

Green Fleet Strategy

2024 Electric Sweeper Pilot



BACKGROUND

The City of Calgary is committed to reducing greenhouse gas emissions by 60 per cent by 2030 and reaching net zero by 2050. Fleet & Inventory is supporting this goal by testing and implementing alternative fuels and technologies through the Green Fleet Strategy to lower emissions from The City's vehicles and equipment.

2024 ELECTRIC SWEEPER PILOT OVERVIEW

The City of Calgary conducted a pilot to evaluate the performance and operational suitability of an electric street sweeper in Calgary. This pilot was a joint effort between Fleet & Inventory and Mobility, and the unit was integrated into the 2024 Spring Clean Up (SCU) street sweeping season.

What

This pilot tested Elgin's 100% Electric Broom Bear sweeper's performance against a group of diesel-fueled Elgin Broom Bear street sweepers.

Why

The goal was to assess whether the Electric Broom Bear would meet Calgary's operational requirements and understand operational differences.

When

The pilot was conducted from May 16 to June 5, 2024.

Where

Mobility's Central District in Calgary.



RESULTS

- ⚙️ **Performance metrics:** The electric sweeper had similar operational metrics to those advertised, with some variations due to location, type of material swept and operational issues.
- 💰 **Cost comparison:** The electric sweeper had a lower cost per kilometer to operate compared to a diesel sweeper.
- 🔧 **Maintenance:** Maintenance cost differences were relatively consistent, but the electric sweeper faced some operational issues. This resulted in 85 per cent uptime, only 4 per cent less than the average studied diesel unit.
- 💬 **Operator feedback:** Operators reported that the electric sweeper performed well and managed the heavier material used on Calgary roads while offering quieter operations. However, they highlighted issues such as reduced uphill power, difficulty steering due to the weight of the electric version.

KEY TAKEAWAYS

- The electric sweeper was able to meet performance expectations. It could complete two and a half shifts before needing to recharge.
- The energy required to operate the electric sweeper cost 50 per cent less than a diesel unit would.
- Operational challenges, such as charging infrastructure, need to be addressed moving forward.
- Operator feedback highlighted areas for improvement in design and functionality.

NEXT STEPS

- Investigate different versions of electric sweepers.
- Plan for another electric sweeper pilot that considers a broader adoption of electric sweepers and its potential impacts.
- Ensure future fleet charging infrastructure can accommodate the needs of heavy-duty electric vehicles and equipment.