Fleet Management Performance Audit: The Harbor's Fleet Operation Exhibits Many Industry Best Practices, However Improvements Can Be Made to Enhance Various Services

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Audit Performed by
Matrix Consulting Group

CITY OF LONG BEACH INCORPORATED 1897

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Fleet Management Performance Audit: The Harbor's Fleet Operation Exhibits Many Industry Best Practices, However Improvements Can Be Made to Enhance Various Services

Report Summary

Why This Audit Is Important

The City of Long Beach's Harbor Department has its own fleet operation in its Engineering Services Bureau (Harbor Fleet). The Harbor Fleet operation provides services to other divisions within the Harbor Department. Harbor Fleet provides vehicle and equipment purchases, preventative maintenance, unscheduled repairs, and fueling services for about 185 vehicles and equipment. Harbor Fleet assets are critical to Harbor operations, for example, vehicles are assigned to Harbor security, construction management, and roads and streets maintenance 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 Harbor Department for their collaboration, assistance, and cooperation during this audit.

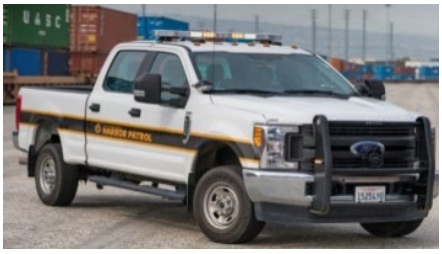
What Was Found

The audit found that the Harbor Fleet operation exhibits many industry best practices, and the operation is grounded in the necessity of environmental compliance and sustainability. However, the audit did identify areas that could be improved, including creating a robust policy framework, capitalizing on the potential immediate savings of $50,000 from eliminating or replacing vehicles based on utilization, implementing a tracking system for on-call and emergency take-home vehicles mileage and meter readings on trailers, instituting key performance metrics of garage shop operations, and implementing a new Fleet Management Information System.

What Was Recommended

Recommendations were made in six key areas, including:

- Governance: Better enforce Green Commute ride share program and the take-home and on-call vehicle policies, as well as develop a Fleet Policy Manual and Driver's Handbook
- Utilization: Expand the Green Vehicle Implementation Plan to include regular utilization reviews
- Replacement Plan: Pursue cooperative purchasing arrangements for better pricing, and outsource upfitting work to specialists to reduce the amount of time to deliver a vehicle to the end user
- Maintenance: Review number of mechanics with their salaries, and formalize maintenance outsourcing process to complement mechanic staffing
- Rates: Allow the fleet operation to have greater involvement in the replacement process through replacement funding
- Information Technology: Acquire a Fleet Management Information System that will integrate with the fuel system and install telematics on all vehicles to track and analyze driving data for efficiency and safety



CITY OF LONG BEACH INCORPORATED 1897

Final Audit Report

CITY OF LONG BEACH, CA – HARBOR DEPARTMENT

July 7, 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 Harbor Department and separate reports cover FSB and Water. Between December 2021 and April 2022, Matrix collected and analyzed pertinent data and interviewed stakeholders in support of this audit.

1. Introduction and Scope

The Long Beach City Auditor's Office engaged Matrix Consulting Group to conduct a performance audit on their fleet operations across three departments. This performance audit involves seven objectives where industry best practices are not met and recommendations are made to align with best practices and improve fleet operations. The main objectives for the performance audit include:

- 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 Harbor 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 National Association of Fleet Administrators (NAFA) Fleet Management Association, as well as the project team's experience working with hundreds of government jurisdictions. Our study approach also included:

- Collection of basic data on the City'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 vehicles in the fleet, average age, replacement funding, compliance with maintenance inspections, downtime, etc.

- Assessment of fleet service 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 Harbor Department fleet organization.

3. Harbor Fleet Profile

The fleet operation in the Harbor Department is in the Engineering Services Bureau, under the Manager of Utilities and Fleet. Harbor Fleet's customers are the divisions within the department that they serve. As the entity responsible for fleet services in the Harbor Department they provide vehicle and equipment acquisitions, preventative maintenance, unscheduled repair, and fueling services. The Harbor Department fleet includes 185 vehicles and pieces of equipment. The following table shows the active vehicles and equipment (other than boats) assigned to the Harbor Department. The inventory is displayed by vehicle classification type.

Classification	Count
SUV	38
Sedan	33
Truck Light Duty	29
Truck Med Duty	26
Patrol SUV	21
Van Med Duty	9
Equipment Heavy Duty	7
Truck Heavy Duty	6
Van Light Duty	6
Equipment Med Duty	4
Patrol Truck	3
Dump Truck	2
Generator	1
Total	**185**

All vehicles belong to the same department, but are assigned to divisions and sections within the department as shown in the table below:

Assignment	Count
Security	31
Motor Pool Office (PAB)	28
Construction Management	23
Roads and Streets	12
Survey	12
General Maintenance	11
Plumbing	9
Docks and Piers	8
Electrical	8
Motor Pool (Maintenance)	8
Tenant Services Operations	7
Paint and Carpentry	5
Landscape	4
Maintenance Facilities	4
Marine	4
Warehouse	4
Garage	3
Custodians	2
Communications	1
Mail Room (PAB)	1
Total	**185**

The average age of the fleet is 6.8 years, and 81% of the fleet is model year 2012 or newer. Most of the fleet runs on gasoline, diesel, or natural gas, but 23% of units are hybrid or fully electric vehicles.

4. Key Findings and Recommendations

As an overall assessment, the fleet and maintenance services provided by the Harbor Department exhibit a number of best practices and are firmly grounded in the necessity of environmental compliance and sustainability. The shop is well staffed, enjoys good

working relationships with customer divisions, and is guided by a strong sustainability plan for fleet replacement with electric and alternative fuels vehicles.

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 Harbor Department has some policies and procedures in place including a comprehensive Green Vehicle Implementation Plan (GVIP) which provides a blueprint for improving the sustainability of the fleet and conducting annual replacement reviews. Policies around take-home vehicles, Green Commute vehicles, and on-call vehicles exist but should be better enforced. For example, mileage tracking should be expanded to on-call vehicles. A Fleet Policy Manual clearly outlining regulations on fleet utilization, safety, Preventative Maintenance (PM) scheduling, repairs, communication, and designation of points of contact should be developed as well as a Driver's Handbook and Service Level Agreements (SLAs) with end users.

Utilization

The Harbor Department runs two motor pools and disposes of vehicles when removed from service in a timely fashion. The GVIP should be expanded to include regular utilization reviews to ensure efficiency in the size and composition of the fleet.

Replacement Plan

The garage shop seeks to acquire vehicles that are suited for the function they serve, and they prioritize sustainability in accordance with the GVIP. The Harbor Department should pursue cooperative purchasing arrangements to streamline the process and secure better pricing. Upfitting work should be outsourced to specialists as much as possible when it reduces the amount of time to deliver a fully functional vehicle to the end user.

Maintenance

Mechanics are well-trained and well-supported at the shop. The size of the facility limits the type and amount of work that can be done. Mechanics perform repair work and environmental inspections. Customer service is prioritized and best practices for vehicle inspections and warranty recovery are followed. The Harbor Department's authorized garage shop staffing should be reduced by one mechanic, and mechanic salaries should

be reviewed to ensure that they remain competitive to attract and retain mechanics. The Harbor Department should also formalize its outsourcing process to ensure that it is a timely and reliable complement to internal mechanic staffing.

Rates

Harbor Fleet Maintenance costs are allocated to the different divisions within the Harbor Department based upon the number of vehicles and equipment associated with the division. The Harbor Department should continue to allocate these costs through an internal cost allocation mechanism, which is then used to calculate the indirect rate charged against projects for recovery. The Harbor Department should also create a Fleet Replacement sub-account based upon the Fleet Replacement Plan. This will allow the Fleet services section to have greater involvement and control in the fleet replacement process.

Information Technology

The Harbor Department has VueWorks installed as a maintenance management system and GasBoy as the fuel system. All staff are familiar with these systems and know how to operate them. The two systems are not integrated and neither of them can track the detailed information and generate the detailed reports necessary to enhance the management of the fleet and make data-driven management decisions. The Harbor Department should acquire a Fleet Management Information System (FMIS) and ensure integration with the fuel system. Telematics on all vehicles would also enhance data availability to track fleet efficiency.

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 FIMS 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 Harbor Department (Harbor/The Department in the table) compares to best practices in the area of fleet governance.

Criteria	Status	Comment
1. The fleet program is centralized to capture economies of scale.	✓	Harbor's fleet operation is centralized under the Manager of the Utilities and Fleet Division.
2. There is a Fleet Steering Committee with representatives from all customers who meet regularly to discuss fleet issues including vehicle replacement and safety.	~	The fleet organization meets with other divisions in the Department on an annual basis. This is not a formal committee, but meetings happen as needed to discuss replacement. Communication between the garage and other divisions is usually ad hoc and done over Microsoft Teams.
3. A Fleet Policy Manual is in place that defines program objectives, responsibilities, and service standards.		Harbor has no Fleet Policy Manual.
4. A Driver's Handbook outlines key driver responsibilities and drivers sign to acknowledge compliance annually.	~	There is no Driver Handbook in place, although there are relevant administrative directives and general safety policies.
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.
6. Annual surveys are conducted to assess customer satisfaction.	✓	The garage shop maintains communication with other divisions but does not conduct a formal survey.

Criteria	Status	Comment
7. Take-Home Vehicle Policies are reasonable, communicated and understood.	✓	Harbor allows take home vehicles for their Green Commute program which is a ride share program that users pay for. They also allow vehicles to be taken home for on-call employees. Some divisions have increased the use of take-home vehicles due to COVID.
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. The Department responds to reports of misuse if they receive them.
9. The approval process for Take-Home vehicles is reasonable, communicated and followed.	✓	The process is clear and documented, and all participants in the Green Commute program submit daily mileage reports.
10. A list is maintained of all approved Take-Home vehicles and reviewed annually.	✓	The Department tracks all vehicles permitted for take-home use through the green commute program or for emergency and supervisory purposes, and the list is continuously updated.

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

1. 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 Harbor Department does not have a committee or formal meetings on fleet topics.

2. Fleet Management Policies (BP 3 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 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.

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 preventative maintenance (PM), keep vehicles in a clean state, and pay for at-fault vehicle collision repair or abuse.

The Harbor Department's fleet operation currently operates without these elements. Harbor would benefit from a policy manual as well as SLAs that does the following:

- Require the Divisions to designate a point of contact for fleet-related matters.
- Require each designee to review utilization with the garage supervisor on an annual basis.
- Define timely communication between the garage shop and other divisions regarding PMs and repairs.
- Track vehicle availability rate and PM/repair timeliness.
- Review vehicle incidents and other safety-related matters.
- Provide a process for end users to make complaints.

3. Driver Handbook (BP 4)

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.

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. 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 Harbor Department has policies to allow take-home vehicles in three instances. The first is the department's Green Commute program, which allows employees to use low- or zero-emission vehicles owned by the Harbor Department as rideshare vehicles for their commute, provided that they have at least three employees and they pay the Finance Division a prescribed monthly amount based on strict reporting of the vehicle's mileage. The second instance is for employees who may be asked to make after-hours emergency visits to the Port, such as electricians, plumbers, and building maintenance engineers. 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 third instance is certain construction management staff who may be required to make emergency after-hours trips to the Port. These staff are also permitted to use their work vehicles for their commute.

The policy clearly states that personal use of these vehicles is not permitted. The Harbor Department vehicles are not equipped with GPS. However, the Administration Division carefully tracks vehicle mileage through daily reporting and responds to instances of misuse in its Green Commute program. The Department should do the same thing with units assigned as take-home vehicles due to after-hours emergency on-call need. While these units are not currently tracked for mileage, they should also not be used for personal errands and their mileage should not exceed what is necessary for the commute to and from work unless they are called in for an emergency response.

From a fleet efficiency perspective, the Green Commute program would not be seen as an efficient use of fleet assets. The operating costs of the program are recovered from commuters, but the additional costs of more frequent replacement of the asset are not fully recovered. In the bigger picture, however, this program contributes to sustainability goals and recruitment and retention of employees.

Recommendations:

1. **Establish a Fleet Steering Committee with regular meetings on fleet topics.**

2. **Create a Fleet Policy Manual outlining regulations on fleet utilization, safety, Preventative Maintenance, repairs, communication, and points of contact. Update the manual at least annually.**

3. **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.**

4. **Begin tracking mileage for on-call and emergency take-home vehicles similarly to the process currently used for Green Commute vehicles in order 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. In many cases, utilization was low due to the small geographical size of the Port. In these cases, a unit may show low annual mileage but the fact that the units are used daily means they would be considered highly utilized. 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 and the estimated financial implications of adopting these recommendations for each Division or organizational unit.. Numerous vehicles were recommended for right-typing (replacement with a more appropriate or economical option for their function) along with one elimination, resulting in a total projected savings of $51,000 in the replacement value of the fleet.

Division/Unit	Total Vehicles	Retain	Replace	Right-Type	Eliminate	COVID Review	Cost/ (Savings)
Construction	23	21	0	1	1	0	($39,000)
Maintenance	15	12	0	3	0	0	$47,000
Motor Pool	36	30	0	6	0	0	-
Security	31	27	0	4	0	0	($14,000)
Survey	12	10	0	2	0	0	($18,000)
Custodial	2	1	0	1	0	0	($7,000)
Landscape	4	3	0	1	0	0	($7,000)
Marine	4	3	1	0	0	0	-
Paint & Carpentry	5	4	0	1	0	0	($13,000)
Plumbing	9	8	1	0	0	0	-
Warehouse	4	3	1	0	0	0	-
TOTAL							**($51,000)**

The following table shows how the Harbor 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.	✓	The GVIP outlines the criteria for replacement of a vehicle (by year and mileage). These do not include annual utilization targets because the use of vehicles at the Port is so low. Users must clearly substantiate the need for a vehicle based on job requirements.

Criteria	Status	Comment
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.		The Harbor Department does not regularly review utilization data for decision-making regarding fleet composition.
3. Motor Pool vehicles are available for occasional transportation needs. Motor Pools are located and managed to provide efficient service.	✓	The Harbor Department has two motor pools, one at the garage and the other at the Administration Building. These provide mobility options for occasional administrative trips as well as loaner vehicles for units being serviced/ repaired.
4. Vehicles that are replaced are disposed of immediately.	✓	Vehicles are disposed of within 60 days. They are sold for scrap in order to remove fossil fuel vehicles from circulation.
5. Fleet users are proactive in identifying vehicles with low utilization.		Fleet initiates discussions with end users when new requirements arise. Divisions are reluctant to give up vehicles.

The Department's Green Vehicle implementation Plan (GVIP) provides a clear set of criteria and a directive for annual review of vehicle replacement needs. Adherence to this policy will be fundamental to the maintenance of an efficient and sustainable fleet.

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 GVIP. This will address best practices #2 and #5 above. Vehicles with utilization well below the average for their vehicle class should be pooled or replaced as appropriate in order 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.** Representatives from various divisions frequently used the argument that vehicle utilization had been impacted by COVID and utilization should be re-evaluated once 'normal' working levels resume. This argument had some merit at the end of 2021 but should not be used to justify low utilization in 2022. Accordingly,

annual reviews with each division and the garage shop should be conducted beginning September 1, 2022 to review units in this category.

- **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.

Recommendations:

5. **Implement the recommendations in the utilization review, which were summarized in the table on page 13.**

6. **The Fleet Policy Manual should 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.**

7. **Beginning 9/1/2022, annual fleet reviews should be conducted without adjustment for covid-related decreases in utilization.**

8. **The Harbor Department should track the utilization of all fleet units including trailers in order to identify location, usage and opportunities to pool assets.**

5 Replacement Practices and Plan

Establishing optimal 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 following table shows how the Harbor Department compares to best practices in the area of 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.	✓	The garage shop identifies vehicles to replace, looks for green-friendly options, and works with end user division to decide on replacement requirements. The garage shop develops specifications with user input and negotiates pricing.
2. Non-technical requirements such as parts lists, repair manuals, diagnostic tools, and training are included in vehicle specifications.	✓	Parts, manuals, tools and training are standard in Requests for Propossals.

Criteria	Status	Comment
3. Cooperative purchasing agreements are used in order to take advantage of volume pricing.		The Harbor Department does not currently use cooperative purchasing, although they have begun examining the possibility of doing so in order to save time and expense.
4. Vehicle upfitting processes minimize the use of in-house resources and put newly acquired vehicles into service as quickly as possible.	~	The Harbor Department has recently begun contracting out upfitting work in order to have vehicles available for use more quickly.
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 sold to a scrap yard to remove their carbon emissions from circulation. The garage prepares the vehicle by removing decals, plates, and specialized equipment. The maintenance planner handles the administrative paperwork.
6. Funds from vehicle disposal are returned to the equipment replacement fund.		Funds from sale are handled by the Harbor Department's maintenance planner, they do not go directly to the equipment replacement fund.
7. Replacement cycles have been determined for all vehicle classes.	✓	The Harbor Department has developed replacement cycles for all vehicles in accordance with their Green Vehicle Implementation Plan.
8. Replacement is based on Total Cost of Ownership (TCO) which includes the capital and operating costs of assets.	✓	The garage shop considers TCO in determining when to replace vehicles, as well as environmental and functionality concerns.
9. Replacement cycles are based on age, usage, condition, or some combination of these criteria and are reasonable and appropriate.	✓	Replacement is based on a combination of age and mileage.
10. A ten-year (minimum) replacement plan exists and is updated regularly.	✓	The Green Vehicle Implementation Plan has a 15-year horizon.
11. Customers are involved in decisions regarding replacement of their vehicles.	✓	The garage shop meets with every division at least annually and vehicle replacement is discussed in detail.

Criteria	Status	Comment
12. Sustainability is considered in the replacement decision.	✓	Sustainability is a key criterion in replacement decisions, and much of the replacement plan is guided by the green vehicle initiative.

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

1. 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 Harbor 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 FSB, other cities, or neighbouring counties to join their purchasing arrangements.

2. Vehicle Upfitting (BP 4)

Purchased vehicles typically receive some degree of upfitting as they require the installation of lights, electronics, wiring, cages, boxes, racks, decals, or mechanical modifications before they are ready for service. Historically, the garage shop has performed these upfitting tasks internally. Recently, however, staffing vacancies have prevented the garage from performing this work in a timely manner, and a backlog of vehicles awaiting upfitting has resulted, sometimes for several months. This delays the time when new vehicles can be brought into use and old vehicles can be removed from service and disposed of. It also forces the garage to house units which cannot yet be used.

The Harbor Department should seek to purchase vehicles which are already configured for service, or arrange for vendors to perform upfitting, in order to minimize the amount that must be done in-house and speed up the process of putting new vehicles in service.

3. Replacement Funding (BP 6)

As outlined in the section on fleet rates, there is no separate Fleet Replacement fund within the Harbor Department. When vehicles are disposed of (either auctioned or sold for scrap), the proceeds from these sales should be cycled back into the fund, earmarked

for fleet replacement. This will incentivize the Department to quickly dispose of old vehicles, and it will reinforce the linkage between vehicle disposal and the total cost of ownership.

Recommendations:

9. **The Harbor Department should pursue cooperative purchasing methods for vehicle acquisition in order to streamline the process, secure vehicle availability, and obtain advantageous pricing.**

10. **The Harbor Department should seek to outsource upfitting as much as possible in order to minimize the time and staff resources spent on preparing new vehicles for service.**

11. **Funds from vehicle auctions or sales should be cycled back into the Harbor fund, earmarked for fleet replacement.**

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 in order 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 Harbor Department compares to best practices in the area of 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 Harbor Department. Authorized staffing levels are above the baseline calculated, but vacancies reduce productive capacity.
2. Ratio of supervisory and support positions to technicians is reasonable.	✓	The shop is small, and technicians are supported by a garage supervisor, a clerk typist, and a garage services attendant.
3. Job descriptions, covering a reasonable range of functions and responsibilities are available and up to date.	✓	Job descriptions cover 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 Preventative 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.	~	PMs are tracked in the Maintenance Management System and conducted routinely. They are based on vehicle specs and original equipment manufacturer (OEM) recommendations, and the system is able to report on compliance rates. Customer divisions receive monthly email notifications from the system about PMs upcoming. Compliance rates are not tracked currently.

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 but jobs which require advanced software or tooling beyond the garage's resources are outsourced. 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 and a fuel truck which are equipped for making calls around the Port. Towing service is contracted through the City fleet for after-hours breakdowns.
10. Warranty work done in-house is recoverable from the OEM.		The garage shop is not warranty certified.
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.	~	Although there is currently no formal plan it is being discussed with the Training Coordinator. The future goal would be to provide 40 hours of training per mechanic each year. The Training Coordinator tracks all training completed.

Criteria	Status	Comment
13. Technicians are encouraged to keep skill levels current through financial incentives to obtain Automotive Service Excellence (ASE) and/or Emergency Vehicle Technician (EVT) certification.	✓	Mechanics are not required to be ASE qualified but incentives are provided if they are. Master = $1.10/hour, and double master = 2.20/hour. They can also complete NCCCO (crane operator) training for additional incentive. In addition to ASE certification, mechanics receive training from manufacturers of special equipment and complete inspection training for CNG tanks. Ford provides training on light duty vehicles, and electric vehicle safety.
14. Trip inspections are completed before and after each use of a vehicle.	✓	Operators have a pre and post trip process. When a defect is noted, the operator gives a copy of the inspection report to their supervisor and the garage supervisor, who inspects it and schedules repairs as necessary.
15. Completed trip inspection reports are kept on hand as legislated.	✓	The Garage Supervisor keeps a copy of all inspection forms.
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. VueWorks shows the number of labor hours for each work order.

The following sections discuss the staffing, outsourcing, and training practices in the Harbor 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)** calculation 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 a number of 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 195 vehicles and equipment pieces in the fleet total 406.75 VEU's[1]. Therefore, the Department is responsible for maintaining a fleet that is the equivalent of 406.75 sedans. The following table summarizes our VEU calculations:

Table 1: VEUs Per Vehicle Type

Vehicle Type	VEU's per Unit	Units	Total VEU's
Generator	0.5	12	6.0
Sedan	1.0	32	32.0
Manlift	1.25	1	1.25
Small Pickup	1.25	2	2.5
SUV	1.25	38	47.5
Van	1.25	3	3.75
1 Ton Van	1.5	11	16.5
1/2 Ton Pickup	1.5	17	25.5
1/2 Ton Flatbed	1.75	1	1.75
3/4 Ton Pickup	1.75	10	17.5
1 Ton Pickup	2.0	6	12.0
3/4 Ton Utility Body	2.0	3	6.0
Heavy Van	2.0	2	4.0
1 Ton Flatbed	2.25	3	6.75
1 Ton Utility Body	2.25	3	6.75
Patrol SUV	2.5	21	52.5
Patrol Truck	2.5	3	7.5
Truck MD	2.5	7	17.5
Bucket Truck	3.0	1	3.0
Equipment MD	3.0	3	9.0

[1] This figure assumes that our recommendations for elimination or right-typing of vehicles will be followed.

Vehicle Type	VEU's per Unit	Units	Total VEU's
Equipment HD	5.0	5	25.0
Heavy Truck	6.5	5	32.5
Tanker	10.0	1	10.0
Specialized Equipment	12.0	3	36.0
Sweeper	12.0	2	24.0
Total		**195**	**406.75**

In addition to these vehicles, the garage shop is responsible for servicing another 16 stationary generators. At 2.5 VEU's each, these equate to an additional 40 VEU's, resulting in a combined total of 446.75 VEU's.

The next step in our analysis is to determine the number of labor hours required to maintain one VEU. The baseline is 10 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, a number of 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 Harbor Department, the labor factor required to properly maintain the fleet is calculated at 12.5 hours per VEU. Our calculation for this is shown in the following table:

Table 2: Calculation of Labor Hours Per VEU

Factor	Value	Explanation
Baseline hours required per VEU	10.0	Standard starting point for mixed vocational fleets.
Adjustment for fleet age	0.0	The average fleet age is 6.8 years. 84% of units are no more than 10 years old.
Adjustment for utilization levels	-0.5	Vehicles are atypically low-mileage due to the Port's small footprint.
Adjustment for operating environment	1.0	The Port exposes vehicles to the elements and uncommon operational uses more than the typical City fleet.
Adjustment for facility and tools	0.5	The facility is subject to unique environmental requirements, and lifts occasionally cannot be used when contract for inspection has lapsed.
Adjustment for parts support	1.5	Mechanics do not have dedicated parts support at the garage; they fill this function themselves.
Adjustment for mechanic skills and training	0.0	Mechanics are reasonably experienced and well-trained.
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 5,584 hours.

In addition to vehicle maintenance, the Harbor Department's mechanic staff are responsible for a number of duties related to fueling and environmental compliance. These include coordinating and documenting the fuel delivery process, supporting the fuel island, and performing routine environmental inspections (as well as additional inspections after rain events) to monitor fuel leakage. After discussion with the Department, these activities are estimated to require about 680 hours per year. Adding this figure to the 5,584 hours required for maintenance and repair yields a total of 6,264 hours per year.

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 Harbor Department garage 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 6,264 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 4.3 mechanic FTEs.

Not all this workload will be necessarily handled in-house. Depending on the types of vehicles in the fleet, the availability of warranties and favorable vendor contracts, and the strategy and approach of the Harbor Department, a portion of these hours may be outsourced. Best practice is to outsource 10-15% of maintenance, with a focus on warranty work, time-consuming repairs, or work that requires special training or tools to deal with a high degree of complexity. Outsourcing 10-15% of work would result in a need for about 3.8 FTE's internally.

The following table summarizes the positions currently authorized and the percentages of their time allocated to working on vehicles and equipment.

Position	Authorized Positions	Filled Positions	% of Time Spent on Vehicles	Authorized Mechanic FTEs	Filled FTEs
Garage Supervisor II	1.0	1.0	30%	0.3	0.3
Equipment Mechanic I/II	4.0	2.0	100%	4.0	2.0
Garage Service Attendant II	1.0	0.0	90%	0.9	0.0
Clerical Typist III	1.0	1.0	0%	0.0	0.0

Position	Authorized Positions	Filled Positions	% of Time Spent on Vehicles	Authorized Mechanic FTEs	Filled FTEs
Total	**7.0**	4.0		**5.2**	2.3

The organization has 5.2 authorized technician positions. They are currently operating, however, with a staffing complement which equates to 2.3 mechanic FTEs due to vacancies.

In order to align with the garage shop's workload need of 4.3 FTE's, the authorized staffing should be reduced by one mechanic, resulting in a total of 4.2 authorized mechanic FTEs (a decrease of 1 from the 5.2 currently authorized), which will be sufficient to perform nearly all of the required work internally when fully staffed. When workload fluctuates or vacancies occur bringing the number of filled positions below the number needed to complete work internally, outsourcing should be used to ensure the timeliness of repairs. Staffed positions should be focused on core routine mechanic work, with outsourcing used strategically as described earlier.

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 Harbor Department should review the mechanic salary schedule in light of this information and seek to provide competitive compensation in order to prevent staff turnover or extended position vacancies.

2. 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 Harbor Department currently outsources work at the discretion of the Shop Supervisor, but has no formal decision making process to determine what work should be outsourced or track its volume as a percentage of total work. The Harbor Department should formalize its outsourcing process to include criteria for outsourcing and established contracts with selected vendors to ensure timeliness.

3. Technician Training (BP 12)

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 Harbor Department.

The Harbor Department currently lacks a formal mechanic training program, although discussions with the Training Coordinator have been ongoing, particularly surrounding the need to build staff familiarity with electric vehicles. The Harbor Department includes training as an objective on annual evaluations and aims to provide 40 hours of annual training. The Training Coordinator tracks all training completed.

Mechanics are not required to obtain ASE certification, but incentives are provided if they reach certain milestones: the master certification results in an increase of $1.10/hour, and the double master certification yields $2.20/hour. They can also complete NCCCO (crane operator) training for additional incentives. In addition to ASE certification, mechanics receive training from manufacturers of special equipment and complete inspection training for CNG tanks. Ford provides training on light duty vehicles, and EV safety. The Harbor Departments training program is strong in these regards; it equips staff for the kind of work they need to be able to perform.

Recommendations:

12. **The Harbor Department's authorized garage shop staffing should be reduced by one mechanic, from 4 to 3. This will result in 1 garage supervisor, 3 mechanics, and 1 garage services attendant for a total of 4.2 authorized mechanic FTE's.**

13. **The Harbor Department should review mechanic salaries in light of the recent MEMA survey and garage shop problems with recruiting and retaining qualified staff.**

14. **The Harbor Department should formalize its outsourcing process to include criteria for outsourcing and established contracts with selected vendors to ensure timeliness.**

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 Harbor 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 Harbor Department does not have a formally developed rate structure and charge-back system. Internal cost allocation is used instead to track costs and determine the indirect rates.
2. An Internal Service Fund (ISF) is in place.	~	The Harbor 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 parts and fuel are used exclusively within the Department.
5. Overhead costs are recovered in the rates.	✓	The indirect rates for technicians and supervisors are fully burdened to include overhead costs.
6. Reserves are created for emergency requirements.	✓	The garage is included in the Harbor Department's emergency reserves.

1. Chargeback System (BP 1)

There is currently no chargeback that exists between the Garage Shop and other Harbor Department Divisions. However, the Harbor Department develops an annual Cost Allocation Plan to allocate the indirect costs of its operations. As part of this indirect cost plan, the costs associated with the Garage Shop are allocated to the specific Divisions. The results of the cost plan are utilized to develop an indirect cost rate. The indirect cost rate is applied against staff salaries to recover the indirect costs associated with capital projects.

The Garage Shop costs are allocated to the different divisions within the Harbor Department based upon the number of vehicles and equipment associated with the division. The correlation is that if a division has more vehicles, it will have a higher tendency to utilize the services of the Garage Shop. The following table shows the percentage of support based upon number of vehicles by division, as well as if the Division is indirect or direct in the Department's current Cost Plan:

Division	# of Vehicles[2]	% of Support	Type of Cost
Communications	2	1%	Indirect
Risk Management	2	1%	Indirect
Maintenance	102	44%	Indirect
Surveys	14	6%	Direct
Security	81	35%	Indirect
Tenant Services	5	2%	Direct
Construction Management	27	11%	Direct
Total	**233**	**100%**	

As can be seen, based upon the number of vehicles assigned from the Cost Plan, the largest support is allocated to the Maintenance and Security Divisions, which are indirect divisions that are further reallocated through the cost plan to hit the other direct divisions such as Surveys, Engineering, Tenant services, etc. The costs allocated to Surveys and Construction Management are recovered through the indirect rate billed against projects. The cost for Tenant Services should be built into any tenant services agreements.

2. Fleet Fund (BP 2)

The most important component of any fleet fund analysis is to ensure that there is adequate, appropriate, and defensible funding source for its operations. For the Harbor Department, the Garage Shop is considered an indirect service and its costs are recovered through indirect rates charged against capital projects. This is a fair and defensible approach, as it ensures that the vehicles that are being used for those projects are being recovered from the expenses associated with this project.

The only other methodology to utilize in lieu of number of vehicles for cost allocation purposes would be the total labor hours spent per division. However, as the bulk of the

[2] The number of vehicles is from a 2020 cost allocation listing and is not representative of all current active assets for the Harbor Department.

vehicles are assigned to specific divisions, it is reasonable to assume that the bulk of the labor hours would also be associated with those same divisions. On the rare occasions the Harbor Department must bill for external contractor support, the following table summarizes the rate for each position.

Position Title	Fully Burdened Rate
Equipment Mechanic I	$128.39
Equipment Mechanic II	$117.92
Garage Supervisor II	$198.92
Garage Service Attendant II	$100.43
Clerk Typist III	$42.71

3. Mark-ups (BP 4)

The Harbor Department does not charge a markup on parts or fuel since the vast majority of these commodities are used internally for Department vehicles. These billable rates should only be used in rare cases, as the majority of the Garage Shop's cost is allocated through the cost allocation plan and recoverable through indirect rates.

4. Customer Charges (BP 1)

In many larger agencies, including the City, there are charges out to City funds and departments, and the Harbor Department could charge its divisions. However, unlike the City, where there are multiple funds (i.e. Enterprise Funds, Special Revenue Funds, etc.) there is only one primary funding source for the Harbor department. As such, even if the Garage Shop charges the other sections and divisions, it will all be paid out of the same funding source. Therefore, the best option is to identify and allocate the indirect costs associated with equipment to the appropriate divisions and attempt to recover some (if not all) through the capital project indirect rate.

5. Replacement Funding (BP 3)

There is no separate fund within the Harbor department for fleet replacement. While Harbor staff can consult with the Harbor Fleet Manager 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. Staff have autonomy to purchase their own options as it relates to equipment. However, as that equipment is maintained by Garage Shop staff, it has a direct impact on the cost of maintenance operations. The only way to ensure that Fleet can be involved both operationally and fiscally in the

replacement of equipment is to create a separation of fleet capital funds within the Harbor Fund.

These fleet replacement funds should be allocated to all divisions and sections within the Harbor Department and be based upon the actual costs associated with replacing the equipment. While the charges would be funded from the same funding source, creating a separate fleet replacement subaccount (not fund) allows for greater accountability and transparency for the replacement of vehicles and equipment. This ensures that there is a consistent funding source for equipment when it is needed, and not when it is affordable. Additionally, it ensures that Fleet must sign off on that replacement prior to it being put in service. The Department should consider creating the separation of fleet funding subaccount based upon the Fleet Replacement Plan for the department. The Fleet Replacement Plan calculates the annual cost needed to set aside to replace equipment by the specific equipment type, and that information should be summed up by division and section.

Allocating a charge, even as an internal transfer, to each Division will ensure that the Garage Shop has the overall responsibility for ensuring replacement of vehicles and equipment for the Department. It also allows the Shop to explore any financial savings by bundling purchases or other types of cost efficiencies. This is also consistent with industry best practices for fleet replacement.

Recommendations:

15. **The Harbor Department should create a separate Fleet Replacement capital subaccount within the Harbor Fund that is based upon the Fleet Replacement Plan. This will allow the Garage Shop to have greater operational and fiscal 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 Harbor Department compares to best practices in the area of 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 garage shop uses DTS VueWorks software for maintenance scheduling and work orders, but this system does not provide modern asset management functionality or have the ability to generate a wide range of reports.
2. Data integrity procedures produce accurate and timely fleet information.		Due to lack of technological integration (parts, fuel, etc.) and limited functionality in VueWorks, 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.	✓	Mechanics have laptops and use VueWorks routinely at their workstations. The Administrative Clerk and supervisors also have access.
4. All members of staff have been appropriately trained in the use of the fleet system.	✓	All garage shop staff are familiar with the system and its functions.
5. A fuel management system is in place.	✓	The garage shop uses GasBoy fuel management software.

Criteria	Status	Comment
6. The fuel system tracks both the vehicle being fueled and the driver.	~	The nozzle recognizes vehicles for security purposes but does not ask for odometers. GasBoy is not connected to any central system for fuel tracking purposes.
7. A telematics system is in place to improve routing and scheduling of services, identify driver training issues, and provide timely fleet data.		There is no telematics system in place.
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 VueWorks, the garage shop lacks accurate and timely fleet information for decision-making or providing 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 KPIs are currently established.

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

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

The Harbor Department does not have a fleet management information system (FMIS). They do have a maintenance system, VueWorks, which is primarily a work order tracking system used to create vehicle maintenance work orders and record time and expenses. This system comes with some serious shortcomings:

- VueWorks is a general maintenance management system and lacks the robust functional features of a purpose-built fleet system. The complexities involved with managing mobile rather than fixed assets, tracking regulations particular to the fleet industry, maintaining a parts inventory, and measuring performance are not within the system's capabilities.

- The system cannot be easily used to generate reports and does not contain an inventory of fleet assets. In generating an inventory of vehicles for this study, staff

were forced to rely on spreadsheets from more than one source because the system was not able to produce the data needed. In an efficient, metrics-focused fleet operation, regular reporting is a key component of management and decision-making. Reports on the number and type of work orders, preventive maintenance compliance rates, fuel usage and efficiency, labor hours, parts use, overall expenditures, by division, by vehicle class, by date range, etc. are needed for identifying areas of strength and weakness and making strategic decisions.

- The system is not integrated with GasBoy, the fuel system in use by the Harbor Department. The two systems do not utilize a common data set, meaning that vehicle and equipment profiles must be manually kept current in each, and reports requiring information from both sets cannot be developed without excessive staff time. Ideally, the fleet management system and the fuel system should be integrated.

To address these issues, the Harbor Department should implement a modern fleet management system with a parts management module and built-in reporting capabilities. This system should be used to maintain detailed, regularly-updated profiles of every vehicle and piece of equipment in the fleet, and it should serve as the master database for any other systems. This system should be used to create, update, and finalize all work orders, and it should be used to generate regular reports for the Utilities and Fleet Manager, customer Divisions, and Department management.

The City's FSB 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 Harbor Department should discuss options to expand the use of M5 to Harbor. M5 is not the only option; however, so the Department should consider other options and compare capabilities, ease of installation and use, and price.

2. Fuel System (BP 5,6)

The Harbor Department currently uses GasBoy fuel management information system to track fuel inventory and record amounts and prices of fuel dispensed. The use of this system is unwieldy, however, and does not provide the security and data reporting benefits of a newer system.

- The current fuel system does not integrate with the fleet management system in use by the Department. As a result, regular data updates on fueling, mileage, etc. are not automatically loaded into the primary fleet database; rather, separate databases exist for VueWorks and GasBoy. Ideally the fuel system would have a seamless interface

with the fleet management system, automatically updating each vehicle profile with fueling and mileage data.

- The fuel system as it is currently used recognizes Harbor vehicles to ensure that only these vehicles can receive fuel. It does not verify vehicle mileage at each refueling or require identification of the operator, raising the possibility of incorrect mileage entries and limiting the tracking of fuel. A modernized fuel system would include automatic mileage tacking.

- Because the GasBoy fuel system is not integrated with the fleet management system, reports cannot be developed which include both fuel and mileage information. This is problematic because it prevents tracking of fuel efficiency.

To improve fueling operations efficiency, the fuel system must be integrated with the fleet system adopted. To enforce accountability, the Department should require fuel card use at all Harbor fuel pumps, and regular fuel efficiency reports.

3. Data Tracking and Use of Key Performance Indicators (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 Harbor Department should use its new fleet management system and reporting capability to track a number of 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 Key Performance Indicators (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 preventative maintenance (PM), 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.

4. Telematics (BP 7)

Many of the prior recommendations in this document such as tracking utilization, enforcing accountability for take-home vehicles, and generating high quality data for decision-making, can be facilitated, and enhanced with the use of a telematics system.

The City's FSB has installed telematics on all its vehicles and their experience in deciding which vehicles require a passive rather than a more expensive active system, could be beneficial to the Harbor Department. In addition to the benefits outlined above, telematics can track driver behavior and help organizations enforce safe driving practices.

Recommendations:

16. **The Harbor Department should acquire a capable Fleet Management Information System. They should consider the option of AssetWorks' M5, which is already in use by the City's Fleet operation.**

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

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

19. **The fuel system should be integrated with the fleet management system.**

20. **The Harbor Department should implement a telematics system to enhance the collection of data on utilization and safety practices.**

Port of
LONG BEACH
THE PORT OF CHOICE

July 15, 2022

Hanna Gardener, CIA
Deputy City Auditor
Long Beach City Auditor's Office
411 W. Ocean Blvd., 8th Floor
Long Beach, CA 90802

Subject: Harbor Department Action Plan
July 7, 2022 Fleet Audit

Dear Ms. Gardener,

Attached is the Harbor Department's Action Plan submitted in response to the July 7, 2022 Fleet Audit Final Report.

The interaction between our two teams was productive, fruitful, and professional, and we appreciate all of the coordination and support you provided. We are very pleased that the audit was complementary of our Fleet Services Section operations and that the recommendations are supportive of further enhancing the services that they provide to the Harbor Department.

Please contact Mr. Fred Greco, Director of our Maintenance Division, at (562) 283-7309 or fred.greco@polb.com if you have any further needs or questions.

Respectfully,

Mario Cordero
Executive Director

MC/fg

Attachment: Harbor Department Action Plan – July 7, 2022 Fleet Audit

HARBOR DEPARTMENT ACTION PLAN

July 7, 2022 Fleet Audit

No.	Recommendation	Priority	Page #	Agree or Disagree	Responsible Party	Action Plan / Explanation for Disagreement Harbor Action Plan	Target Date for Implementation
1	Establish a Fleet Steering Committee with regular meetings on fleet topics.	M	11	Agree	Maintenance Division (MD)	Establish a Fleet Steering Committee (FSC) consisting of staff representatives from multiple user Divisions to serve as liaisons to Harbor Fleet Services. The FSC will meet at least quarterly, or, as needed to address Fleet topics, recommend administrative policy and related Harbor Fleet Services strategies. The FSC will be led by the Manager of Utilities and Fleet Services.	01/15/23
2	Create a Fleet Policy Manual outlining regulations on fleet utilization, safety, Preventative Maintenance, repairs, communication, and points of contact. Update the manual at least annually.	M	11	Agree	MD, Human Resources (HR)	Create a Harbor Department Fleet Services Policy Manual that is consistent with and which references existing administrative directives and the Green Vehicle Implementation Plan.	01/15/23
3	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	11	Agree	MD, Risk Management (RM)	Maintenance will team with Risk Management (RM) to develop a standard Drivers Handbook in tandem with City Fleet Services. The output includes socializing handbook electronically to all teammates, link to Port intranet and maintain updated hard copies in fleet vehicles and at the PAB Motor Pool Office.	06/01/23
4	Begin tracking mileage for on-call and emergency take-home vehicles similarly to the process currently used for Green Commute vehicles in order to ensure that they are not used for personal use.	L	11	Agree	MD, Information Management (IM)	Harbor Fleet Services will track mileage/use of the few assigned emergency take-home vehicles to flag mileage above average roundtrip to residence. Secondly, this item can be incorporated as part of a telematics system initiative - see Item No. 20 for action date estimate.	12/31/22
5	Implement the recommendations in the utilization review, which were summarized in the table on page 13.	M	15	Agree	MD	Three of five recommendations are completed. MD will implement the two remaining audit recommendations which include: 1. Capturing and validating vehicle utilization reviews for FSC decision making regarding fleet composition and assignments, and 2. Institute best practices to ensure fleet is proactive in identifying vehicles with poor utilization to optimize appropriate fleet size and composition per the GVIP criteria.	06/01/23
6	The Fleet Policy Manual should 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.	M	15	Agree	MD, HR	The annual review and recommended process are already a part of the GVIP. However, the processes will be further enhanced to address all aspects of this audit recommendation to be enforced via new policy directive.	01/15/23

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7	Beginning 9/1/2022, annual fleet reviews should be conducted without adjustment for Covid-related decreases in utilization.	H	15	Agree	MD, FSC	See response to No. 6. Utilization reviews will consider the Harbor Department's work schedule which is likely to be a hybrid (telecommute and office) moving forward.	09/01/22
8	The Harbor Department should track the utilization of all fleet units including trailers in order to identify location, usage and opportunities to pool assets.	L	15	Agree	MD, FSC	FSC to establish fleet unit tracking standard. This may include applicable technology solutions described in Item Nos. 4 and 17.	06/01/23
9	The Harbor Department should pursue cooperative purchasing methods for vehicle acquisition in order to streamline the process, secure vehicle availability, and obtain advantageous pricing.	M	19	Agree	MD	MD to implement cooperative purchasing methods as part of approved vehicle procurement methods - in conformance with California Contracting Code and Harbor Contract Compliance. This may require Board approval.	10/01/22
10	The Harbor Department should seek to outsource upfitting as much as possible in order to minimize the time and staff resources spent on preparing new vehicles for service.	M	19	Agree	MD	Procure contract(s) with specialized vendors as appropriate to minimize the use of limited Fleet resources in preparing complex vehicle outfitting.	01/15/23
11	Funds from vehicle auctions or sales should be cycled back into the Harbor fund, earmarked for fleet replacement.	L	19	Disagree	Finance	Proceeds from vehicle sales or auctions are recorded as "miscellaneous, non-operating revenue," and are posted to the Harbor Fund. As budgeting for expenditures is separate from budgeting for revenue, there would not be a mechanism of earmarking sales proceeds for vehicle replacement, nor would it be necessary. Also, see response to item 15 below.	N/A
12	The Harbor Department's authorized garage shop staffing should be reduced by one mechanic, from 4 to 3. This will result in 1 garage supervisor, 3 mechanics, and 1 garage services attendant for a total of 4.2 authorized mechanic FTE's.	M	28	Disagree	MD	The number of Fleet staff required is based on overall operational needs, including factors beyond industry benchmarks (i.e., Harbor-wide generator PM tasks, MD environmental compliance plan activities performed by Fleet resources - not by vendors). In addition, MD staffing levels factor sick calls, vacations, vacancies and retirements. The goal being 80% of optimum Fleet staffing levels to meet 24/7 Port operational requirements and customer service expectations.	N/A
13	The Harbor Department should review mechanic salaries in light of the recent MEMA survey and garage shop problems with recruiting and retaining qualified staff.	M	28	Agree	HR	The MEMA survey will be used by HR to support future labor negotiations and compensation reviews of mechanics.	1/15/2023 and On-going

HARBOR DEPARTMENT ACTION PLAN

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No.	Recommendation	Priority	Page #	Agree or Disagree	Responsible Party	Action Plan / Explanation for Disagreement Harbor Action Plan	Target Date for Implementation
14	The Harbor Department should formalize its outsourcing process to include criteria for outsourcing and established contracts with selected vendors to ensure timeliness.	M	28	Agree	MD	A set of criteria will be established to determine when work on fleet vehicles should be outsourced and documented in the fleet policy manual. MD to factor outsourcing decisions based on: Shop capacity, time required for repairs, specialty tools available; staff experience, capabilities and training required to perform in-house.	06/01/23
15	The Harbor Department should create a separate Fleet Replacement capital subaccount within the Harbor Fund that is based upon the Fleet Replacement Plan. This will allow the Garage Shop to have greater operational and fiscal involvement and control in the fleet replacement process.	M	32	Disagree	Finance	The concept of a separate Vehicle Replacement Fund is most applicable to an Internal Service Fund where several departments receive goods and services and are charged on a cost allocation basis. Harbor is one department and has one operating fund. Accordingly, the additional resources expended in maintaining such a fund is not justified.	N/A
16	The Harbor Department should acquire a capable Fleet Management Information System. They should consider the option of AssetWorks' M5, which is already in use by the City's Fleet operation.	H	38	Agree	MD/IM	IM will lead an assessment of Fleet Management Systems. This will include capturing the Maintenance Division's business requirements.	Assessment completed by 6/30/2023
17	The new fleet management system should be used to record all work orders for maintenance and repair activities, and to regularly collect data and generate fleet reports for its customers and internal decision-making.	H	38	Agree	MD/IM	This action will be addressed in conjunction with Item No. 16.	Assessment completed by 6/30/2023
18	The Harbor Department should institute and routinely report on a set of performance metrics to gauge the effectiveness of garage shop operations.	M	38	Agree	MD/IM	This action will be addressed in conjunction with Item Nos. 16 and 17.	Assessment completed by 6/30/2023
19	The fuel system should be integrated with the fleet management system.	M	38	Agree	MD/IM	See Item No.16. Integration will be dependent on No. 16 and will be included in the overall assessment.	Assessment completed by 6/30/2023

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20	The Harbor Department should implement a telematics system to enhance the collection of data on utilization and safety practices.	M	38	Agree	MD, IM, RM and HR	IM will perform an Assessment/Discovery that includes process, people and data requirements. This will be dependent on multiple stakeholders.	Assessment / discovery completed by 12/31/2023

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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