

CASE STUDY

# Engineering Reliability for a Growing Transit System

How GDI Ainsworth retrofitted the Edmonton LRT system in real time, reducing downtime and preparing for future expansion.



## Project Details

### Location

Edmonton, Canada

### Number of Buildings

18 stations and 30+ associated buildings

### System Implemented

Customized Delta Controls ORCAweb platform for system-wide user access management, monitoring, and instant-response issue resolution

### Project Goal

Retrofit the LRT controls system while active, ensuring scalability for future expansion and minimizing downtime for thousands of daily commuters

## Impact at a Glance

- ✓ Successfully retrofitted the entire active LRT controls system without major shutdowns or service disruptions
- ✓ Decreased system glitches and downtime through continuous monitoring and instant issue resolution
- ✓ Delivered a scalable, cost-effective platform capable of supporting future network expansion for growing commuter demand
- ✓ Enabled operators to respond faster and more effectively to system issues through the customized ORCAweb interface

## Challenge

The City of Edmonton required a controls system upgrade that could support future transit expansion—but the retrofit had to be completed while the light rail system remained fully operational.

The LRT manages over 100 different user types, each with unique access levels, and any system glitch could cause major service impacts.

GDI Ainsworth needed to implement a modern, scalable controls platform with zero tolerance for downtime.

## Methodology

Conducted a comprehensive assessment of the existing controls architecture to ensure compatibility with long-term expansion plans.

Customized the Delta Controls ORCAweb platform to accommodate over 100 user types, each requiring tailored access permissions.

Developed a phased retrofit strategy to avoid shutdowns of the active LRT system.

Implemented real-time monitoring and rapid-response protocols to address system issues instantly.

Provided continuous operator support to ensure smooth adoption of the new interface.

## Solution

✓ Custom configuration of the ORCAweb platform for scalable, multi-user access

✓ Tailored access-level design for more than 100 unique operational user types

✓ Integration of real-time monitoring tools to detect and address glitches immediately

✓ Implementation of an instant-response workflow to prevent service interruptions

✓ Retrofit execution across all active LRT stations and buildings without major shutdowns

Optimization of operator interfaces to enhance usability and speed of issue resolution

## The Ripple Effect

The upgraded controls system supports Edmonton's long-term transit expansion strategy, which reduces downtime for daily commuters.

The city now has an improved reliable, scalable, future-ready controls platform adaptable to growing ridership.

