

The role of remote monitoring in achieving savings over \$1 million during a condominium excavation

Country

Canada

Project type

Rail track & ground monitoring

Sector

Infrastructure

Main product

Monitoring solution

Context

In Toronto, Canada, a condominium excavation is adjacent to a major provincial public transport corridor. Monitoring this critical artery is crucial to maintaining smooth operations and service continuity for passengers. Daily monitoring readings are required to manage the multiple challenges of the project:

- **Ground monitoring**, in an area with poor soil conditions, potentially leading to more than desirable movements during excavation.
- **Infrastructure monitoring**, ensuring the safe passage of pedestrian trains, through one of Canada's busiest rail corridors.
- **Rail tracks monitoring**, in a very busy area, which is costly and challenging to access on a daily basis.
- **Slope monitoring**, ensuring the project's surroundings remain stable.

Solution

Considering the complexity of the project, the project operator contracted Monir Precision Monitoring, an industry-leading firm specialized in construction monitoring. The company considered geotechnical, structural, and financial parameters, leading to their choice to combine their expertise with the WorldSensing remote monitoring solution. An automated system, connected to five ThreadX3, was deployed to monitor both the closest support-of-excavation wall and the railways, allowing continuous readings without requiring access to the corridor for each reading.

An automated total station monitoring system with prisms on the running rails of the active track, in-ground settlement points, slope monitoring, and precision monitoring of the train signal bridge were all vital in ensuring the safe passage of passenger trains during the excavation and construction of the condominium tower. Within the shoring excavation, five ShapeAccel Arrays were installed to monitor the shoring performance continuously. At the track overpass along Parliament Street, tilt beams were installed to monitor the abutment wall of the tracks nearest the site.



SUCCESS STORY | The role of remote monitoring in achieving savings over \$1 million during a condominium excavation

“Worldsensing’s Threads are extremely reliable. We were able to program higher frequency readings and drastically reduce financial impact. Our client's cost-savings for implementing the automated monitoring plan was over 1-million CAD.”

Samantha Ford

General Manager

Monir Precision Monitoring Inc.

Results

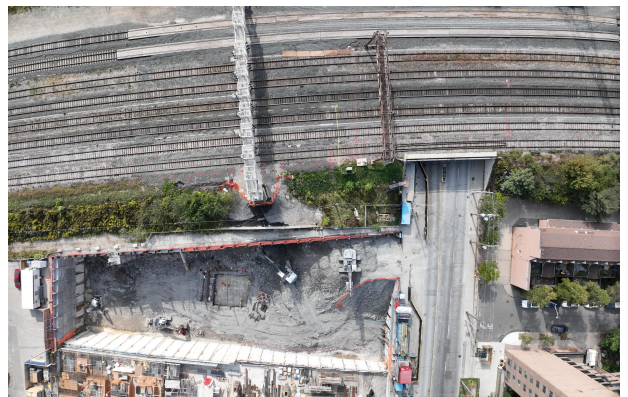
The implementation of ThreadX3 helped reduce setup time, installation, and preparation. The plug-and-play features allowed simplicity and confidence in setups for operators. Additionally, their installation was key to powering and transmitting critical site data to the off-site monitoring data collection platform, allowing Monir Precision Monitoring to quickly react to changes and notify the project team of any alterations.

Finally, the installation of the automated monitoring system enabled a reduction in the financial impact of daily manual readings, allowing for higher frequency readings (more than once per day). Movement trends were easily identified, allowing the team to progress with excavation work in a timely manner. The automation of results also reduced the impact of human error, and cyclical weather changes that are not as easily identified using manual reading methods.

The implementation of the automated system provided additional protections and safety to commuters relying on the public transit system while also reducing monitoring costs.

Advantages

- An automated monitoring system connected to five ThreadX3 devices facilitated a comprehensive grasp of the project, covering everything from ground movement to rail track monitoring.
- Remote monitoring allowed more frequent and real-time data collection, leading to a cost-saving of over 1-million CAD.
- Passengers were not impacted by the excavation and construction, as transport services were maintained and safety was guaranteed.



DISCLAIMER:

All Content published or distributed by Worldsensing is made available for the purposes of general information. You are not permitted to publish our content or make any commercial use of our content without our express written consent. This material or any portion of this material may not be reproduced, duplicated, copied, sold, resold, edited, or modified without our express written consent.