fleet maintenance are technician labor, facilities and equipment, parts, and commercial (i.e., sublet or outsourced) services. The objective of fleet maintenance managers is to integrate these components to maximize operating performance while minimizing costs.

The indirect costs of fleet maintenance activities are also important and can far exceed the direct costs. For example, mechanical failures that idle employees or disrupt service activities can result in productivity losses or more severe problems whose costs can often be much higher than those of repairing a vehicle.

The following table shows how the Water Department compares to best practices in fleet maintenance.

Criteria	Status	Comment
1. Staffing levels are consistent with the size and type of vehicles in the fleet. There are an adequate number of heavy duty and light duty mechanics, and operations are centralized where reasonable.	~	Operations are centralized and well-organized at the garage within the Water Department. Authorized staffing levels are below the baseline calculated.
2. Ratio of supervisory and support positions to technicians is reasonable.	✓	The shop is small, and technicians are supported by a garage supervisor, and a garage services attendant who has training in parts.
3. Job descriptions, covering a reasonable range of functions and responsibilities are available and up to date.	✓	Job descriptions covering each of the garage shop's positions are up to date. They cover responsibilities and job requirements in an appropriate level of detail.
4. A comprehensive Preventive Maintenance (PM) program is in place that complies with manufacturer recommendations. Customers receive notification of scheduled service dates and compliance levels are 90% or better.		There is no PM plan. As a PM is completed, a sticker is placed in the window of the vehicle. The onus is then on the driver to return to the fleet garage when next due for servicing.

Criteria	Status	Comment
5. Outsourcing versus Insourcing processes determine the best option (capability, cost, downtime, etc.) for undertaking a repair. Fleet uses outsourcing to manage peak workloads.		No measurement or formal decision criteria are utilized. The garage shop estimate about 15% of work is outsourced but are not tracking it.
6. Shop business hours have been set for customer convenience.	✓	Shop hours are 7am – 4:30 five days per week.
7. Customers are always contacted when repairs are complete.	✓	The garage supervisor or mechanic calls the customer after completion of every work order.
8. Customers are given regular status updates about vehicles in the shop.	✓	Customers receive ongoing communication from garage supervisor and staff.
9. Field service is available for roadside breakdowns and construction equipment.	✓	During operating hours, the garage has a service truck equipped for making calls. Towing service is contracted through the City fleet for after-hours breakdowns.
10. Warranty work done in-house is recoverable from the manufacturer.	✓	The garage shop does not perform warranty work so no recovery would be needed.
11. Warranty recoveries are actively pursued for both repairs and parts.	✓	The garage supervisor determines whether a vehicle or part is under warranty and arranges for repair or replacement from the provider.
12. A formal skills assessment and training plan has been developed to keep employees current with changes in the fleet industry.		There is currently no formal plan.
13. Technicians are encouraged to keep skill levels current through financial incentives to obtain Automated Service Excellence (ASE) and/or electric vehicle training.		Mechanics are not required to be ASE qualified.
14. Trip inspections are completed before and after each use of a vehicle.		The policy states that inspections are only required by operators on a monthly basis.
15. Completed trip inspection reports are kept on hand as legislated.	✓	The Garage Supervisor keeps a copy of all inspection forms.

Criteria	Status	Comment
16. Where defects are noted on the trip inspection report, they are signed off by a mechanic prior to the vehicle being used.	✓	The defect process is followed.
17. Staff vacancies are minimal, and efforts are being made to fill them.		Technician pay is below average in the area so hiring and retention are issues. Currently two of the four mechanic positions are vacant.
18. Staff fluctuations during COVID were tracked and used to measure performance.	✓	The garage is small, and the impact of vacancies is significant.

The following sections discuss the staffing, outsourcing, and training practices in the Water Department garage.

1. Shop Staffing (BP 1,2,17)

The number of technicians and related positions required for a maintenance operation to operate effectively is primarily driven by the size and composition of the fleet it serves. Because most fleet operations service a wide variety of vehicles and equipment, it is necessary to establish a relative measure that allows for the evaluation and comparison of staffing needs and costs.

A process known as **Vehicle Equivalent Unit (VEU)** analysis is used to equate the level of effort required to maintain dissimilar types of vehicles to a passenger car, which is given a baseline VEU of 1.0. Work with other fleet organizations has shown that a VEU of 1.0 is equal to between 10 and 15 annual maintenance labor hours, depending upon several factors unique to each organization. All other types of vehicles are allocated a VEU value based on their relationship to a passenger car. For example, a half-ton pickup truck is assigned a VEU of 1.5. This means that a truck of this type on average requires about 1.5 times the annual maintenance hours of a passenger car or between 15 and 22.5 hours per year.

For this project, a VEU was assigned for each make and model of vehicle. The following table summarizes our VEU calculations:

Vehicle Class	Count	VEU	Total VEU
Trucks			
Compact Pickup	1	1.25	1.25

Vehicle Class	Count	VEU	Total VEU
1/2 Ton Pickup	26	1.50	39.00
3/4 Ton Pickup	5	1.75	8.75
3/4 Ton Utility Truck	10	2.00	20.00
1 Ton Pickup	3	2.00	6.00
1 Ton Utility Truck	36	2.25	81.00
Truck MD	24	2.50	60.00
Small Dump Truck	9	2.50	22.50
Dump Truck	13	5.00	65.00
Heavy Truck	6	6.50	39.00
Heavy Truck - Sweeper	1	12.00	12.00
Heavy Truck - Vactor Jet	6	12.00	72.00
Vans			
Minivan	2	1.00	2.00
Van LD	4	1.25	5.00
1 Ton Van	3	1.50	4.50
Step Van	1	2.00	2.00
Support Vehicles			
Sedan	6	1.00	6.00
SUV	13	1.00	13.00
Work Equipment			
Equipment LD	7	1.50	10.50
Equipment HD	19	5.00	95.00
Lift	2	1.25	2.50
Forklift	6	3.00	18.00
Engines			
Small Generator	6	0.50	3.00
Air Compressor	10	0.50	5.00
Large Generator	6	2.50	15.00
Water Pump/Vac	19	2.50	47.50
Welder	1	0.50	0.50
Trailers			
Trailer	34	0.50	17.00
Fuel/Water Trailer	2	1.50	3.00
Totals	**281**		**676**

The 281 vehicles and equipment pieces in the fleet total 676 VEUs. Therefore, the Water Department is responsible for maintaining a fleet that is the equivalent of 676 sedans.

The next step is to determine the number of labor hours required to maintain one VEU. The baseline is ten hours per year, but adverse or challenging conditions can increase this while unusually good conditions can drive labor demand down. In determining the

number of hours per VEU for an organization, several factors that are unique to each fleet are considered. These factors include fleet age and condition, usage levels, degree of outsourcing, and overall operating environment. For the Water Department, the labor factor required to properly maintain the fleet is calculated as shown in the following table:

Factor	Value	Explanation
Baseline hours required per VEU	10.0	Standard starting point for mixed vocational fleets.
Adjustment for fleet age	0.5	The average fleet age is 10 years which is above the industry best practice.
Adjustment for utilization levels	0.0	Mileage is typical in a municipal environment.
Adjustment for facility and tools	0.5	The facility is subject to unique environmental requirements, CPG and LPG vehicles have to be prepared outside.
Adjustment for parts support	0.5	The Garage Attendant provides some support.
Adjustment for mechanic skills and training	1.0	Due to hiring challenges, the department often hires light duty mechanics and trains them.
Adjusted hours per VEU	**12.5**	**Adjusted hours per VEU.**

With 12.5 labor hours per VEU expected, the annual maintenance and repair workload is calculated to be 8,450 hours (12.5 x 676 VEUs).

While a fleet mechanic's salary is based on 2,080 hours per year (52 weeks x 40 hours per week), only approximately 1,456 labor hours per year (70% of annual hours) are available to perform actual maintenance work (the remaining payroll hours are lost to vacation, sick time, holidays and indirect time such as training and meetings). Therefore, a fleet mechanic at the Water Department can be assigned a total of about 116 VEUs per year (1,456 hours available per year divided by 12.5 hours per VEU). When the 8,450 mechanic hours required to maintain the department's fleet are divided by the 1,456 annual labor hours available per mechanic, the result is a need for 5.8 mechanics.

The following table summarizes authorized positions, and the percentage of staff time allocated to working on vehicles and equipment. It also calculates the total time available to work of vehicles and equipment, if all positions were filled.

Position	Authorized Positions	% of Time Spent on Vehicles	Mechanic Available FTEs
Garage Supervisor	1.0	0%	0
Equipment Mechanic I/II	3.0	100%	3.0
Garage Attendant	1.0	50%	0.5
Welder	1.0	100%	1.0
Total	**6.0**		**4.5**

The organization has six authorized employee positions. These six employees are not employed working on vehicles full time. When we calculate the percentage of their time working on vehicles, there are only 4.5 FTE. This results in a shortfall of 1.3 FTE (the 5.8 needed minus the 4.5 existing technicians).

Not all positions are currently filled. The Water Department currently has vacancies in one of the mechanic positions and the welder position. This means the actual staffing is currently at 2.5 FTE.

There are several ways to meet this shortfall, including filling vacant positions, overtime, and outsourcing. Normally, organizations adopt a mixture of these solutions to meet peak demand. Industry best practice is to outsource 10-15% of fleet maintenance. The Water Department does not know their current outsourcing total but should track it in the future to fully understand staffing requirements.

Another consideration for the Water Department is the size of their shop. It is limited to six bays. The best practice is an allocation of 1.5 bays per light duty mechanic and 2.0 per heavy duty mechanic. Therefore, once the organization has more than four mechanics working at one time, the shop loses efficiency.

To align with best practice, the Water Department should fill the vacant positions and meet the remaining 1.3 FTE through a combination of overtime and outsourcing.

The Municipal Equipment Maintenance Association (MEMA) recently conducted a mechanic salary survey of municipal fleets in California. The average starting wage for a journeyman mechanic was found to be $8.37 (32%) more per hour than the equivalent wage at City of Long Beach. This is a critical shortfall when it comes to recruiting and retaining mechanics. The Department should review the mechanic salary schedule in light of this information and seek to provide competitive compensation to prevent staff turnover or extended position vacancies.

2. Preventive Maintenance (PM) Program (BP 4)

A well-designed and executed PM program is the cornerstone of effective fleet maintenance. The objective of a PM program is to minimize equipment failure by maintaining a constant awareness of the condition of equipment and correcting defects before they become serious problems. A PM program minimizes unscheduled repairs by causing most maintenance and repair activities to occur through scheduled inspections. An effective PM program pays dividends not only in improved equipment safety and reliability, but also financially by extending the life of equipment, minimizing the high cost of breakdowns, and reducing lost employee productivity resulting from equipment downtime.

Due to its importance, PMs on all classes of vehicles need to be scheduled and monitored. A Fleet Management Information System should be used to create a PM schedule and notify all fleet users of appointments. PM compliance should be tracked and should exceed 90%.

The Water Department does not have a PM schedule. PMs are recorded on stickers on the windshields of fleet assets. The onus is then on the end users to ensure vehicles are brought to the garage when the asset is due for the next inspection. Compliance is not tracked.

3. Outsourcing (BP 5,10)

Fleet organizations use vendors to complete services for a variety of reasons, including maintaining service levels during periods of peak workloads and/or staff shortages, avoiding costly investments in tooling, and to provide service in remote locations. No fleet organization can expect to be proficient in all areas of maintenance and repair services. Moreover, it is not practical for an organization to staff to the peaks of its workload. Developing partnerships with key vendors is an efficient way to meet peak and specialty demands.

In addition to determining the amount of work to outsource, organizations should have a decision matrix or flow chart to determine what to outsource. Outsourcing decisions should be based on the following criteria:

- Shop capacity
- Time required for repair
- Requirement for specialty tools

- Mechanic experience/training
- Proximity to outsourced facility

The Water Department does not measure the amount of work outsourced but estimates it to be 15%. They have no formal decision-making process to determine what work should be outsourced or track its volume as a percentage of total work. The Department should formalize its outsourcing process to include criteria for outsourcing and established contracts with selected vendors to ensure timeliness.

4. Technician Training (BP 12,13)

Fleet organizations are increasingly recognizing that adopting programs designed to ensure that technicians are well trained and technically expert is a business necessity. Vehicles and fleet equipment are becoming more complicated and increasingly expensive. Training and professional certification provide an organization with assurance that equipment will be properly maintained and, therefore, that the value of the organization's equipment investments will be preserved. Training can also act as a retention tool in areas where technicians are in high demand, such as the Long Beach area.

In the past, fleet organizations relied almost entirely on training that was provided by vehicle and equipment manufacturers free of charge. While these programs are still available, organizations can no longer make them the centerpiece of their training efforts. This is due to the increasing demand for these programs from dealerships and private fleets, which has severely reduced the number of seats available to municipal technicians. Moreover, manufacturer-training programs have become increasingly complex with strict prerequisites that make it nearly impossible for an organization to rely on these programs to provide technicians with well-rounded training.

Consequently, municipal fleet organizations today are having to develop training programs that tap a variety of sources to provide technicians with the technical knowledge and updated skill sets that are required to maintain modern fleet equipment. In our view, investing in technician training today is a business necessity and should be a high priority for the Water Department.

Recommendations:

18. Fill vacant positions and meet the 1.3 FTE excess through a combination of outsourcing and overtime.

19. **Review mechanic salaries considering the recent MEMA survey and garage shop problems with recruiting and retaining qualified staff.**

20. **Create a master schedule for preventative maintenance and track compliance in a FMIS.**

21. **Formalize the outsourcing process to include criteria for outsourcing and established contracts with selected vendors to ensure timeliness.**

22. **Improve technician training and ensure all technicians receive 40 hours of training each year.**

7 Rates

A key component of the audit was a review of the current allocation methodologies for fleet maintenance and replacement. As a guiding principle, rates must be fair, equitable and defensible.

The following table shows how the Water Department compares to best practices in the area of fleet rates.

Criteria	Status	Comment
1. A cost charge-back system is in place that promotes fairness, equity and transparency and incentivizes fleet users to reduce ownership and operating costs.	~	The Water Department does not have a formally developed rate structure and charge-back system. Costs are borne by water rates which is appropriate except for development vehicles.
2. An appropriate fund structure is in place.	✓	The Water Department is an enterprise fund, and all fleet expenditures are paid from that fund.
3. Rates have a capital equipment replacement as well as an operating component.		Rates do not capture capital replacement and there is no fleet replacement fund for the department.
4. Mark-up percentages are reasonable.	✓	No mark-ups are used because the Water Department does not charge end users for fleet operating costs.
5. Overhead costs are recovered in the rates.	✓	The fleet organization is budgeted for overhead costs.
6. Reserves are created for emergency requirements.	✓	Emergency reserves are kept.

1. Chargeback System (BP 1)

The Water Department currently has its own fleet maintenance shop. This shop is responsible for conducting repairs and maintenance on the Water Department's vehicles and equipment. Currently, there is no chargeback mechanism for Water's fleet shop to charge the other divisions within the Water Department. The fleet shop is funded like the rest of the Water Department, primarily based upon water rates.

In discussion with Water Department staff, however, it was identified that while the primary pieces of equipment and vehicle are directly in relation to water operations and

therefore are appropriate to be funded through water rates, there are several vehicles associated with inspectors. These inspectors conduct field inspections associated with water line and meter installations as part of a development-related activity. The Water Department then assesses a fee associated with those inspections. The industry best practice is for those vehicles to be funded by developer fees rather than water rates for operating costs.

The Water Department is currently undergoing a Cost of Services Analysis (COSA) and as part of that study, the new developer fees will incorporate fleet maintenance costs. Additionally, the costs associated with fleet maintenance and replacement are being factored and built into the new and proposed water rates. Incorporating the fleet maintenance and replacement costs into the fees and water rates mitigates the need for the department to have additional charges or rates for water maintenance and replacement.

2. Fleet Capital Fund (BP 3)

There is no separate fund within the Water Department for fleet replacement. While Water staff can consult with the Manager of Support Services to scope out the equipment to be replaced, there is no formalized process or mechanism that requires the staff to purchase the exact type and piece of equipment recommended. Division staff have autonomy to purchase their own options as it relates to equipment. However, as that equipment is maintained by the Water Department garage, it has a direct impact on the cost of maintenance operations. The only way to ensure that Support Services can be involved both operationally and fiscally in the replacement of equipment is to create a separate Fleet Replacement Fund.

This Fleet Replacement Fund should be allocated to all divisions and sections within the Water Department and be based upon the actual costs associated with replacing the equipment. While the charges would be funded from the same funding source, this mechanism allows for greater accountability and transparency for the replacement of vehicles and equipment. This ensures that there is a consistent funding source for equipment, and that Support Services signs off on that replacement prior to it being put in service. The Department should base the fleet replacement fund on a departmental fleet replacement plan. The fleet replacement plan would calculate the annual amount required to replace equipment. This information should be summed up by division and section to determine the charges.

Allocating a charge, even as an internal transfer, to each division will ensure that the Support Services organization has the overall responsibility for ensuring replacement of

vehicles and equipment for the department. It also allows them to explore any financial savings by bundling purchases or other types of cost efficiencies. This is consistent with industry best practices for fleet replacement.

Recommendations:

23. **Assess user fees to inspectors to recover operating costs.**

24. **Create a Fleet Replacement Fund based upon the Fleet Replacement Plan. This will allow Support Services to have greater involvement and control in the fleet replacement process.**

8 Information Technology

Comprehensive, accurate, and readily accessible records regarding fleet operations are essential to optimize performance and manage costs. In the past, fleet maintenance records were kept on paper orders, vendor invoices, and handwritten notes. However, as with all business activities, fleet maintenance shops have evolved to use management information systems to document operations and produce management reports. Having all maintenance and other data available in a computerized system and accessible by all fleet program stakeholders provides an effective tool for managing shop operations, an efficient way to retrieve and report key information, and a basis for timely management decisions.

The following table shows how the Water Department compares to best practices in fleet technology and information management.

Criteria	Status	Comment
1. A Fleet Management Information System (FMIS) is in place that uses modern technology and provides up to date functionality for asset management, maintenance management, performance measurement, and cost reporting.		The fleet organization uses a single point of access system, Certified Fleet Analysts (CFA), and the Shop Supervisor enters all work orders into the system.
2. Data integrity procedures produce accurate and timely fleet information.		Due to lack of technological integration (parts, fuel, etc.) and limited functionality in CFA, the garage shop lacks accurate and timely fleet information for decision-making.
3. Access to the fleet system is readily available to all staff, including parts clerks and technicians.		Only the Garage Supervisor has access. An upgrade to the system is available and will be pursued once the necessary network is available at the garage site.
4. All members of staff have been appropriately trained in the use of the fleet system.		There has been no training or use of the system by other staff.
5. A fuel management system is in place.	✓	The installation of an upgraded fuel system is underway.

Criteria	Status	Comment
6. The fuel system tracks both the vehicle being fueled and the driver.	✓	The system tracks fuel use by vehicle and driver.
7. A telematics system is in place to improve routing and scheduling of services, identify driver training issues, and provide timely fleet data.	~	Geotab is used on all on-road vehicles. Human Resources does not permit the use of the system for driver training issues.
8. Information produced by systems are routinely used to make management decisions and reports are provided to customer departments.		Due to lack of technological integration (parts, fuel, etc.) and limited functionality in CFA the garage shop lacks accurate and timely fleet information for decision-making or provision to customer divisions.
9. A formal performance measurement system is in place to track the effectiveness of service outcomes, and that performance levels compare reasonably well to industry benchmarks.		No Key Performance Indicator are currently established.

The following sections discuss the use of technology and its application for the Water Department Fleet.

1. Fleet Management Information System (BP 1,2,3,4,8,9)

The Department does not have a Fleet Management Information System (FMIS). They do have a maintenance system, Certified Fleet Analysts (CFA), which is primarily a work order tracking system used to create vehicle maintenance work orders and record time and expenses. This system, as currently deployed, comes with some serious shortcomings. It is not integrated with fuel, parts or GPS. More importantly, it is a stand-alone license accessible only by the Garage Supervisor.

The website for CFA notes that the upgraded system can:

- Create a paperless shop
- Manage maintenance schedules
- Control repair costs
- Control fuel consumption
- Manage inventory
- Track warranties

- Plan replacement of vehicles and equipment
- Integrate with other applications such as Fuel Systems, GPS Systems, and Finance Systems

The impediments to moving to the improved system are the installation of a network in the garage with reliable internet and the creation of custom work bays to maximize the efficiency of each mechanic.

CFA has been used in the industry for fifty years, however, it is not the only option. The City already uses a well-known and capable fleet system, AssetWork's M5 system. City staff are trained and adept at using the M5 system for a full range of fleet management functions. The Water Department should discuss options to expand the use of M5 to Water. Whichever system is used, its installation and use must be a priority.

3. Data Tracking and Use of Key Performance Indicators (KPI) (BP 2,8,9)

Performance measurement is a valuable management tool that can be used to increase efficiency and accountability within an organization. The use of year-to-year historical data and industry benchmarks to measure performance can provide management with the data necessary to recognize and diagnose potential problem areas as well as opportunities for improvement. Performance measures also provide the organization with the information necessary to communicate the value of the services it provides. It is not possible for an organization to optimize its performance without establishing concrete, measurable, and challenging goals.

The Water Department should use its new or improved fleet management information system and reporting capability to track several performance measures. These are listed and discussed below:

- **Average Fleet Age:** This measure tracks the average age of the fleet in comparison to average replacement cycles. Major classes of vehicles and data for different customer groups should be tracked separately. Trends should be presented for multiple years and associated with other KPIs as the age of the fleet has a fundamental impact on program performance.

- **Fleet Availability**: This measure tracks the percentage of the fleet that is available for work each day. The calculation is simply the total number of vehicles and pieces of equipment in the fleet divided by the number of vehicles out of service for repair (i.e.,

in the shop, waiting in the deadline to come into the shop, or at a vendor). The target of performance for this KPI is 95%.

- **Service Turnaround Time**: This measure tracks the percentage of repairs that are completed within 24 and 48 hours. A good target of performance for this KPI is 70% of repairs and services completed in 24 hours and 90% in 48 hours.

- **Scheduled Repairs:** This measure tracks the percentage of workorders resulting from scheduled activities (such as PMs, inspections, work discovered during PMs and inspections, recalls, etc.) versus unscheduled activities (such as breakdowns and road calls). The standard of performance for this KPI is at least 60% scheduled.

- **Downtime:** This measure tracks segments of downtime while vehicles are down for repair. The entire lifecycle of a work order should be tracked including waiting for a mechanic or shop bay, waiting for customer approval, under repair, waiting for parts, at a vendor, waiting for validation and closure, waiting for customer pickup, etc. Tracking of this measure enables a fleet organization to understand what activities are causing downtime and delays so they can be managed.

- **PM Compliance**: This KPI measures the percentage of PMs and scheduled inspections that are completed before they are overdue. The target of performance for this KPI is 90%.

- **Billable Hours:** This KPI tracks how productive mechanics are in terms of the annual number of hours billed to work orders. The target for this KPI is 70% of annual regular payroll hours (1,456 of 2,080 hours per year).

The Department should begin tracking the KPIs listed above and reporting them to Department management each month.

Recommendations:

25. The Water Department should acquire a capable FMIS.

26. The new FMIS should be used to record all work orders for maintenance and repair activities, and to regularly collect data and generate fleet reports for customers and internal decision-making.

27. The Water Department should institute and routinely report on a set of performance metrics to gauge the effectiveness of garage shop operations.

28. The fuel and telematics systems should be integrated with the FMIS.

Long Beach Water
Exceptional Water · Exceptional Service

M E M O R A N D U M

Date: June 17, 2022

To: Laura L. Doud, City Auditor

From: Christopher J. Garner, General Manager, Long Beach Water

Subject: Management Response to the Fleet Management Audit

The Long Beach Water Department (LBWD) thanks the Office of the City Auditor for conducting a thorough review of our practices pertaining to Fleet Management. We appreciate City Auditor's staff for taking the time to understand our operations and conducting the review in a professional, productive, and collaborative manner.

LBWD agrees with the recommendations set forth in the Performance Audit and have attached the Management Response and Action Plan to address each item in detail. Please note that many of the recommendations have since been implemented, and those remaining will soon be implemented. We are confident that these changes will improve the effectiveness of our fleet management.

LBWD is committed to improving fleet operations and recognize the importance of continuous evaluation with appropriate modifications to ensure the long-term, sustained effectiveness of our program. We welcome any feedback you may have as we progress with our implementation of the recommendations.

Should you have any questions or require additional information regarding this audit, please contact Liza Gutierrez, Manager of Support Services, at (562) 570-2466.

MANAGEMENT RESPONSE AND ACTION PLAN

Water Department

Fleet Management Performance Audit

No.	Recommendation	Priority	Page #	Agree or Disagree	Responsible Party	Action Plan / Explanation for Disagreement	Target Date for Implementation
1	Centralize replacement planning so divisional replacement plans are merged into a single organizational-wide ten-year plan.	H	12	Agree	Water Department	The Water Department will centralize vehicle replacement planning.	Begin immediately
2	Institute a FSC with bi-annual meetings to discuss fleet maintenance, management and replacement.	M	12	Agree	Water Department	Department will convene a FSC and institute semi-annual meetings with all relevant stakeholders to discuss fleet maintenance, management, and replacement.	December 31, 2022
3	Create a Fleet Policy Manual outlining regulations on fleet acquisition and disposal, utilization, safety, PMs, repairs, communication, and points of contact.	M	12	Agree	Water Department	Department will develop Standard Operating Procedures (SOP) for each section listed to create a comprehensive Fleet Policy Manual.	June 30, 2023
4	Develop a Driver Handbook with information specific to the driver. Copies of the Handbook should be kept in every vehicle. The handbook may be developed in tandem with the City's FSB driver handbook.	M	12	Agree	Water Department	Department will implement recommendation to develop Driver Handbook.	June 30, 2023
5	Create SLAs with fleet customers and meet regularly with fleet representatives to discuss issues.	L	12	Agree	Water Department	Department will incorporate a work order system that includes SLAs, and meet regularily to discuss issues.	June 30, 2023
6	Conduct annual customer service surveys and track performance improvements.	L	12	Agree	Water Department	Department will conduct annual customer service surveys and track performance improvements.	June 30, 2023
7	Begin tracking mileage for on-call and emergency take-home vehicles to ensure that they are not used for personal use.	L	12	Agree	Water Department	Department will implement recommendation to track mileage for on-call and take-home vehicles, subject to meet and confer.	June 30, 2023

MANAGEMENT RESPONSE AND ACTION PLAN

Water Department

Fleet Management Performance Audit

No.	Recommendation	Priority	Page #	Agree or Disagree	Responsible Party	Action Plan / Explanation for Disagreement	Target Date for Implementation
8	Implement the recommendations in the utilization review, which were summarized in the table on page 14.	M	16	Agree	Water Department	Department will work towards implementing the recommendations, as summarized in the table on page 14.	Immediate and Ongoing
9	Include a directive for an annual review of each vehicle in the fleet, by division, to identify those which are aged, under-utilized, or otherwise candidates for replacement with more appropriate and sustainable mobility options in the Fleet Policy.	M	16	Agree	Water Department	Department will implement recommendation to include directive for an annual review of each vehicle in the fleet to identify those which are aged, under-utilized, or otherwise candidates for replacement with more appropriate and sustainable mobility options in the Fleet Policy.	June 30, 2023
10	Conduct annual fleet reviews without adjustment for covid-related decreases in utilization.	H	16	Agree	Water Department	Department will conduct annual utilization reviews, reflective of actual vehicle use, with consideration to covid and covid adjustments.	June 30, 2023
11	Track the utilization of all fleet units including trailers to identify location, usage and opportunities to pool assets.	M	16	Agree	Water Department	Department will implement recommendation using Geotab to identify location, usage and opportunity to pool assets, subject to meet and confer.	June 30, 2023
12	Make Divisions aware of the methods to access odometer readings to track utilization.	M	16	Agree	Water Department	Department will train division managers on how to utilize Geotab and access odometer readings to track utilization, subject to meet and confer.	December 31, 2022
13	Calculate and adhere to optimum lifecycles by vehicle class to avoid excessive maintenance as a fleet ages.	M	16	Agree	Water Department	Department will implement recommendation to calculate and adhere to optimum lifecycles by vehicle class.	June 30, 2023
14	Assign the final sign-off on vehicle specifications to a central authority who will ensure they are needs-based.	M	21	Agree	Water Department	Department will assign a Subject-Matter-Expert (SME) to sign off on vehicle specifications to ensure they are needs-based.	Immediate and Ongoing
15	Consolidate Divisional fleet replacement plans into a departmental plan covering a minimum of ten years.	H	21	Agree	Water Department	Department will implement recommendation to consolidate divisional fleet replacement plans covering a mininum of 10 years.	Begin immediately
16	Pursue cooperative purchasing methods for vehicle acquisition to streamline the process, secure vehicle availability, and obtain advantageous pricing.	M	21	Agree	Water Department	Department will implement recommendation to pursue cooperative purchasing methods for vehicle acquisition to streamline the process, secure vehicle availability, and pricing.	Immediate and Ongoing
17	Place funds from vehicle auctions or sales in the Water Department's vehicle replacement fund.	L	21	Agree	Water Department	Department will ensure auction or sales revenue will be returned into appropriate fund.	Immediate and Ongoing
18	Fill vacant positions and meet the 1.3 FTE excess through a combination of outsourcing and overtime.	M	29	Agree	Water Department	Department will implement recommendation to fill vacant positions.	Immediate and Ongoing
19	Review mechanic salaries considering the recent MEMA survey and garage shop problems with recruiting and retaining qualified staff.	M	30	Agree	Water Department	Department will implement recommendation to review mechanic salaries with consideration to the vacant MEMA survey and subject to meet and confer.	June 30, 2023

MANAGEMENT RESPONSE AND ACTION PLAN

Water Department

Fleet Management Performance Audit

No.	Recommendation	Priority	Page #	Agree or Disagree	Responsible Party	Action Plan / Explanation for Disagreement	Target Date for Implementation
20	Create a master schedule for preventative maintenance and track compliance in a FMIS.	H	30	Agree	Water Department	Department will create a master schedule for PMs and compliance.	Immediate and Ongoing
21	Formalize the outsourcing process to include criteria for outsourcing and established contracts with selected vendors to ensure timeliness.	M	30	Agree	Water Department	Department will develop criteria for outsourcing process and establish contracts with selected vendors.	June 30, 2023
22	Improve technician training and ensure all technicians receive 40 hours of training each year.	L	30	Agree	Water Department	Department will implement technician training so that all technicians receive 40 hours of training each year.	June 30, 2023
23	Assess user fees to inspectors to recover operating costs.	L	33	Agree	Water Department	Department will incorporate recommendation into cost of service update to maximize cost recovery.	June 30, 2023
24	Create a Fleet Replacement Fund based upon the Fleet Replacement Plan. This will allow Support Services to have greater involvement and control in the fleet replacement process.	M	33	Agree	Water Department	Department will update the budgeting process to incorporate the fleet replacement plan to allow greater group involvement and control in the fleet replacement process.	June 30, 2023
25	The Water Department should acquire a capable FMIS.	H	37	Agree	Water Department	Department will implement recommendation to acquire a capable FMIS.	June 30, 2023
26	The new FMIS should be used to record all work orders for maintenance and repair activities, and to regularly collect data and generate fleet reports for customers and internal decision-making.	H	37	Agree	Water Department	Department will implement recommendation for FMIS to record all work orders for maintenance and repair activities, and to regularly collect data and generate fleet reports for customers and internal decision-making.	June 30, 2023
27	The Water Department should institute and routinely report on a set of performance metrics to gauge the effectiveness of garage shop operations.	M	38	Agree	Water Department	Department will implement recommendation to institute routine reports of performance metrics, subject to meet and confer.	June 30, 2023
28	The fuel and telematics systems should be integrated with the FMIS.	M	38	Agree	Water Department	Department will implement recommendation to integrate fuel and telematics systems.	June 30, 2023

Priority

H – High Priority - The recommendation pertains to a serious or materially significant audit finding or control weakness. Due to the seriousness or significance of the matter, immediate management attention and appropriate corrective action is warranted.

M – Medium Priority - The recommendation pertains to a moderately significant or potentially serious audit finding or control weakness. Reasonably prompt corrective action should be taken by management to address the matter. Recommendation should be implemented no later than six months.

L – Low Priority - The recommendation pertains to an audit finding or control weakness of relatively minor significance or concern. The timing of any corrective action is left to management's discretion.

Yellow areas - to be completed by the department

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