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Edmonton Valley Line LRT Project Profile

- Project:** Edmonton Valley Line LRT Project
- Agency:** City of Edmonton
- Soteria's Role:** System safety and security planning, analysis and certification
Reliability, availability and maintainability
- Completion:** October, 2021

Project Overview

The Edmonton Valley Line LRT Project is an LRT system that connects the Mill Woods area with downtown Edmonton. It is comprised of low-floor, urban styled LRVs which run on a dedicated right-of-way that is integrated into the city landscape.

The System consists of approximately 13km of dual guideway, with approximately 2km of the guideway elevated. The line also runs through a 0.5km tunnel (Quarters Tunnel), and over two fully dedicated LRT bridges (Tawatina Bridge and Whitemud LRT Bridge).



There are 12 stops on the route, an elevated station which is integrated into a newly constructed transit center and park and ride facility. The project also includes a transfer point in the downtown area at Churchill Square. The transfer point, called the Churchill Connector, is a modification to the existing underground station whereby an additional access point with stairs/escalators/elevators is provided at Churchill Square.



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The line runs through 44 intersections, and has 11 crossovers located to facilitate system operation and maintenance. Train movement is guided by a signaling system. Movement through intersections is supported by LRT traffic signals and grade crossing warning systems. Power is provided to vehicles from 11 Traction Power Substations (TPSSs) spaced along the right-of-way via an Overhead Catenary System and returned through the track. An Operations and Maintenance Facility is powered from its own dedicated TPSS. A fleet of 26 LRTs will be operated in different configurations (single or double) depending on planned service level requirements.

Soteria's Contribution to This Project

Soteria is leading the Safety and Security Certification Program and the Independent Verification and Validation (IV&V) Process, including the following activities::

- Develop the **Certifiable Elements List**, identifying elements critical to safety and security of City's employees, emergency responders, and the public.
- Develop **Design Criteria and Construction Specification** checklists that reflect safety and security certifiable elements across all project areas. Facilitate and manage the documentation of verification evidence for all identified elements at both design and construction stages.
- Lead **Safety and Security Certification Review Team** meetings to report progress to the City, inform the City of any issues encountered during the process, and allow for continual input from the City throughout the certification process.



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- Lead regular **IV&V Team Meetings** and manage the effort including organization and monitoring the documentation files.
- Review and provide **technical input** to PHA, FMEA, O&SHA and other analyses, as necessary, to define the safety and security requirements and design mitigations needed while tracking implementation through the entire project life cycle.
- Prepare a **TVA** to identify evaluate, track and resolve potential security threats and vulnerabilities of the Project, and to ensure incorporation of applicable CPTED principles for deterrence of criminal behavior and as identified in the project requirements and the City's Design Guide for a Safer City.
- **Manage open items** associated with the Safety and Security Certification Program and maintain an Open Items List to confirm that the necessary actions are taken to close these items prior to revenue ready status; or to confirm that measures approved by the City are in place as a condition of granting revenue ready status.
- Identify **tests** to be performed and essential **training requirements** for operations, maintenance, and emergency response personnel.
- **Monitor open items** that arise during design and construction with particular emphasis on developing a Safety Critical Items List.
- **Support verification of operational readiness**, including any required pre-revenue demonstration tests, emergency drills, and walkthrough inspections.
- Support the development of a **System Safety Program** and prepare a **System Security Plan** for design and construction.
- Prepare the **Safety and Security Certification Verification Report (SSCVR)** upon final determination of project readiness, and complete certification to enter into revenue service. The SSCVR and any appendices will be the final deliverable of the safety and security certification program, providing the documentary evidence of Project certification.