Public Works Department Fleet Report

Executive Summary

The public works department currently operates a fleet of 13 vehicles, and several pieces of equipment to support operations and parks. Many of the vehicles exceed the recommended service life and mileage limits. Rising fuel and maintenance costs are placing an increased financial burden on the city. These vehicles need to be replaced on a regular schedule to ensure availability during large events, such as the bomb cyclone of 2024, and this past winter's snow storm.

Current Fleet Situation

The public works department currently operates a fleet of 13 vehicles, which includes two administrative vehicles, five heavy fleet (dump trucks), five medium pickup trucks, one street sweeper, and in addition, one backhoe. Also included in the public works fleet are two vehicles assigned to the Community Development Department. One for the building official, the other for the planning staff.

Two vehicles were recently declared surplus by council. Of the vehicles to be surplused, one is a 1997 International Dump Truck, the other, a 1996 Jeep Cherokee.

Purchasing vehicles takes time. After committing a purchase through the state bid, **delivery takes approximately 4 to 9 months**. Once the vehicle is delivered, any required upfitting can add an additional **2 to 4 months before the vehicle is put in service.** In total, it can take between **6 months to a year** to have the vehicle fully operational in the fleet.

Vehicle Status & Replacement Needs

Three vehicles need replacement in this biennium; Vehicle #131, 2005 Chevy Silverado, Vehicle #133, 2006 Ford F550, and Vehicle #136, 2006 Chevy Colorado. Vehicles #131 and #133 will be replaced with like, and Vehicle #136 with a hybrid ½ ton pickup truck.

In addition, the following public works equipment needs to be replaced in 2026. The 2001 New Holland Slope Mower, and the 2007 Scag riding lawn mower.

Public Works Department Fleet

Current Fleet

Year	Make	Model	Use	Miles	Replacement Year	Notes
2005	Chevy	Silverado	PW	109,633	2024	Replace [$73,833]
2006	Ford	F550	Heavy Fleet/Plowing	62,737	2025	Replace [$154,555]
2006	Chevy	Colorado	On-call	152,866	2025	Replace [$66,900*] [Hybrid]
2006	Ford	F550	Heavy Fleet/Plowing	68,784	2027	
2006	Jeep	Cherokee	Building	85,329		Should be replaced
2011	Ford	F550	Heavy Fleet – deicing	9,351	2035	

2012	Ford	Explorer	Planning	56,596		Should be replaced
2012	Ford	F250	PW	62,444	2028	
2013	Chevy	2500	PW	68,074	2028	
2015	International	Dump Truck	Heavy Fleet/Plowing	12,027	2035	
2016	Chevy	Colorado	Superintendent	80,314	2025	Transfer to on-call
2016	Chevy	¾ ton	Operations	43,239	2029	
2016	Chevy	¾ ton	Operations	34,477	2029	
2019	Tymco	Sweeper	PW	17,475	2032	
2024	Ford	F550	Heavy Fleet/Plowing	359	2036	

Current Other Fleet

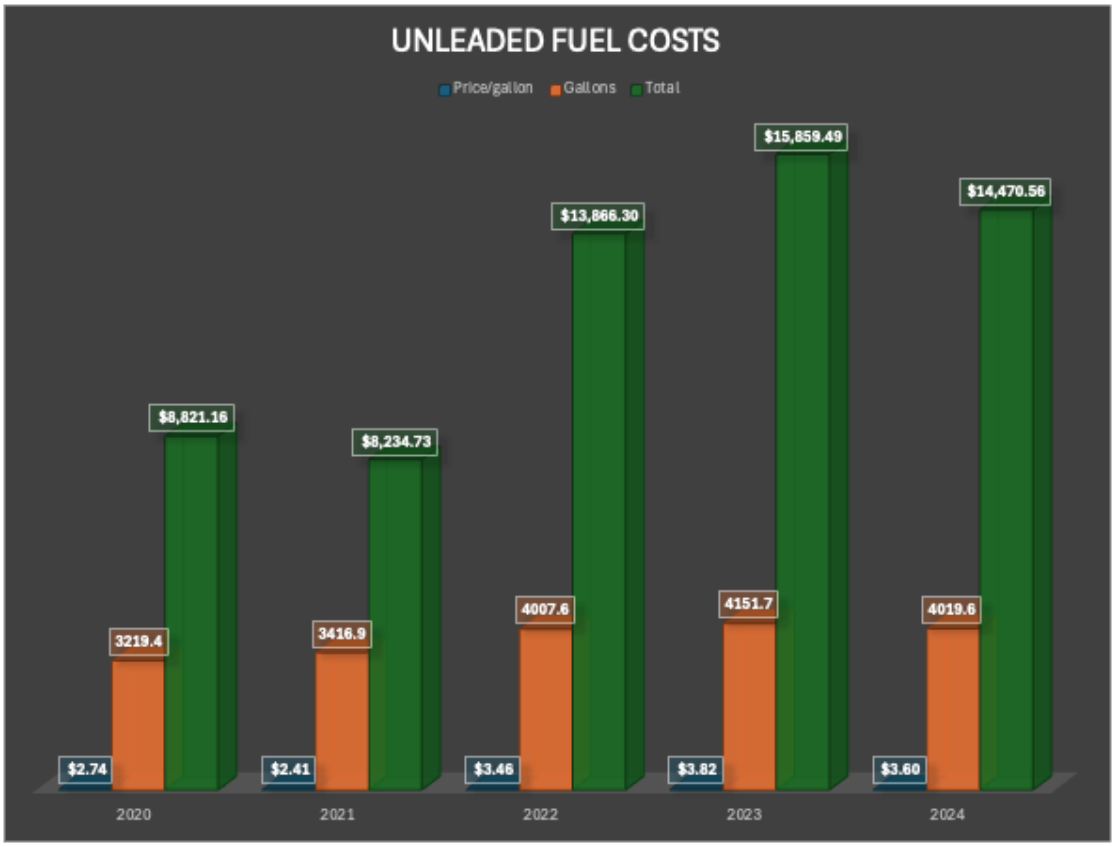
Year	Make	Model	Use	Miles	Replacement Year	Notes
1992	Garland	Utility trailer	Hauling	N/A		Hold
2001	New Holland	Tractor	Slope Mower	N/A	2026	Replace [$200,000+/-]
2004	John Deere	Mower	Mower	N/A	2027	
2008	Spectre	Utility trailer	Hauling	N/A	2028	
2016	Bad Boy	Riding Mower	Mower	N/A	2028	
2020	Case	Loader/Backhoe	Loader/Backhoe	N/A	2040	
2022		Showmobile	Public events	N/A	2037	
	John Deere	Mower	Mower	N/A		
2007	Scag	Riding Mower	Mower	N/A	2026	Replace [$15,000]

Fleet Costs & Maintenance

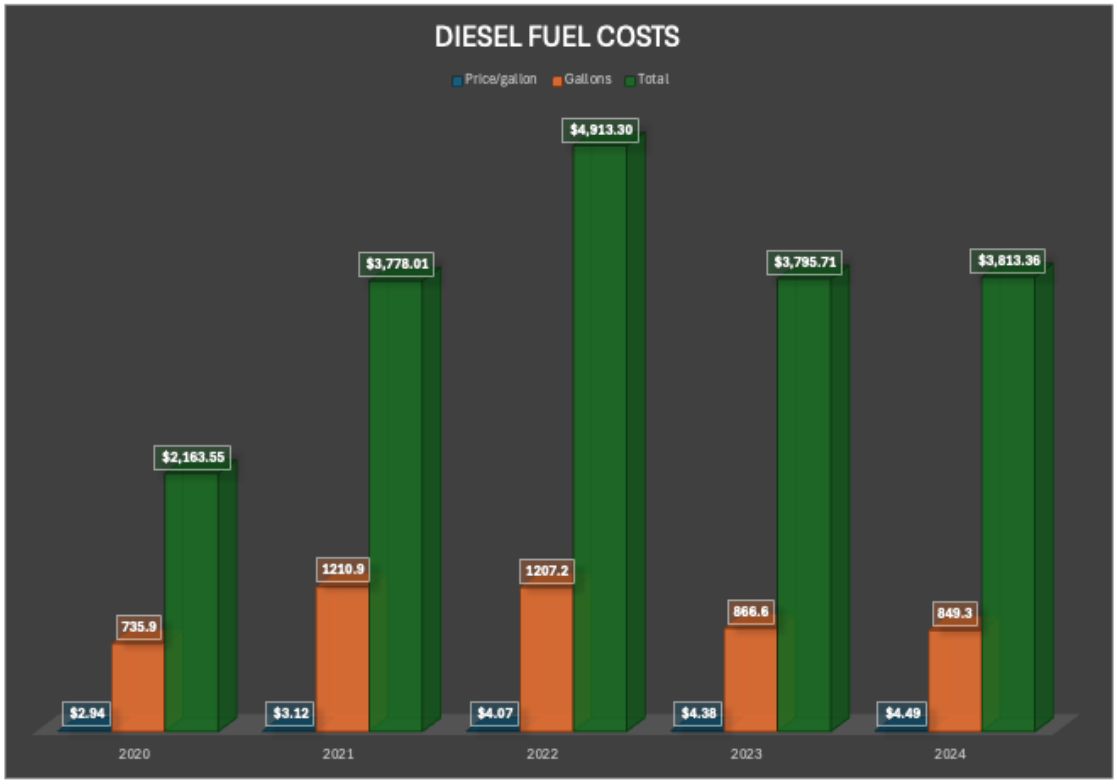
Fuel and maintenance costs are increasing, making alternative fuel vehicles (hybrids and EVs) a cost-saving measure. Currently, the Ford F150 Lightning is the only electric pickup truck on the market that could meet the needs of the superintendent position, and there are no hybrid or electric heavy-duty trucks currently available. Outfitting a public works vehicle ranges from $15,000 (pickup) to $60,000 (dump truck) depending on vehicle and options.

Fuel Costs Over Time

The following charts display the annual fuel costs for the public works department.



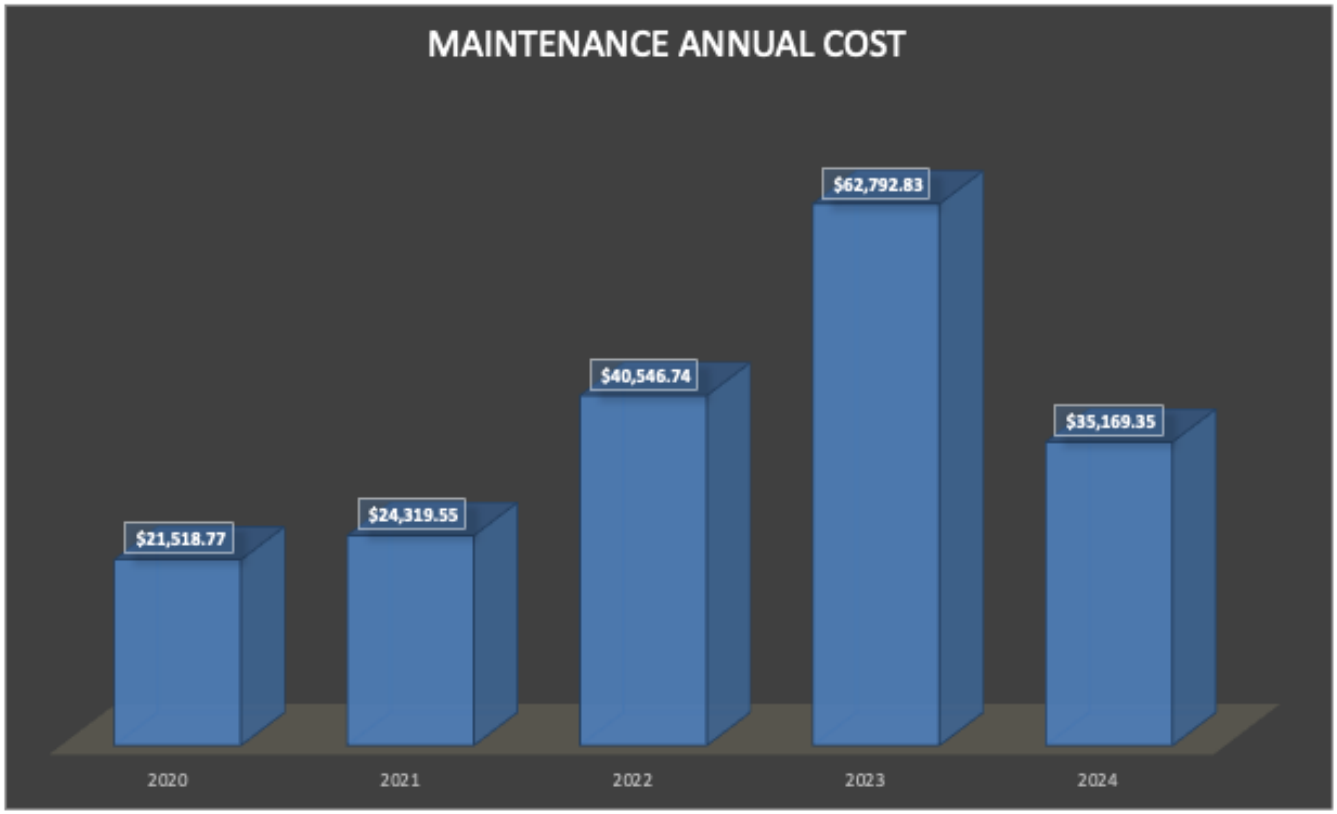
[Fuel cost per gallon is based on first quarter costs paid to NUD in that year]



[Fuel cost per gallon is based on first quarter costs paid to NUD in that year]

Vehicle Maintenance Costs Over Time

The following chart displays the annual maintenance costs for the department.

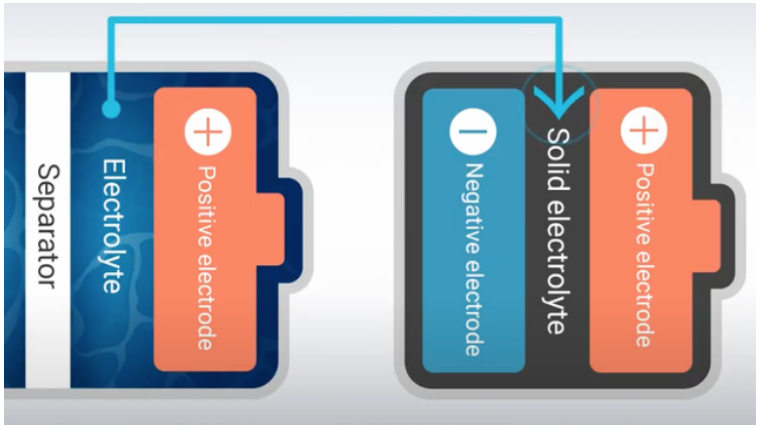


Upgrading to Hybrid/Electric Vehicles (Including Outfitting)

Vehicle Type	Base Cost	Electric Upgrade	PW Outfitting *Estimated*	Cost Per Vehicle
Ford F-150 EV	$61,946	N/A	$15,000	$76,946
Ford F-150 Hybrid	$50,000	$1,900	$15,000	$65,000*

Hybrid and electric vehicles to support a heavy fleet are not currently produced/available in the market. Ford announced that it is opening a new plant in 2026 to increase capabilities of producing heavy duty trucks, and in that statement hinted that the next iteration of Super Duty pickups will gain a hybrid powertrain option. The timeline is uncertain, as evidenced by the recent delay of introducing a new SUV to their lineup as they wait for more advanced battery technology to develop.

Solid State Batteries – The Future



[Solid state batteries could become available by 2030 and would be game changing in the EV world]

Solid-state batteries (SSBs) offer several advantages over traditional liquid electrolyte batteries, such as lithium-ion batteries. Here are some of the key benefits:

1. **Improved Safety**: Solid-state batteries are safer because they use a solid electrolyte instead of a liquid one, which reduces the risk of leakage, flammability, and thermal runaway (a condition where the battery overheats and catches fire).

2. **Higher Energy Density**: Solid-state batteries have the potential for higher energy density, meaning they can store more energy in the same amount of space. This is particularly valuable for applications like electric vehicles (EVs), where maximizing battery capacity while minimizing size and weight is crucial.

3. **Longer Lifespan**: Solid-state batteries are less prone to degradation over time, which can lead to longer lifespans compared to liquid-based batteries. This is because they avoid issues like dendrite growth (which can short-circuit batteries) and electrolyte breakdown.

4. **Faster Charging**: SSBs can potentially charge faster than traditional batteries, making them more convenient for electric vehicles and portable electronics, reducing downtime for charging.

5. **Wide Operating Temperature Range**: Solid-state batteries can operate over a broader range of temperatures compared to liquid batteries, making them more suitable for harsh environments and applications where temperature control is difficult.

6. **Higher Efficiency**: Solid-state batteries can be more efficient because their solid electrolyte offers better ionic conductivity than liquid electrolytes, which means they can transfer energy more effectively.

7. **Reduced Environmental Impact**: The materials used in solid-state batteries (such as certain ceramics) could potentially be less toxic or more sustainable than those in liquid batteries, leading to a reduction in environmental impact in the long run.

Recommendations

1. Transition to hybrid vehicles (as available) to reduce fuel and maintenance expenses.
2. Charging infrastructure is required to support EV deployment, install DC fast chargers at the public works facilities to prepare for an electric transition.
3. Phase in fully electric vehicles as technology advances and more options become available.