

## CASE 16

### When the Midnight Train is the first of many: Dealing with Irregular and Unsafe Railway Crossings in the City of London

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While visiting a local school, the mayor of London was asked a simple question by a grade three student: “Why aren’t there flashing light barriers at all railway crossings that are close to the places where children play”?

“Great question,” the Mayor responded. Why weren’t there better safety measures in place in the London area? Why did parents of young children have to worry about the safety of their children when they were close to home? Why do London, Ontario and the surrounding areas have some of the highest train-pedestrian accident rates across the country?

The mayor did not have answers to any of these questions, but he knew something needed to be done. But what? And by whom?

#### THE CITY OF LONDON AND SURROUNDING AREA

Known as the Forest City, London was founded in 1826 and has flourished and expanded since then to reach its current population of approximately 400,000 people. London is the seat of Middlesex County (containing many other small townships) and is surrounded by Perth and Huron County to the north, by Oxford County to the east, by Elgin County to the south, and by Chatham-Kent and Lambton counties to the west. London is a regional centre of health care and education, home to Western University and Fanshawe College. London is one of the largest cities in the province of Ontario. It has an international airport as well as train and bus stations. Located in the southwest region of the province, London and the surrounding area have become natural corridors for freight and passenger trains, with many train tracks located in accessible, public areas and on residential streets throughout the city.

#### RAILROAD COMPANIES

There are two major freight companies currently using the London corridor: Canadian Pacific Railway (CP) and Canadian National Railway (CN). Canadian Pacific Railway stretches across Canada and its history in London dates to 1873. Canadian National Railway’s tri-coastal network spans Canada from east to west with 20,000 track miles. There have been concerns about the goods these two companies carry, and it has been noted that 10% of goods shipped by CP and 14% of goods shipped by CN through London are dangerous products such as chemicals and petroleum gases (Dubinski, 2017). Although CN and CP predominantly transport goods, CP was previously Canada’s largest passenger train company before VIA Rail Canada was established. VIA Rail operates the national passenger rail service on behalf of the Canadian government (Via Rail Canada, 2020). However, 98% of the passenger railroads used by VIA Rail Canada are networks owned by CP or CN (Via Rail Canada, 2020). VIA Rail Canada operates more than 475 train departures every week on a 12,500 km railroad network that connects more than 400 Canadian communities (Via Rail Canada, 2020). Some of these

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trains travel through downtown London at regular intervals throughout the year. Although passenger trains tend to run on predictable and routine schedules, freight trains do not. Canadian Pacific Railway and CN trains operate 24 hours a day, seven days a week. Some rail lines in London may only carry one or two trains each week, whereas busy corridors can carry more than 30 trains per day along 65 rail crossings (Dubinski, 2017).

### **THE TRANSPORTATION CHALLENGE**

The Transportation Safety Board of Canada is an independent agency that investigates marine, pipeline, railway, and aviation transportation occurrences with an aim to make recommendations that boost transportation safety (Transportation Safety Board of Canada, 2019a). Records from 2008 to 2018 reveal that 175 railway crossing accidents occur each year in Canada (Transportation Safety Board of Canada, 2019a). This equates to about one accident every two days. A total of 252 people have been killed since 2008, and 302 people have been seriously injured from rail crossing accidents (Transportation Safety Board of Canada, 2019a).

Because the reality of trains in London is not changing, the need to address the concerns about safety is essential. Within London there are several dangerous rail crossings that have no gates or barriers to block the road. The main concern is the safety of pedestrians at these crossings.

Rail crossings in London are typically prone to risk. Specifically, data gathered from 2000 to 2015 listed a St. George street crossing as one of the top 25 accident-prone rail crossings in Canada (Marcoux, J. et al., 2016). Accident reports from London crossings also revealed concerns about several widespread design flaws in the railway crossings, including lack of visible railway signage, lack of pedestrian gates, poor maintenance of existing crossings, and lack of adequate warning signals (Transportation Safety Board of Canada, 2019b). Problems exist with lines of sight, a lack of gates and warnings, and confusing lights (Transportation Safety Board of Canada, 2019b). Not only do these problems exist in London but they also exist across Canada. Many believe there is a lack of adequate warning systems for pedestrians and motor vehicles.

The Canadian Council of Motor Transport Administrators (CCMTA), which includes representation from provincial and territorial governments as well as the federal government of Canada, coordinates all matters dealing with the administration, regulation, and control of motor vehicle transportation and highway safety (CCMTA, 2018). The CCMTA aims to address Canadian road safety priorities to improve the safety and efficiency of Canadian passenger and goods transportation (CCMTA, 2018). According to the CCMTA, there are many pedestrian-focused solutions for rail-grade crossings, including signs encouraging pedestrians to take specific actions. These solutions can include active and/or passive devices. Active devices are those that give advanced notice of a train approaching, such as flashing light signals, bells, and automatic gates (United States Department of Transportation, 2019). Physical barriers such as fencing can be installed to encourage pedestrians to look both ways before crossing. Pavement markings can delineate the pathway to indicate where people should stop when waiting for a train. Other active systems that use auditory and visual signals, such as pedestrian gates or loud warning bells/flashing signs, can be installed to warn pedestrians that a train is approaching. In contrast, passive devices only indicate that there is a crossing and the pedestrians or people in motor vehicles must look for an approaching train and then take appropriate action (United States Department of Transportation, 2019). The United States Department of Transportation (2019) has shown that active traffic control devices are a more effective method of improving railway crossing safety and reducing collisions.

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In Canada, however, only 17% of all 17,000 railways have gates, and the primary purpose of these gates is to control motor vehicles. An additional 22% of crossings have flashing lights and/or bells (Marcoux, J., & McDonald, J., 2016). This means that together, just slightly more than one-third of railway crossings have automated warning systems that can be classified as active devices (Marcoux, J., & McDonald, J., 2016). The remaining two-thirds have passively protected crossings that only use the white crossing “X” and/or stop signs (Marcoux, J., & McDonald, J., 2016). Efforts are needed to install more active devices at railway crossings in conjunction with passive devices to maximize railroad safety.

### **RECENT TRAGEDY**

London residents have become accustomed to the trains but remain frustrated by the delays at rail crossings on busy commuter roads and by the lack of safety mechanisms on smaller, less travelled streets. Some residential areas have more than 12 freight trains cross their area each day. Local residents are used to the inconsistencies both in train frequency and train speed. Although train safety is promoted, it is not unusual to see pedestrians climbing through the open doors of a stopped train or running to get across the tracks before a slow train blocks the road.

In 2012, 11-year-old Kendra Cameron was struck and killed while crossing over a set of train tracks in her neighbourhood. The trains in the area where Kendra lived and played were often slow moving (Marcoux, J. et al., 2016). Kendra’s mother believed Kendra thought she could outrun the train and that she could not see how close the train was because it was obstructed by brush and bushes (Marcoux, J. et al., 2016). The tragedy was followed by a call for barriers to be erected on either side of the street to dissuade pedestrians from trying to outrun the trains.

In 2014, two women were killed in a car crash in Southwest Middlesex at a VIA Rail train crossing on Melbourne road, the fourth most risky crossing in Canada (“Police Identify 2 Women Killed”, 2016). The mayor called this tragedy a “wake-up call”, and subsequently sought support from Middlesex County to install protective gates at the crossing to prevent future incidents (“Police Identify 2 Women Killed”, 2016). In court, the lawyer representing the victims argued that, even though there had been previous crashes at the same crossing, the failure to install appropriate safety measures was an ongoing problem and a gate had not been installed when it should have (Van Brenk, 2016). At a subsequent Middlesex County council meeting, the motion to install gates was voted down. The county stated that, “it isn’t up to the municipalities to correct rail safety” (Van Brenk, 2016).

### **KEY PLAYERS**

Trains fall into a jurisdictional triangle. Many organizations, local municipalities, and provincial and federal ministries are involved in building and overseeing railways. All parties must work collaboratively to improve safety at the more than 17,000 crossings across Canada (Marcoux, J., & McDonald, J., 2016).

Transport Canada supports the safe coexistence of railways and communities (Transport Canada, 2016). It is ultimately responsible for the maintenance and safety of railway crossings, and its role includes regulating/enforcing railroad rules (Transport Canada, 2016). However, Transport Canada does not require gates at all crossings and safety standards depend on the specific crossing (traffic, location, etc.).

The Transportation Safety Board of Canada assumes a watchdog role, advocating for tougher rules and regulations. The Board recently pressured the federal government to set new standards, calling on municipalities, provinces, and railway organizations to examine each

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crossing to determine necessary upgrades. It is expected that these new regulations will not be in force until 2021.

Any decision about how to move forward will be complex and requires mass consultation from government agencies such as Transport Canada, and from railroad companies such as CN, CP, and VIA Rail. The process needs to be collaborative and transparent. All parties need to show their data and work collectively to understand the pertinent information. Transport Canada needs to be more transparent with its safety investigations. Local communities and residents should also be invited to the consultation. Considering the varied logistics and differing requirements needed at individual crossings, it must be determined what comprehensive redesigns are required in order to meet the new safety standards. Widespread changes will cost hundreds of millions of dollars; for example, each full gate costs between \$200,000 and \$1 million (Canadian National Railway, 2016). Although the safest route is to remove road crossings and use underpasses or overpasses instead, this approach is even more costly and unrealistic.

### **RAIL SAFETY EDUCATION**

Pedestrians should also be educated about the dangers of crossing railway tracks. School boards and public health agencies have an important role in educating children and adults on this issue. Several initiatives do exist to improve railway education in the local community. For example, Operation Lifesaver is a dedicated group of rail safety ambassadors funded by the Railway Association of Canada and Transport Canada. In cooperation with industry, government, police, unions, public organizations, and community groups, they promote awareness about highway and railway crossings in an effort to help save lives and reduce suffering incurred from railroad accidents (City of London, 2018). In 2018, London started participating in a national railway crossing safety-awareness program (City of London, 2018). The “Look. Listen. Live. Community Safety Partnership Program” developed by Operation Lifesaver works to identify locations where railroad safety signs can be implemented across the country and to raise awareness about the need to be cautious around railroad crossings (City of London, 2018). The London municipal government has also taken a step forward by asking CN and CP to identify dangerous goods (i.e., high-risk chemicals) that are being shipped across the city (Dubinski, 2017).

In addition, railway police often give presentations to children and educate them about the risks associated with public crossings and trespassing on railway property (Transportation Safety Board of Canada, 2017). These presentations are traditionally given to schools located within a mile of crossings (Transportation Safety Board of Canada, 2017). However, it is ultimately up to the school principals to decide whether these educational seminars are presented (Transportation Safety Board of Canada, 2017). Unfortunately, cuts to railway police and lack of school principal agreement limit the delivery of these workshops (Transportation Safety Board of Canada, 2017).

### **ENFORCEMENT AT CROSSINGS AND TRESPASSING LAWS**

Because the number of railway police officers has declined in recent years, cities such as London are no longer able to have police at rail sites (Transportation Safety Board of Canada, 2017). As a result, opportunities for rail safety enforcement are lost.

### **TRANSPARENT DATA FOR “HIGH-RISK” RAILWAY CROSSINGS**

In 2014, the Canadian Broadcasting Corporation learned that Transport Canada did not make their railway crossings database publicly available (Marcoux, J., & McDonald, J., 2016).

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Transport Canada uses software called GradeX, which was developed by engineers from the University of Waterloo, as a decision-support tool to evaluate “high-risk” hotspot railway crossings across the country and to help determine which crossings need to be prioritized for safety upgrades (Marcoux, J., & McDonald, J., 2016). However, Transport Canada failed to provide these investigation reports to local and municipal communities (Marcoux, J., & McDonald, J., 2016). In fact, the mayor of Southwest Middlesex was not aware that the Melbourne road crossing was ranked the fourth highest risk crossing in the country (Marcoux, J., & McDonald, J., 2016). Similarly, other municipalities across Canada are mostly unaware of GradeX and whether their counties rank in the top 500 “hot spots” for railway incidents (Marcoux, J., & McDonald, J., 2016). In comparison, the United States uses a program called GX Dash as a tool to present a cohesive snapshot of all grade crossing collisions in the country over the past 10 years (United States Department of Transportation, 2020). This tool is publicly available and is designed to enhance the user’s ability to visualize data (United States Department of Transportation, 2020). Crucial steps should be taken to improve railway safety in Canada, including having Transport Canada be more transparent with their database and publicize the GradeX decision-support tool.

### POSSIBLE NEXT STEPS

To improve safety for pedestrians at railway crossings, countries such as the Netherlands, the United Kingdom, and Portugal have implemented a variety of safety measures. In the United Kingdom, Network Rail has placed signs and fences at the end of platforms to deter pedestrians from crossing over the tracks (Network Rail, 2020). They have also installed alarms, flashing lights, large warning signs, red light safety cameras, and sometimes physical barriers (Network Rail, 2020). Within two years of implementing this ambitious safety enhancement program, the risk to the public was reduced by 25% at more than 6,500 level crossings (Railway Technology, 2013). Both the Netherlands and Portugal have adopted similar strategies by erecting large fences and signs. Through similar measures, Belgium has seen a 78% reduction in railway trespassing over a period of three months (Community Research and Development Information Service, 2015). Fences, cameras, anti-trespass panels, and warning signs have been placed at railway crossings across many Belgian cities. Belgium has gone as far as eliminating 22 level crossings and has taken 26 other crossings out of service (TUC Rail, 2020). They believe the best way to avoid accidents is to eliminate the crossing entirely (TUC Rail, 2020). Australia is taking the same approach by planning to remove 25 level crossings before 2025 in addition to the 29 crossings that were already removed over the past three years (Level Crossing Removal Authority, 2018).

Prorail from the Netherlands has also seen significant declines of near misses at crossing sites after painting specific rail crossing road surfaces, and they are now looking to extend this approach to other such tracks (Vosman, 2018). The government and the Dutch Research Council for Safety are trying to reduce the number of level crossing accidents by 50% over the next 10 years, and an additional €50m will be allocated to achieve this and improve level crossing safety (Vosman, 2018).

Next-generation smart technology with the latest advancements in data acquisition and real-time active warning systems should also be implemented to make railroad crossings safer and smarter (Chen & Hsiao, 2017). Many countries around the world are also taking serious steps to ensure pedestrian safety at railway crossings (Laapotti, 2016; ILCAD, 2019).

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Something needs to change in the City of London and the surrounding area to improve rail safety and prevent further tragedy. Kendra's mother thinks people need to change, to stop trying to outrun trains, and start realizing the very real danger that exists.

Operation Lifesaver believes more education and awareness will help. Community members are pushing for the installation of more active systems but spending more money on railways is not always politically favourable. Something needs to be done, but what, and by whom? With so many organizations and groups involved, it is difficult to determine who should ultimately be responsible for this dilemma.

What is the problem? Who should define it? Who is responsible for devising a solution? Who should ultimately implement that solution?

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## INSTRUCTOR GUIDANCE

### When the Midnight Train is the first of many: Dealing with Irregular and Unsafe Railway Crossings in the City of London

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#### BACKGROUND

While visiting a local school, the mayor of London was asked a simple question by a grade three student: “why aren’t there flashing light barriers at all railway crossings that are close to the places where children play?” The mayor did not have an answer to this question or the many other questions that went along with it, but he knew something needed to be done. But what? And by whom? Rail crossings in London are typically prone to risk. In Canada, only 17% of all 17,000 railway crossings have gates, and the primary purpose of these gates is to control motor vehicles. London residents remain frustrated by the delays caused at rail crossings on busy commuter roads. Residents are also concerned about the lack of safety mechanisms at smaller, low-traffic streets.

Trains fall into a jurisdictional triangle. Many organizations, local municipalities, and provincial and federal ministries are involved in building and overseeing railways. All parties must work collaboratively to improve safety on the more than 17,000 rail crossings across the country. Decisions about how to move forward with this issue are complex and require mass consultation from government agencies such as Transport Canada and from railroad companies such as Canadian National Railway, Canadian Pacific Railway, and VIA Rail Canada. Pedestrians need to be educated about the dangers of crossing railway tracks. Railway police often give presentations to children and educate them about the risks associated with public rail crossings and trespassing on railway property. In recent years, the number of railway police officers has declined. Cities such as London are no longer able to have police at rail sites. Something needs to change in the City of London and the surrounding area to improve rail safety and prevent further tragedies. Operation Lifesaver believes more education and awareness will help. Community members are pushing for the installation of more active systems but spending more money on rail safety is not always politically favourable. What needs to be done, and by whom, remains uncertain. With so many organizations and groups involved, it is difficult to determine who should ultimately be responsible for this dilemma. Because the reality of train safety in London is not changing, the need to address the concerns about this issue is essential. Unfortunately, London has several dangerous rail crossings that lack gates or other physical barriers to block the crossing. The main concern is the safety of pedestrians at these sites.

#### OBJECTIVES

1. Appreciate the complexity of municipal-level decision-making.
2. Learn about strategies for effective health communication campaigns.
3. Understand the role of multiple stakeholders across multiple jurisdictions in health promotion interventions.

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### **DISCUSSION QUESTIONS**

1. Who are the stakeholders involved in decision-making at the municipal level? How does this change when provincial and federal policies impact the decision?
2. Who is responsible for railway safety? Does this change whether it is for pedestrians, automobiles, or other types of trains? Should it?
3. What might a railway safety health education campaign look like? What would your messaging look like? Who would your audience be? Who could you get to support your campaign?
4. What should be done in the City of London to improve overall railway safety? Be sure to consider the feasibility of your suggestions, including issues related to cost, timing, and public support.

### **KEYWORDS**

Health promotion; municipal government; pedestrian safety; railway; stakeholder analysis