

HOW THE CITY OF WINNIPEG ADDRESSED TRAFFIC ISSUES AT RAIL CROSSINGS WITH TRAINFO

TRAINFO Mobility's real-time rail crossing information is helping drivers avoid traffic delays and reduce collision risk.



CASE STUDY SNAPSHOT

Customer: City of Winnipeg

Population: 650,000

Challenge: Traffic delays at rail crossing on Waverley St

Solution: TRAINFO Mobility™

Results: 25% reduction in traffic delay, fewer public complaints, safer driver behavior

TRAINS CAUSING TRAFFIC DELAYS ON WAVERLEY ST

Nearly 40 trains per day block traffic on Waverley St including commuters and emergency responders. Negative media attention and public complaints have increased pressure on city engineers to fix the problem, but existing options like grade separation are costly and disruptive to the community.



The City of Winnipeg has more than 230 at-grade rail crossings, the most of any city in Canada. This is due to the intersection of CN and CP mainlines in Winnipeg and the 7,300 lane-km of arterial road network. More than 50 trains travel through Winnipeg each day and often block crossings during peak periods.

The City has been challenged with rail crossing blockages on Waverley St for decades. Waverley St is a major north-south arterial with two-lanes per direction, a posted speed limit between 60 and 70 km/h, and approximately 30,000 vehicles per day. It serves residential, commercial, and industrial land uses. Parallel roads are grade separated and offer an alternative route, but the City does not have a way to notify drivers when there's a train.

The City was challenged with numerous problems, including:

- Travel delays impacting commuters, trucks, and emergency vehicles
- Negative news articles (like the one shown above)
- Daily public complaints, political pressure, and demands for improvements
- Community opposition to grade separation as an improvement option
- Infeasibility of rail relocation

The City completed numerous studies and explored several options to address traffic delays at this crossing. In 2016, one year before TRAINFO existed, the City approved the construction of an underpass. In 2017 the City implemented TRAINFO Mobility™ to serve as an interim solution during construction.



CITY OF WINNIPEG IMPLEMENTS TRAINFO MOBILITY™

TRAINFO Mobility™ collects train and traffic data using roadside sensors and wirelessly transmits this data to TRAINFO's cloud server. Machine-learning algorithms predict crossing blockages and traffic delays and displays this information on an electronic roadside message sign.



Step 1: Install train detectors, Bluetooth sensors, and dynamic message sign

City technicians installed three train detection sensors, two Bluetooth sensors, and one portable dynamic message sign (DMS). All equipment was installed on public right-of-way. Train sensors were installed on poles along the rail line, Bluetooth sensors were installed on traffic signals on either side of the crossing, and the DMS was placed 1.6 km before the crossing to allow drivers to re-route around blocked crossings.

Step 2: Collect crossing blockage and vehicle travel time data

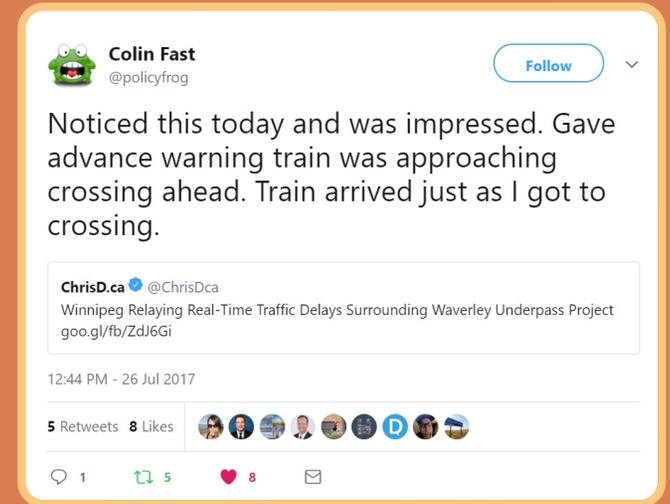
Train detectors determine when a train is approaching and when a crossing is blocked. Bluetooth sensors determine how long it takes vehicles to cross the tracks. Each sensor uses cellular communications to wirelessly transmit data to TRAINFO's cloud server.

Step 3: Analyze data

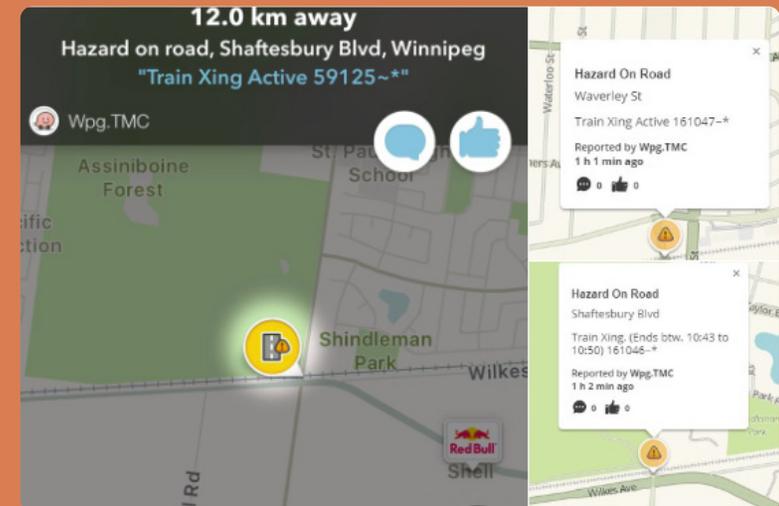
Our machine-learning algorithms receive data from the train sensors to predict when blockages will occur and receive data from the Bluetooth sensors to predict traffic delays expected from these blockages. This information is then delivered to the DMS.

Step 4: Notify drivers about blocked crossings and expected delays

The portable DMS informs drivers when the crossing is blocked and the amount of delay to expect. When there's no train, the DMS provides current travel time information for Waverley St.



Tweet by Local News Reporter commenting on the effectiveness of TRAINFO Mobility. Similar responses have been provided by other motorists on Waverley St.



TRAINFO is integrated into Waze and the City's Traffic Management Centre. These images show what drivers see on their phone when a crossing is blocked.

“I use the roadside sign every day to decide if I should re-route around the crossing.”

- Winnipeg motorist

“Now that I see the amount of delay to expect, I don't see why we need an underpass.”

- Winnipeg motorist

TRAINFO REDUCES TRAFFIC DELAYS AND PUBLIC COMPLAINTS

It turns out that most drivers didn't really want an underpass, they just wanted information to help them make better driving decisions. Traffic delays have been reduced, there are fewer complaints, local businesses are serving more customers, and additional federal and municipal funding is being directed to city engineers to use TRAINFO Mobility at other crossings in Winnipeg.

TRAINFO Mobility produced six main benefits for the City of Winnipeg:

- 1. Fewer public complaints.**
Since implementing TRAINFO Mobility, the City has received fewer complaints about this crossing and generated positive media attention.
- 2. Reduced traffic delays.**
Vehicle-hours of delay due to blocked crossings have decreased by 25%.
- 3. Reduced GHG emissions.**
Vehicle emissions due to idling vehicles at blocked crossings have decreased by 25%.
- 4. Improved local business.**
Nearby businesses have noticed increases in customer traffic.
- 5. Faster EMS response time.**
The City is now capable of providing real-time information to emergency responders and help them avoid blocked crossing delays.
- 6. Better signal timing data.**
Travel time information provided by TRAINFO Mobility is helping the City's traffic signal engineers improve signal timing along Waverley St.



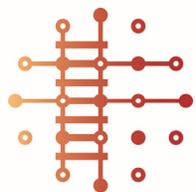
Tweet by City Councillor Janice Lukes suggesting that TRAINFO Mobility could have saved the City over \$150 million.

Want to know more?
To find out how TRAINFO can help your city,

Visit us at: TRAINFO.ca

Email us at: contact@trainfo.ca

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