



## City of Hamilton Report for Consideration

**To:** Chair and Members  
Emergency and Community Services Committee

**Date:** May 01, 2025

**Report No:** HSC25028

**Subject/Title:** Sole Source of Solar Panel Ambulance Initiative

**Ward(s) Affected:** City Wide

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### Recommendations

- 1) That pursuant to Procurement Policy #11 – Non-Competitive Procurements, Council **APPROVE** the single source procurement of ACETECH™ SOLAR panels and Vehicle Intelligence Module with optional Automatic Vehicle Location (AVL) for the City's ambulance fleet as identified in Report HSC25028 until December 31, 2032; and that the Chief of the Hamilton Paramedic Service or their designate, **BE AUTHORIZED AND DIRECTED** to negotiate, enter into, and execute , any agreements, amendments, extensions, ancillary documents, and necessary associated documents with FERNO Canada Inc. with content acceptable to the General Manager of Healthy and Safe Communities or designate and in a form satisfactory to the City Solicitor; and
- 2) Ensuring That the Chief of the Hamilton Paramedic Service or their designate, **BE AUTHORIZED** to execute amendments to any Contracts executed and any ancillary documents as required with content acceptable to the General Manager of Healthy and Safe Communities or designate and in a form satisfactory to the City Solicitor if a supplier(s) identified in this Report (HSC25028) undergoes a name change.

### Key Facts

- This report seeks approval for the Sole Source procurement of ACETECH™ SOLAR panels and Vehicle Intelligence Module for the City's ambulance fleet.
- ACETECH™ is the only manufacturer offering this integrated solar panel and telematics solution specifically designed for emergency vehicles like ambulances available in the Canadian market.

- FERNO Canada Inc. is the sole Canadian distributor of ACETECH™ products, ensuring direct access to this proprietary technology.
- The project was approved by Council on December 11, 2024, as part of the 2024 City-Led Projects Recommended for Climate Change Reserve Funding.
- The initiative will reduce greenhouse gas emissions, lower operational costs, and improve service resilience and fleet management capabilities.
- The ACETECH™ Vehicle Intelligence Module includes advanced tracking, analytics, and reporting capabilities in a single platform.
- The Vehicle Intelligence Module provides real-time tracking, analytics, and fleet management capabilities, that will ensure Hamilton Paramedic Service meets Ministry of Health standards and regulations under the Ambulance Act.

## Financial Considerations

The Solar-Powered Ambulance Fleet Initiative aims to integrate ACETECH™ SOLAR panels and Vehicle Intelligence Modules into the City of Hamilton's ambulance fleet.

Funding for this initiative will be sourced from the Climate Change Reserve #108062 as it directly supports the City's approved climate change goals.

### Initial Investment

- **Total Estimated Cost:** The initial investment for the Solar-Powered Ambulance Fleet Initiative is estimated at \$240,000. This cost includes the procurement and installation of solar panels and Vehicle Intelligence Modules for the entire fleet. The budget for this installation is reflected in Project id #7642551104, Ambulance Solar Panels.

### Ongoing Maintenance and Operating Costs

- **Source of Funding:** Ongoing maintenance and operating costs (outside the warranty period) will be covered by savings resulting in operational costs savings.
- **Anticipated Costs:** Based on the current pilot, maintenance costs are not expected to be substantial. **Efficiency Measures:** The Vehicle Intelligence Module, is designed to be reused when ambulances are decommissioned, reducing future capital expenditures. New ambulances will be pre-wired for the system from the factory, ensuring quick and seamless installation.

### Cost Savings

- **Projected Annual Savings:** The initiative is expected to yield annual cost savings of approximately \$247,726 through reduced fuel consumption and battery replacement costs.
- **Environmental Benefits:** Projected annual CO2 emissions savings of 154,173.62 kg for 57 ambulances, contributing to the City's climate action goals.

### Solar Panel Reuse and Replacement Strategy

- **Reuse of Solar Panel Modules:** Most of the solar panel modules, Vehicle intelligence module, will be reused on replacement ambulances, except for the actual solar panels, which will be replaced with new ones with each new ambulance.
- **Cost of New Solar Panels:** The current cost for new solar panels is \$950.00 per unit. This cost will be factored into the replacement process for new ambulances.

### Capital Costs Integration

- **Ambulance Replacement Process:** Any additional capital costs associated with this program will be integrated into the new ambulance replacement process, ensuring that future fleet upgrades are efficient and cost-effective.

## Background

The Solar-Powered Ambulance Fleet Initiative with Vehicle Intelligence Module was initially approved by Council on December 11, 2024, through the report "2024 City-Led Projects Recommended for Climate Change Reserve Funding (PED24165) (City Wide)". This approval recognized the project's alignment with the City's climate action goals and its potential for significant operational improvements. Hamilton Paramedic Services currently faces several operational challenges:

- 20 fewer indoor garage spaces than operational ambulances, leading to 24/7 idling of vehicles.
- Ambulances are required to idle outside hospitals to maintain equipment and medication temperatures.
- Increased battery replacements, battery drain issues, and vehicles out of service due to constant auxiliary system operations and failures.

These challenges result in increased greenhouse gas emissions, air pollution, and operational costs. The approved project aims to address these issues while enhancing fleet management capabilities through the implementation of solar panels and advanced Vehicle Intelligence Modules.

## Analysis

The Solar-Powered Ambulance Fleet Initiative with Vehicle Intelligence Module addresses multiple City priorities:

### Environmental Impact:

- Projected annual CO<sub>2</sub> emissions savings of 154,173.62 kg for 57 ambulances
- Annual energy savings of 661,257 kWh for 57 ambulances

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**Operational Efficiency:**

- Reduces need for idling to maintain battery charge and equipment temperatures
- Decreases battery replacements and associated downtime
- The Vehicle Intelligence Module provides real-time tracking, analytics, and fleet management capabilities, improving response times and resource allocation

**Cost Savings:**

- Significant reduction in fuel consumption and battery replacement costs.
- Projected annual cost savings of \$247,726 for 57 ambulances

**Service Resilience:**

- Enables ambulances to maintain critical systems during extended periods without access to traditional power sources.
- Support better fleet management and improved response to emergencies

**Safety and Performance:**

- The Vehicle Intelligence Module can offer features such as safe driver coaching, real-time alerts, and monitoring of vehicle activity to reduce aggressive driving
- Customized analytics and reporting provide valuable insights into fleet performance and safety metrics

**Sole Source Justification:**

- ACETECH™ is the only manufacturer offering this integrated solar panel and telematics solution specifically designed for emergency vehicles like ambulances.
- FERNO Canada Inc. is the sole Canadian distributor of ACETECH™ products, ensuring direct access to this proprietary technology.
- The system's compatibility with existing fleet infrastructure ensures seamless implementation without requiring additional modifications or investments.

The ACETECH™ SOLAR solution with Vehicle Intelligence Module is recommended for sole-source procurement through FERNO Canada Inc. based on its specialized design for emergency vehicles and proven performance. ACETECH™, founded in 2006, is headquartered in Tullamore, County Offaly, Ireland, and is a global leader in Vehicle Intelligence for emergency service fleets, with over 65,000 solutions installed worldwide across more than 100 countries. FERNO Canada Inc., located in Mississauga, Ontario, is the exclusive distributor of ACETECH™ products in Canada.

The technology has demonstrated its ability to maintain battery systems even when vehicles are inactive for extended periods without access to shore power. For example, Ambulance #2545 equipped with ACETECH™ SOLAR panels maintained battery health during a 10-day period without traditional charging sources while parked at a collision centre (Appendix A). The solar panels provided renewable energy to sustain onboard systems, eliminating downtime and costly battery replacements typically required under such conditions.

ACETECH's Vehicle Intelligence Module offers comprehensive features including:

Performance monitoring: Provides data on vehicle utilization, battery health, and operational efficiency.

Safe driver coaching: Reduces aggressive driving behaviours through real-time alerts and feedback.

Customized analytics: Delivers actionable insights into fleet performance and safety metrics.

Sole sourcing both the solar panels and Vehicle Intelligence Module (and associated software and hardware components) across the fleet ensures consistency in operations, maximizes the benefits of staff training, and streamlines maintenance procedures. The integrated system provides a comprehensive solution for energy management, fleet tracking (optional), and performance optimization.

This initiative aligns with the City's commitment to data-driven decision-making and ongoing monitoring of project outcomes. The Vehicle Intelligence Module will facilitate the collection and reporting of crucial operational data, including greenhouse gas (GHG) emission reductions, battery performance, vehicle utilization, and financial savings. Key benefits include projected annual CO<sub>2</sub> emissions savings of 154,173 kg for 57 ambulances and annual cost savings of \$247,726 CAD through reduced fuel consumption and battery replacement costs (Appendix B).

By leveraging ACETECH™'s proprietary technology distributed exclusively by FERNO Canada Inc., Hamilton Paramedic Service will modernize its ambulance fleet while achieving significant environmental and operational benefits.

## **Alternatives**

None

## **Relationship to Council Strategic Priorities**

This initiative aligns with multiple Council Strategic Priorities for 2022-2026:

1. Sustainable Economic & Ecological Development
  - 1.1 Accelerate our response to climate change: The Solar-Powered Ambulance Fleet Initiative significantly reduces greenhouse gas emissions, with projected annual CO<sub>2</sub> savings of 154,173.62 kg for 57 ambulances<sup>1</sup>

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<sup>1</sup> Appendix "A"

## 2. Responsiveness & Transparency

- 2.1 Prioritize customer service and proactive communication: Real-time tracking and analytics provided by the Vehicle Intelligence Module enable more responsive and efficient emergency services.
- 2.2. Build a high performing public service: The initiative enhances the performance and efficiency of Hamilton Paramedic Services through improved fleet management and reduced operational costs.
- 2.3. Modernize City systems: The implementation of advanced solar technology and vehicle intelligence systems represents a significant modernization of the City's ambulance fleet.

## Previous Reports Submitted

- 2024 City-Led Projects Recommended for Climate Change Reserve Funding (PED24165) (City Wide)

## Consultation

- David Trevisani, Manager, Finance and Administration, Corporate Services
- Jennifer Sheryer, Solicitor, Corporate Services
- Tina Iacoe, Director Procurement, Corporate Services
- Cyrus Tehrani, Chief Digital Officer and Director of Innovation, City Mangers Office

## Appendices and Schedules Attached

Appendix A: Hamilton Paramedic Service (HPS) Solar Power Pilot

Appendix B: Ireland Solar Power Case Study

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