



## MEMORANDUM

**DATE:** October 28, 2024  
**TO:** Membership of the Public Utilities Board  
**FROM:** Tom Gramer, Director of Facilities and Fleet Services  
**SUBJECT:** Fleet Experience with Electric Vehicles versus Internal Combustion Engines

### Background

On October 23, 2023, the Public Utilities Board requested a comparison of the City's experiences with electric vehicles (EVs) versus vehicles with internal combustion engines (ICE). The City's current on-road fleet consists of 871 vehicles, with 14 EVs, approximately 2% of the fleet.

The Fleet Services Division regularly meets with departments to discuss fleet operations and obtain feedback on user experience. Based on these interactions Fleet and City departments have reported the following:

### Value

- **Initial Cost:** EVs have a higher initial purchase price than ICE vehicles.
- **Long-Term Savings:** EVs can offer significant cost savings over the vehicle life cycle due to lower "fuel" costs and reduced preventative maintenance needs.
- **Efficiency:** EVs can achieve over 130 miles per gallon of gasoline equivalent.

### Reliability

- **Light-Duty Applications:** EVs have shown promising reliability in light-duty applications.
- **Heavy-Duty Applications:** Reliability is still being assessed, with experiences that are not meeting expectations in battery capacity, charging times, and breakdowns.
- **Challenges:** Concerns persist regarding battery longevity, charging infrastructure, range limitations, and mechanical reliability in heavy-duty applications.
- **Pilot Programs and Data Collection:** Continued efforts are necessary to address these challenges and provide a clearer picture of long-term EV reliability in various applications.

### Recent Experiences

- **Solid Waste and Recycling:** A demo electric trash collection truck faced challenges related to battery life and breakdowns.

### OUR CORE VALUES

Inclusion • Collaboration • Quality Service • Strategic Focus • Fiscal Responsibility

- **Fire Department:** A hybrid/electric fire truck is scheduled for delivery in Q1 FY 2024-25, providing an opportunity to assess heavy-duty hybrid/electric reliability.

### Customer EV Experience

A survey of departments using EVs revealed positive experiences:

- **Overall Performance and Driving Range:** Most users are satisfied.
- **Charging Stations:** Availability of charging stations has room for improvement, with some dissatisfaction on the availability of charging infrastructure.
- **Future Choice:** 100% of respondents would choose an EV for their next work vehicle.

### Fleet's EV Experience

Fleet Services has had positive experiences with light-duty EVs, including:

- **Reduced Maintenance:** EVs require less frequent oil changes and brake replacements.
- **Increased Uptime:** Lower maintenance leads to cost savings and improved vehicle uptime.
- **Reliability:** EVs have experienced minimal downtime and have proven reliable in terms of electric motors and batteries in light-duty applications.
- **Performance:** EVs offer instant torque, quiet operation, smooth handling, and reduced emissions.

Fleet Services will continue to monitor industry trends, participate in demonstrations, pilot programs, and adopt effective solutions to advance the City's electrification goals.

While the City's initial experience with EVs has been positive, challenges related to charging infrastructure and heavy-duty applications remain. Continued efforts to address these challenges and expand the EV fleet are essential to achieving the City's sustainability goals.

### Existing EV Inventory

Department	Electric Vehicles	Make	Model	Model Year
Building Inspections	1	Chevrolet	Blazer	2024
Community Services	2	Chevrolet	Bolt	2018
Community Services	1	Chevrolet	Bolt	2024
DME	1	Nissan	Leaf	2019
Fire	1	Siddons	Engine	2024
Fleet	1	Chevrolet	Bolt	2020
Marketing & Comm.	1	Chevrolet	Bolt	2024
Solid Waste	1	Chevrolet	Silverado	2024
Solid Waste	1	Nissan	Leaf	2021
Solid Waste	2	Chevrolet	Blazer	2024
Environmental Services and Sustainability	1	Chevrolet	Volt	2013
Environmental Services and Sustainability	1	Chevrolet	Blazer	2024

## EV Utilization by Department

Department	Total Vehicles	Electric Vehicles	Percentage EV	Planned EV Acquisitions
Airport	3	0	0%	0
Animal Control	6	0	0%	0
Building Inspections	21	1	5%	4
Community Services	8	3	25%	0
Drainage	15	0	0%	0
Electric	108	1	1%	4
Facilities	14	0	0%	0
Fire	80	1 (New Engine)	1%	0
Fleet	7	1	14%	0
Library	2	0	0%	0
Marketing & Comm.	2	1	50%	0
Parks	65	0	0%	1
Planning	3	0	0%	0
Police	226	0	0%	2
Public Works Inspections	18	0	0%	2
Safety & Training	2	0	0%	0
Solid Waste	114	4	4%	1
Streets	37	0	0%	0
Sustainability	9	2	22%	0
Technology Services	16	0	0%	0
Traffic	10	0	0%	0
Warehouse	1	0	0%	0
Wastewater	48	0	0%	3
Water	56	0	0%	3
<b>Total</b>	<b>871</b>	<b>14</b>	<b>2%</b>	<b>20</b>

Respectfully Submitted,

Tom Gramer, Director of Facilities and Fleet Services  
 940-349-7200  
 Tom.gramer@cityofdenton.com