



City of Dallas

Fleet Efficiency Study Update

**Government Performance and
Financial Management
October 25, 2021**

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Equipment and Fleet Management
City of Dallas

Presentation Overview



- Background/History
- Purpose
- Issues/ Operational or Business Concerns
 - Action Plan Update
- Preventative Maintenance (PM) Program
- Future policy and operational decisions impacting fleet management



Background/History



- Effective October 1, 2018, Equipment and Building Services (EBS) split into (3) parts
 - Equipment and Fleet Management (EFM)
 - Building Services (BSD)
 - Court and Detention Services (CTS) absorbed Building Security
- In the Spring/Summer of 2018, Alvarez and Marsal conducted a Fleet Efficiency Study and briefed the results to City Council in December 2018
 - Scope of the study focused on opportunities for improvement and efficiencies
 - Developed an Action Plan to track progress of implementation
 - Updates to GPFM - April 2019 and September 2020



Purpose



This briefing will:

- Provide an update on the Action Plan in response to consultant recommendations
- Provide an update on the preventive maintenance program (PM) and other efficiencies that impact downtime
- Solicit feedback on future policy and operational decisions impacting fleet management



Issues/Operational Concerns



The Fleet Efficiency study identified five (5) areas for improvement

- Organizational Assessment
- Follow Total Cost of Ownership (TCO) Approach
- Make Workshop Flow Improvements
- Underutilization, Right Sizing, & Motor Pool
- Technology and Data Quality



Organizational Assessment

Date	Consultant Observations	Completed	In-Progress	Next Steps
Hiring				
December 2018	1. Developed “Temp” to “Hire” Program for Mechanics	✓		
Completed	2. Program Summary; 119 temps hired since inception, 44 made permanent, 31 of 44 retained to-date, 18 temps currently in program. In 2020 and 2021, expanded the program to include Fleet Parts Specialist, and Customer Service Reps.	✓		
Training				
December 2018	3. Modernize Training Program by increasing hands on instruction and utilizing free training opportunities from existing vendors		✓	
2 nd Qtr. 2019	<ul style="list-style-type: none"> Implemented “The Fleet Academy” and began training in November 2019 at Hensley Field with preventative maintenance program training for over 100+ technicians 	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> In April/May 2021, training completed on maintenance and repair of Sanitation Trucks by our OEM vendors (Heil & Autocar) – 60 technicians trained In June thru September 2021, training on basic and advanced electrical, hybrids, and engine performance offered by (Ford). – 90 technicians trained In September 2021, Supervisor Training conducted by Caruth Police Institute – 15+ employees 	✓		
2 nd Qtr. 2019	<ul style="list-style-type: none"> Interlocal Agreement (ILA) executed with Dallas College – Cedar Valley Branch in March 2020 to allow for training in automotive and diesel technologies <ul style="list-style-type: none"> Kick-off meeting held to discuss curriculum (postponed due to COVID-19) 	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> Determined that best use of the ILA is for basic diesel technology training and commercial driver’s license certification (CDL) 		✓	

Organizational Assessment

Date	Consultant Observations	Completed	In-Progress	Next Steps
Employee Compensation				
December 2018	4. Address tool/boot allowance and certification pay	✓		
Completed	<ul style="list-style-type: none"> Tool/Boot allowance increased, Automotive Service Excellence (ASE) award program implemented in December 2019. 	✓		
December 2018	5. Engage Human Resources in the City-wide Compensation Study	✓		
2 nd Qtr. 2019	<ul style="list-style-type: none"> City Council approved award for Compensation Study on August 28, 2019 Agenda 	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> Phase I of the study completed. Initial pay adjustments made for minimum salaries and reclassification of positions to include job title changes. Phase II is pending but will address pay compression issues within job titles. 		✓	
Completed	<ul style="list-style-type: none"> 32+ internal promotions within the department over the past 12 months 	✓		

Follow TCO Procurement Approach

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Fleet Governance				
December 2018	1. Establish a Fleet Advisory Board to establish standards	✓		
Completed	<ul style="list-style-type: none"> Fleet Advisory Board is formally established; comprised of Executives and fleet subject matter experts 	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> Administrative Directive 6-02 being revised with support from Fleet Governance Committee to reflect the new processes and policy for operations 		✓	
December 2018	2. Ensure (PM) periodic maintenance compliance	✓		
Completed	<ul style="list-style-type: none"> Focus shifting to greater emphasis on Compliance I which is specific to on-time intervals versus a combination of on-time and late work which defined as Compliance II. 	✓		
December 2018	3. Centralize decision making on fleet purchases	✓		
Completed	<ul style="list-style-type: none"> A new approach to annual fleet purchases was developed to include individualized strategy meetings with customer departments, vetting of purchases with BMS and POM along with creation of a comprehensive master agreement for purchasing fleet 	✓		
Vehicle Procurement				
December 2018	4. Evaluate the total cost of ownership versus short term initial purchase or operational reliance on rental equipment	✓		
Completed	<ul style="list-style-type: none"> City is using a fleet replacement module in M5 that prioritizes assets by a set of criteria following industry standards for TCO 	✓		
Completed	<ul style="list-style-type: none"> Developed “De-Fleet” process to decommission equipment after a cost benefit analysis in coordination with customer departments to vet the impact and any operational concerns 	✓		

Follow TCO Procurement Approach

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
December 2018	5. Determine the most cost-effective funding mechanism for fleet purchases	✓		
Completed	<ul style="list-style-type: none"> Use of equipment notes and master lease funding for fleet purchases 	✓		
Enhance Outsource Contracting Options				
December 2018	6. Work with Office of Procurement Services for better specifications and timely execution of contracts		✓	
4 th Qtr. 2021	<ul style="list-style-type: none"> Developed a procurement strategy with CAO and POM that will allow for multi-award service and parts contracts to reduce the turnaround time on third party repairs. Anticipated City Council award in November/December 2021. 		✓	

Make Workshop Flow Improvements

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Scheduling Improvements				
December 2018	1. Staff realignment by shift and service center	✓		
Completed	<ul style="list-style-type: none"> Adding additional Saturday shifts at service centers to support customer demands 	✓		
Completed	2. Add 3rd shift at the NW Service Center for Sanitation Services vehicle maintenance	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> Developing 3rd shift grease program for Sanitation Services to help prevent wear on components with frequent movements 			
Shop Infrastructure/Equipment				
December 2018	3. Purchase new shop equipment to increase safety, productivity and diagnostic capabilities	✓		
Completed	<ul style="list-style-type: none"> Purchased 29 pieces of equipment, mobile lifts, lube reel replacements at Southwest, Central and Northeast Service Center 	✓		
Completed	<ul style="list-style-type: none"> Wi-Fi has been installed, new tablets and computers for shop operations deployed, network speed enhanced 	✓		
Revamp Intake/Outtake Process (Communication Strategy)				
December 2018	4. Hire (5) Service Advisors to engage customers and perform better quality control		✓	
Completed	<ul style="list-style-type: none"> Service Advisors hired 	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> Reclass existing vacant positions to Customer Service Representatives to help with data integrity and internal/external communication at the shop offices 			
Completed	5. Automated notifications in M5 to customers on, work order opened, vehicle ready for pickup, (PM) required, State Inspection Required	✓		

Make Workshop Flow Improvements

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Change Workorder Management				
December 2018	6. Maintenance Triage to better address customer needs and improve turnaround time	✓		
Completed	<ul style="list-style-type: none"> Prioritization of maintenance requests at service centers aimed at reducing the need for outside rental of equipment 	✓		
Completed	<ul style="list-style-type: none"> Work order process instructions completed; staff trained 	✓		
Completed	<ul style="list-style-type: none"> Updated preventative maintenance (PM) program to enhance care for newest and critical assets by setting increased maintenance intervals and automated monitoring 	✓		
Completed	<ul style="list-style-type: none"> Interlocal Agreement executed with Dallas County to allow the City to be a bonded agent and process vehicle registration renewals for vehicles owned by the City 	✓		
Completed	<ul style="list-style-type: none"> City Council approved revisions to Dallas City Code – Chapter 15D to allow city-owned vehicles at are inoperable to receive emergency wrecker services 	✓		
4 th Qtr. 2021	<ul style="list-style-type: none"> Develop and enhance the centralized warehouse for parts inventory to address items with long lead times, purchase orders for large volume items, and specialty items on critical assets 		✓	

Underutilization, Right Sizing & Motor Pool

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Underutilization				
December 2018	1. Identify potential surplus vehicles		✓	
1st Quarter 2019	<ul style="list-style-type: none"> Developing cost avoidance/savings tracker to report metrics 		✓	
4 th Qtr. 2021	<ul style="list-style-type: none"> Data driven analysis during fleet buy meetings with customer departments to include; outside rental review, demand for replacement of de-fleeted assets and justification for perceived underutilized assets 		✓	
December 2018	2. Validate mileage, use, and hours in operation of vehicles with low annual mileage as criteria for low utilization		✓	
4 th Qtr. 2021	<ul style="list-style-type: none"> Enhance and Increase use of GPS as tool to identify and address underutilization with fleet reductions or pooling of use <ul style="list-style-type: none"> Working on contract amendment that is anticipated for City Council approval in November/December 2021. This GPS enhancement will provide and upgraded web portal and allow for increased data accuracy and reporting capabilities. The result is a more robust study on the use of vehicles and equipment by management. 		✓	

Underutilization, Right Sizing & Motor Pool

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Right Sizing				
December 2018	3. Identify options to share vehicles		✓	
4 th Qtr. 2021	<ul style="list-style-type: none"> Developing vehicle purchase strategy for motor pool to address fleet shortages and seasonality of operational needs and reduce expensive outside rentals (delayed because of COVID-19) 		✓	
December 2018	4. Determine requirements based on operational needs		✓	
December 2018	5. Develop business rules to earn authorizations to validate requirements for fleet purchases or retention of their fleet		✓	
4 th Qtr. 2021	<ul style="list-style-type: none"> Presented draft requirements and documents to Fleet Governance Committee and will continue working on changes to AD 6-2. 		✓	
Increase Motor Pool				
December 2018	6. Identify city facilities for expansion of motor pool		✓	
4 th Qtr. 2021	<ul style="list-style-type: none"> In April 2020, DPD developed a departmental motor pool at Jack Evans HQ utilizing 18 vehicles to reduce use of rental vehicles and evaluate fleet reductions DPD absorbed the Jack Evans Motor Pool vehicles into regular operations suspended the pilot in December 2020 		✓	

Technology & Data Quality

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Maximize Use of the Fleet Management System (M5)				
December 2018	1. Enforce requirement to track all vehicles and equipment in M5		√	
4 th Qtr. 2021	<ul style="list-style-type: none"> This recommendation will be discussed before the Fleet Governance Committee to determine an action plan and compliance requirements 		√	
December 2018	2. Evaluate implementation of M5 system modules currently not in use		√	
4 th Qtr. 2021	<ul style="list-style-type: none"> Began use of Availability module, revisions to Notification Manager and PM/State Inspection Forecaster, and Repeat Work Order tracking 		√	
December 2018	3. Integrate with Risk Management System (Origami) on accident data			√
Completed	<ul style="list-style-type: none"> Data sharing via system reports and access to M5 being granted to Risk Management 	√		
December 2018	4. Offer refresher and on-going M5 training tailored to individual roles		√	
4 th Qtr. 2021	<ul style="list-style-type: none"> EFM has updated the M5 roles for Service Technicians and is working on Parts Warehouse staff, next steps include roles for customer departments 		√	
Assign staff support to monitor data quality				
December 2018	5. Hire/Train incumbent to fill role of Data Quality Senior Analyst		√	
Completed	<ul style="list-style-type: none"> Existing resources can and have been utilized to monitor and revise data quality 	√		

Technology & Data Quality

Date	Consultant Recommendations	Completed	In-Progress	Next Steps
Simplify and automate billing				
December 2018	6. Identify top disparities in lease rates and actual work order totals for transparency and customer service		√	
4 th Qtr. 2021	<ul style="list-style-type: none"> Data quality has improved thru the Work Order Process along with training and additional staff assigned to data entry duties 		√	
4 th Qtr. 2021	<ul style="list-style-type: none"> EFM is working with ITS to determine the feasibility of sourcing a third-party software as a validation of the existing rate setting process and or enhance/replace portions of the existing manual process 		√	

Fleet Study Efficiencies - FY20-21 Performance Measures

Fleet Study Efficiencies ITD						
Cost Avoidance ITD			Percent of Fleet Replacement Eligible			
Category	# of Units	Amount	Year	% Eligible	Change	Funding
Fleet Reduction	28	\$ 789,619.23	FY18-19	56.4%		\$9M
Right Sizing	2	\$ 176,594.34	FY19-20	46.1%	-10.3%	\$19.6M
Total	30	\$ 966,213.57	FY20-21	39.1%	-7.0%	\$17.5M

#	Performance Measure	Annual Target/Goal	Oct Data	Nov Data	Dec Data	Jan Data	Feb Data	Mar Data	Apr Data	May Data	Jun Data	Jul Data	Aug Data
1	% of fleet that is replacement eligible	<= 41%	51%	50%	51%	48%	48%	45%	44%	43%	43%	39.7%	39.1%
2	% of PM Compliance-Citywide	>=70%	88%	83%	83%	83%	87%	89%	91%	93%	93%	93%	91%
3	% fleet that uses alternative fuels or hybrid fueling technologies	>=38%	46%	46%	46%	45%	45%	45%	44%	44%	44%	44%	43.5%
4	% fleet availability – Sanitization Collection (garbage/recycling)	>=80%	76%	75%	76%	76%	77%	75%	75%	72%	70%	70%	72%
5	% fleet availability DPD marked squad	>=75%	78%	80%	80%	80%	82%	78%	81%	77%	87%	79%	80%
6	% fleet availability - Citywide without DPD marked squad or SAN (garbage/recycling)	>=70%	88%	89%	88%	88%	88%	88%	87%	88%	87%	87%	88%
7	% stocked parts fill rate	>=92%	94%	95%	95%	96%	94%	94%	95%	94%	94%	93%	94%
8	% Fleet mechanic vacancy rate (including temporary help)	<=15%	12.9%	12.9%	14.2%	14.2%	15.5%	16.8%	18.7%	18.1%	17.4%	18.6%	17.4%



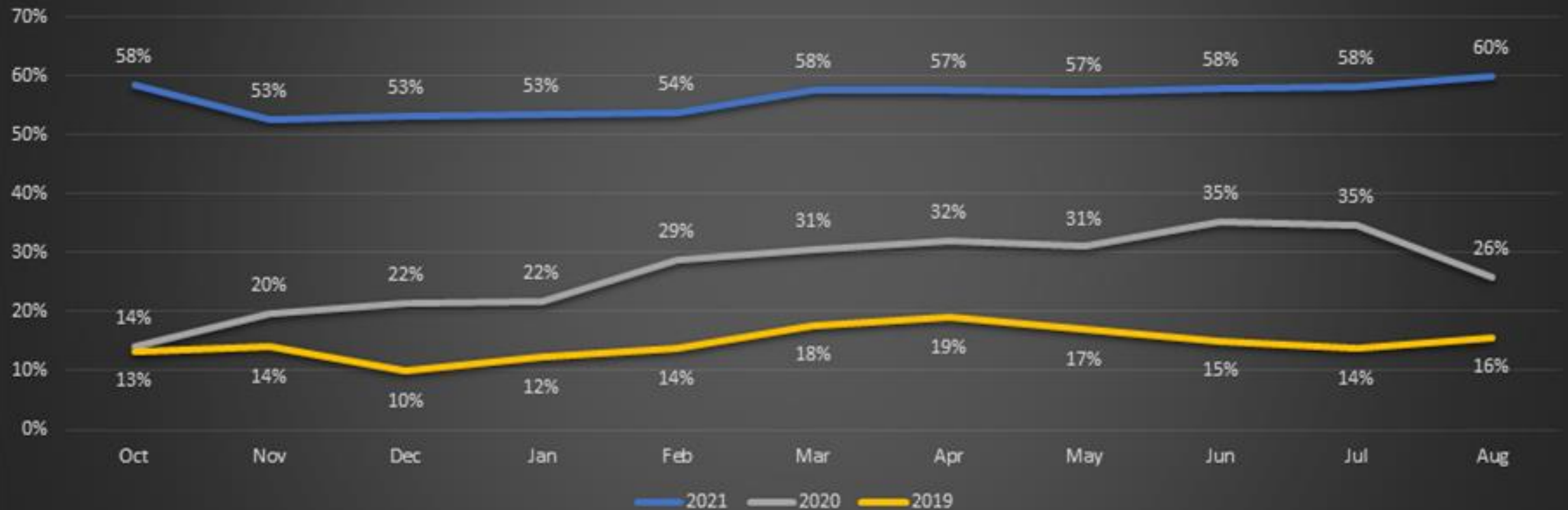
Preventative Maintenance Program Update and the Impact on Downtime



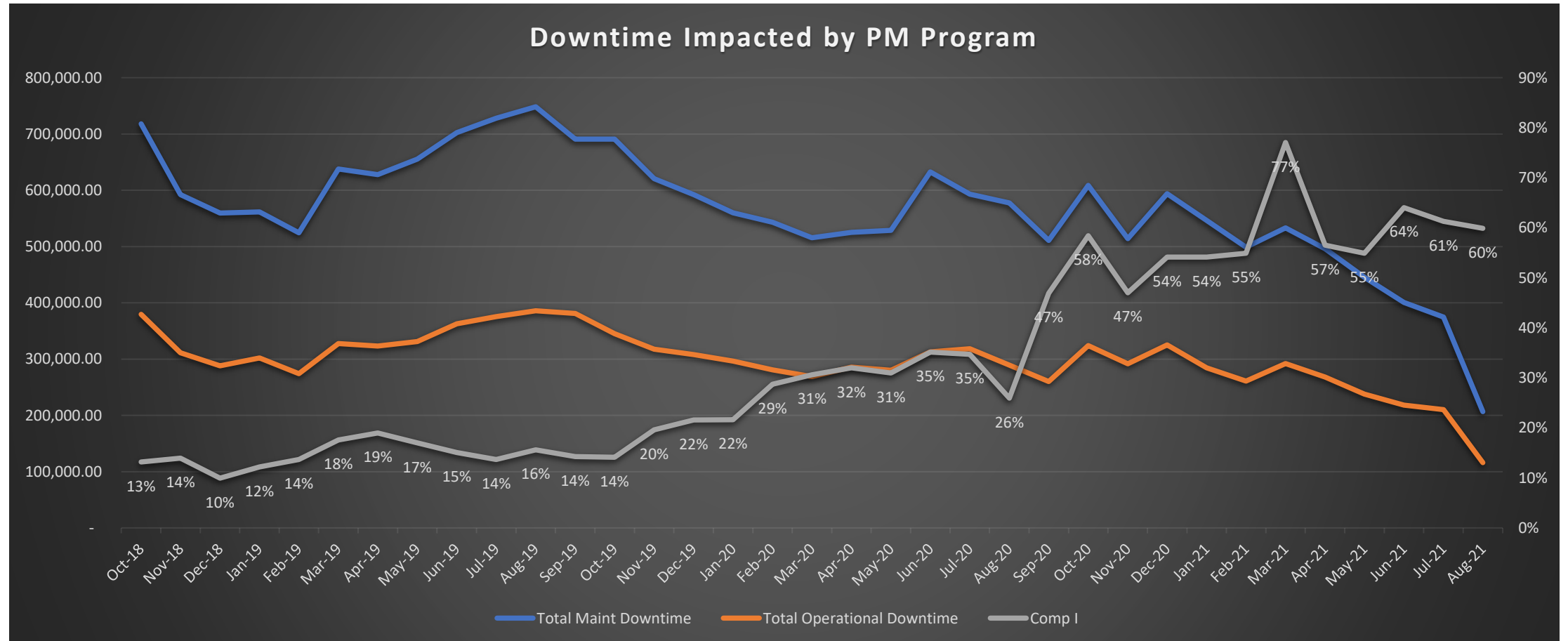
Preventative Maintenance (PM) Program



3 YR. Trend Compliance I (Refresh)



Downtime Impacted by PM Program



American Public Works Top 10 Metrics



Availability Since keeping vehicles on the road is the essential purpose of a fleet services organization, the rate of fleet availability is perhaps the king of all fleet program fleet performance measures. Many organizations track fleet availability performance by broad classes of vehicles (such as automobiles and light trucks, medium and heavy trucks, etc.) and establish different targets for each class. A generally accepted benchmark in the industry is to have an availability rate of 95% or better across the entire fleet.

Downtime Decisions as to what constitutes downtime (as discussed above), and factors such as age of the fleet and the mix of vehicle types will have a major impact on the performance the fleet services organization can attain. As with most of performance measures discussed in this publication, perhaps the greatest value in tracking fleet availability is to chart one's own performance over time. This way the fleet manager can monitor trends and document the impact that decisions such as a reduction in fleet replacement funding have on a fleet availability.

Source: Top 10 Performance Measure for Fleet Managers
American Public Works Organization, 2016
ISBN978-1-60675-049-0

Future Policy & Operational Decisions

Issues/Operational Concerns



Future Policy & Operational Decisions

- Global Positioning System Implementation (GPS)
- Electrification of fleet assets
- Alternative Fuel Vehicle Infrastructure



GPS



In 2014, the City of Dallas entered into a contract with CalAmp in anticipation of future demand for and benefits of global positioning services (GPS)

- Today, the City has approximately 1,300 CalAmp GPS devices installed
- EFM wants to expand the use of GPS, as a means to monitor utilization of fleet assets, to determine if fleet reductions or potentially right-sizing is warranted



Electrification of Fleet Assets



In support of CECAP adoption, an amendment approved in the FY2021 Budget provided funds for an electric vehicle feasibility study (\$100k)

- On May 26, 2021, the City Council awarded a contract to the National Renewable Energy Laboratory (NREL) to conduct the study.
- NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. The Alliance for Sustainable Energy LLC., operates the NREL Laboratory.
- The study allows the City to develop the most effective and efficient policies and operational strategies for deployment and sustainment of electric vehicle technology in alignment with CECAP.
- Staff estimates completion of the EV study by NREL in April 2022.
- The Environment and Sustainability Committee will be briefed on the results/recommendations.



Alternative Fuel Vehicle Infrastructure



See attached memo in the appendix provided to City Council on September 8, 2021.



Next Steps



- Continue work on action plan in response to consultant recommendations
- Continue to brief GPFM Committee on status of action plan
- Document Council feedback for development of future policy and operational plans





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Fleet Efficiency Study Update

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October 25, 2021**

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Appendix

Memorandum



CITY OF DALLAS

DATE September 8, 2021

TO Honorable Mayor and City Council

SUBJECT **Alternative Fuel Vehicle Infrastructure Overview – Hybrid/EV, CNG, and Biodiesel**

During the September 1 City Council budget amendments straw vote session, City Council Members asked questions regarding the City's plan for alternative fuel vehicles, as well as hybrid and electric vehicle technology already in use by the City.

The FY 2020-21 budget included a City Council amendment for \$100,000 to fund an electric vehicle (EV) feasibility study with an emphasis on light duty vehicles. On May 26, 2021, the City Council awarded a contract to the National Renewable Energy Laboratory (NREL) to conduct the study. NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, and operated by the Alliance for Sustainable Energy LLC. The study will allow the City to develop the most effective and efficient policies and operational strategies for deployment and sustainment of electric vehicle technology in alignment with CECAP. We currently estimate NREL will complete the EV study in April 2022. We will brief the Environment and Sustainability Committee on the results/recommendations.

Provided below are a series of definitions and descriptions for the various vehicle types, as outlined by the U.S. Department of Energy, along with the existing complement of City assets within each category. This diverse mix and expansive use of alternative fuels has allowed the City of Dallas to be recognized by the NCTCOG with the "Gold" Fleet award the past two years.

Hybrid Electric Vehicles (HEV) – Current Inventory = 215, On Order = 50



HEVs are powered by an internal combustion engine and an electric motor that uses energy stored in a battery. The vehicle is fueled with gasoline to operate the internal combustion engine, and the battery is charged through regenerative braking, not by plugging into an electric power source.

Plug-In Hybrid Electric Vehicles (PHEV/PEV) – Current Inventory = 1, On Order = 0



PHEVs are powered by an internal combustion engine and an electric motor that uses energy stored in a battery. PHEVs can operate in all-electric or charge-depleting mode. To enable operation in all-electric mode, PHEVs require a larger battery, which can be plugged into an electric power source to charge. To support a driver's typical daily travel needs, most PHEVs can travel between 20 and 40 miles on electricity alone, and then will operate solely on gasoline, similar to a conventional hybrid.

All-Electric Vehicles (EV/BEV/PEV) – Current Inventory = 10, On Order = 0



EVs, also called battery electric vehicles, have a battery that is charged by plugging the vehicle into charging equipment. EVs always operate in all-electric mode and have typical driving ranges from 150 to 300 miles. The City has 12 charging stations for its fleet.

Natural Gas Vehicles – Current Inventory = 466



The advantages of natural gas as a transportation fuel include its domestic availability, widespread distribution infrastructure, and reduced greenhouse gas emissions over conventional gasoline and diesel fuels. When used as a vehicle fuel, natural gas can offer life cycle greenhouse gas (GHG) emissions benefits over conventional fuels, depending on vehicle type, duty cycle, and engine calibration. In addition, natural gas reduces some engine emissions. Argonne National Laboratory's GREET model estimates the life cycle petroleum use and GHG emissions of light-duty vehicles running on compressed natural gas (CNG) and liquefied natural gas (LNG). Based on this model, natural gas emits approximately 6 percent to 11 percent lower levels of GHGs than gasoline throughout the fuel life cycle.

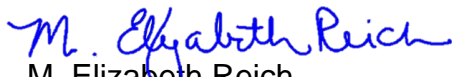
DATE September 8, 2021
SUBJECT **Alternative Fuel Vehicle Infrastructure Overview – Hybrid/EV, CNG, and Biodiesel**

Diesel Vehicles Using Biodiesel – Current Inventory = 1,678



Biodiesel and conventional diesel vehicles are one and the same. Although light-, medium-, and heavy-duty diesel vehicles are not technically alternative fuel vehicles, almost all are capable of running on biodiesel blends. When used as a vehicle fuel, biodiesel can offer considerable greenhouse gas (GHG) emissions benefits. Life cycle analysis completed by Argonne National Laboratory found that emissions for 100 percent biodiesel (B100) are 74 percent lower than those from petroleum diesel. The California Air Resources Board has reported similar values for its life cycle analysis of biodiesel from various sources.

If you need further information or have additional questions, please contact Donzell Gipson, Director of Equipment and Fleet Management, at 214-671-5131.


M. Elizabeth Reich
Chief Financial Officer

c: T.C. Broadnax, City Manager
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Directors and Assistant Directors