How the City of London used TRAINFO to enable data-driven decisions for major infrastructure projects

TRAINFO Congestion Analytics helped the City quantify traffic delays at several rail crossings to guide their rapid transit project.

CASE STUDY SNAPSHOT

Customer: City of London

Population: 388,000

Challenge: Unable to accurately quantify traffic delays to support the planning and design of a bus rapid transit project.

Solution: TRAINFO Congestion Analytics™

Results: Improved responses to Council about the traffic impacts of blocked crossings & critical input for rapid transit decisions

TRAIN CROSSINGS THREATEN RAPID TRANSIT PROJECT

The City of London approved a $500 million project to implement a bus rapid transit system; however, the downtown Richmond St route intersects with a busy rail crossing. Many doubted whether the transit system could operate effectively on Richmond St without an underpass. The cost of the underpass would exceed $150 million, potentially jeopardizing the rapid transit project. The City needed reliable information about the traffic impact of the rail crossing.

Rendering of London's bus rapid transit corridor

The initial plan for the bus rapid transit corridor on Richmond St included a rail crossing underpass due to concerns about traffic delays caused by blockages. That plan was scrapped, partially due to the cost and associated risk of the project exceeding available funding. The City needed strong information to understand the traffic impacts of crossing blockages to help plan and design the rapid transit system and assure the public that the transit system could operate effectively despite the delays by trains. However, accurate and reliable information did not exist.

The City was challenged with numerous challenges, including:

- **Lack of accurate, reliable, and timely information about rail crossing blockages**
- **Inability to confidently respond to public concerns about crossing impacts on rapid transit**
- **Risk of exaggerated claims by the public and media about traffic delays on Richmond St**

The City referenced publicly-available sources from Statistics Canada and Transport Canada to obtain train volume data. However, this data did not provide time-of-day blockage information or details about how long crossings were blocked. Further, there were no data sources that quantified traffic delays caused by blocked crossings. Ultimately, existing data sources proved insufficient.

LONDON IMPLEMENTS CONGESTION ANALYTICS™

TRAINFO Congestion Analytics™ measures traffic delay for individual vehicles during every blocked crossing event. Trackside sensors installed on public right-of-way monitor rail crossing blockages and Bluetooth sensors installed along the corridor measure vehicle travel time. These sensors wirelessly transmit this data to TRAINFO's cloud server. TRAINFO provides information through an online data portal with a live map, interactive dashboard statistics, and downloadable files.
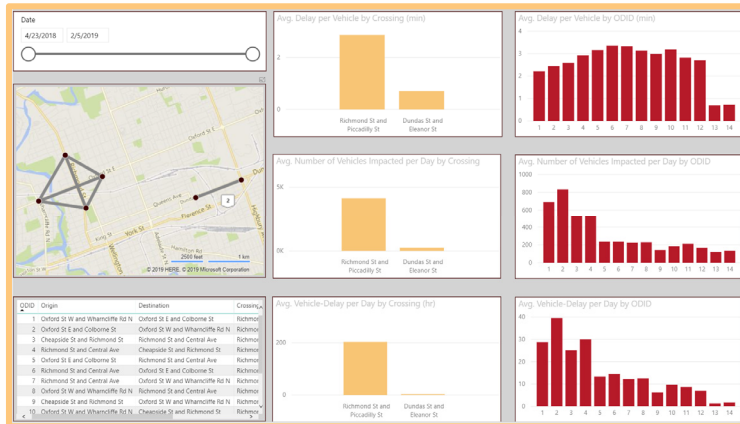
Interactive online dashboard with detailed statistics and dynamic data filtering tools.

Train detection sensor installed at the Richmond St rail crossing

How it works

TRAINFO delivered train detection sensors, Bluetooth sensors, and solar panels to the City of London. City staff installed a train detection sensor at the Richmond St crossing and another two sensors at other locations (Adelaide St and Dundas St crossings). These sensors were installed on existing poles adjacent to the crossing and included solar panels for power. The sensors use specially designed microphones to detect crossing blockages and wirelessly transmit this data to TRAINFO's secure cloud servers.

City staff also installed Bluetooth sensors at six intersections surrounding the crossings. These sensors identify unique Bluetooth devices (e.g., smartphones) and can calculate travel time with and without crossing blockages. They can also determine changes in travel patterns when crossings were blocked. For instance, the sensors can measure turning movement changes at intersections near the crossing when it's blocked. This insight can help adjust traffic signal timing plans to accommodate these temporary changes in travel patterns.

TRAINFO provides real-time and predicted crossing blockage and travel time information to the City through an online portal. This portal contains a live map showing when each crossing is blocked (updated every minute), an interactive dashboard with detailed historical trends and statistics (updated hourly), and downloadable raw data files (updated daily). TRAINFO also provides the City with an application programming interface (API) that allows them to integrate this information into their public information systems and web pages.
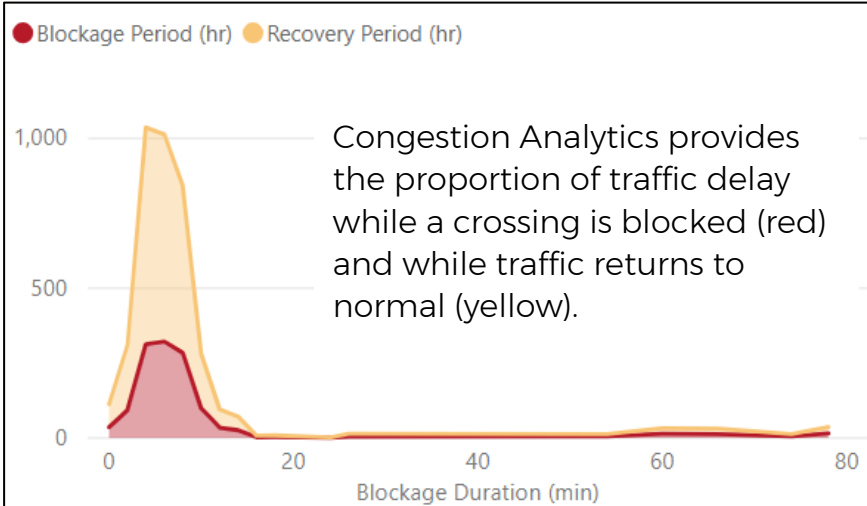
"We looked into options when council directed us and this is an emerging technology. We expanded the program to include other corridors, but it was BRT related, originally," said Soldo.

Edward Soldo, the city's director of transportation shown here at the CP Rail crossing at Richmond Street, says, "We're looking to get a better understanding of when the trains are coming, and how long are the delays." Derek Ruttan/The London Free Press

Congestion Analytics provides the proportion of traffic delay while a crossing is blocked (red) and while traffic returns to normal (yellow).

"The TRAINFO product enables data-driven decision making due to train delays and can be a vital component to better inform travelers, allowing them to make better travel choices and reduce frustration."

- Jon Kostyniuk, Traffic & Transportation Engineer
City of London

"With real-time travel information, bus service will be managed accordingly [when blocked by a train]. People will be able to plan their routes with the real-time information."

- April Kemick, Director of Communications
City of London

TRAINFO HELPS GUIDE CITY OF LONDON'S BUS RAPID TRANSIT PROJECT

The City used TRAINFO's information to assess and validate the expected performance of the bus rapid transit system at the Richmond St rail crossing. This information helped the City avoid constructing a costly underpass which would have exceeded the available funding for the project. City engineers used TRAINFO's data for Council meetings and presentations to respond promptly and confidently to their questions and concerns.

TRAINFO Congestion Analytics produced 4 main benefits for the City of London:

1. **Inform and guide major transportation projects.**
   Existing data were unable to estimate the impact blocked rail crossings on Richmond St would have on bus rapid transit. This uncertainty generated doubt and opposition to the rapid transit project. TRAINFO provided reliable information to help curb this opposition and allowed the City to make data-driven decisions about the project to ensure its success.

2. **Credibility and respect.**
   TRAINFO's crossing blockage information has allowed the City to claim authority over the issue. City engineers have been able to confidently present information to City Councillors and demonstrate credibility about their plans and designs for bus rapid transit on Richmond St.

3. **Message control.**
   The media and the public (via social media) often report blocked crossings and provide their own estimates on the amount of delay experienced. These reports sometimes exaggerate the delay and can create a distorted reality about the issue. The City can now pre-empt social media posts by the public about traffic delays at rail crossings and control the message.

4. **Options to effectively address traffic delays at rail crossings.**
   Traffic delays at rail crossings occur frequently in London and grade separation and rail relocation are infeasible at nearly all crossings. TRAINFO provides the City with an effective response to address these delays and reduce traveler frustration.
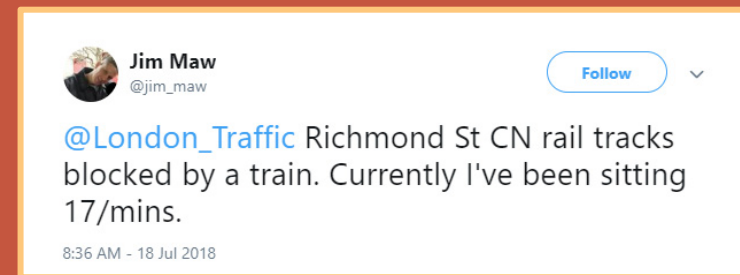
One of many tweets from the public about blocked crossings in London. With TRAINFO, the City can now control these messages by providing information more quickly and accurately than the public.

To find out how TRAINFO can help your city,

Visit us at: TRAINFO.ca
Email us at: contact@trainfo.ca
Call us at: 1-888-572-7746

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