Windsor Transit Report

Introduction

Windsor Transit is a transit agency responsible for managing and overseeing public transportation services in the city of Windsor, Ontario, Canada. One of the agency's primary functions is to maintain a large amount of data on bus routes, directions, and schedules. This data is used to make informed decisions and adjustments that ensure that public transportation runs smoothly and efficiently.

By keeping track of information such as the locations of bus stops, the frequency and duration of bus trips, and the areas of the city that are served by each route, Windsor Transit can adjust schedules and routes as needed. For example, if a particular bus route is experiencing a high volume of ridership during certain times of the day, Windsor Transit can adjust the schedule to add more buses during those times, ensuring that riders don't have to wait too long for a bus to arrive.

In addition to maintaining regular schedules, Windsor Transit also provides separate schedules for schooldays, weekends, and public holidays. This makes it easier for people to plan their travel and ensure that they don't miss their bus or must wait too long for the next one. For example, on schooldays, Windsor Transit may adjust the schedule to ensure that buses arrive at stops near schools at the appropriate times for students to get to class on time.

Overall, by maintaining a wealth of data on bus routes, directions, and schedules, Windsor Transit can make data-driven decisions that ensure that public transportation services run smoothly and efficiently in the city of Windsor. This helps residents and visitors alike get where they need to go with minimal hassle and inconvenience.

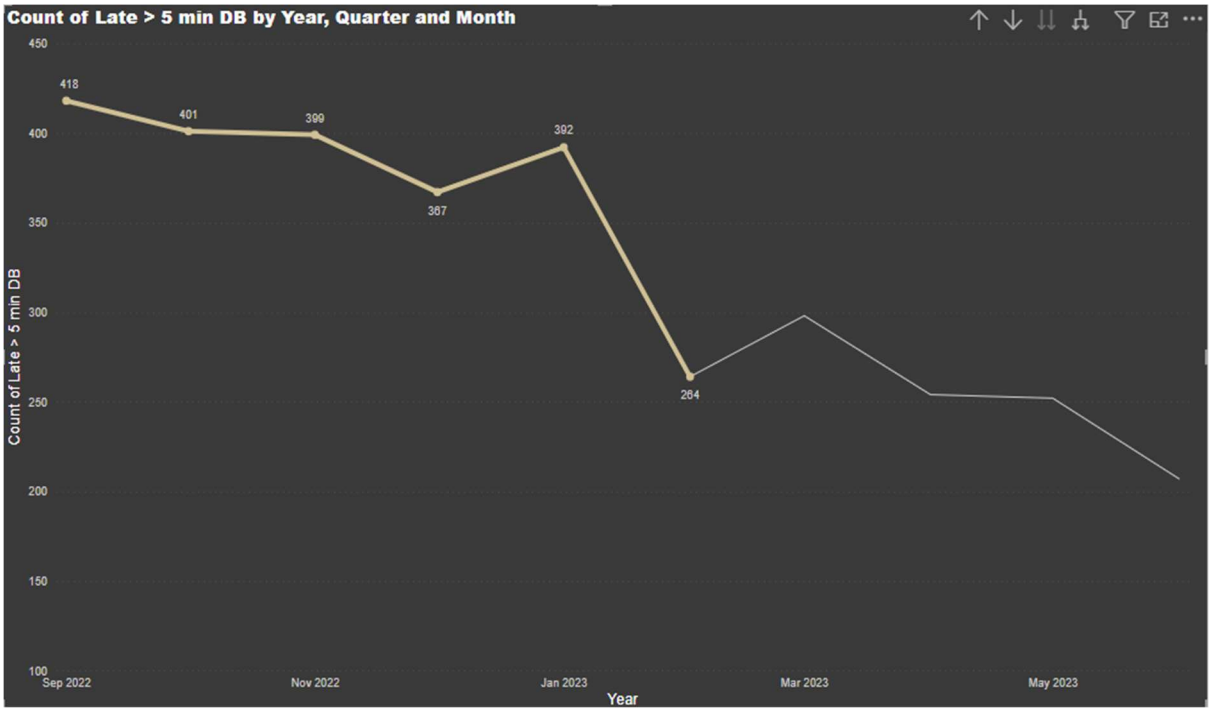
In this report, the transit data from September 2022 to February 2023 has been analysed to identify areas where service can be improved and to make predictions for the future to plan for smooth services. By analysing this data, Windsor Transit can gain insights into factors such as ridership patterns, route efficiency, and on-time performance.

Another potential use of the analysis could be to identify areas where buses are frequently delayed or have difficulty staying on schedule. By identifying the root causes of these issues, Windsor Transit could adjust improve on-time performance and reduce the inconvenience to riders. This could include changes to bus routes or schedules, adjustments to traffic signals, or other measures to improve traffic flow.

Analysis

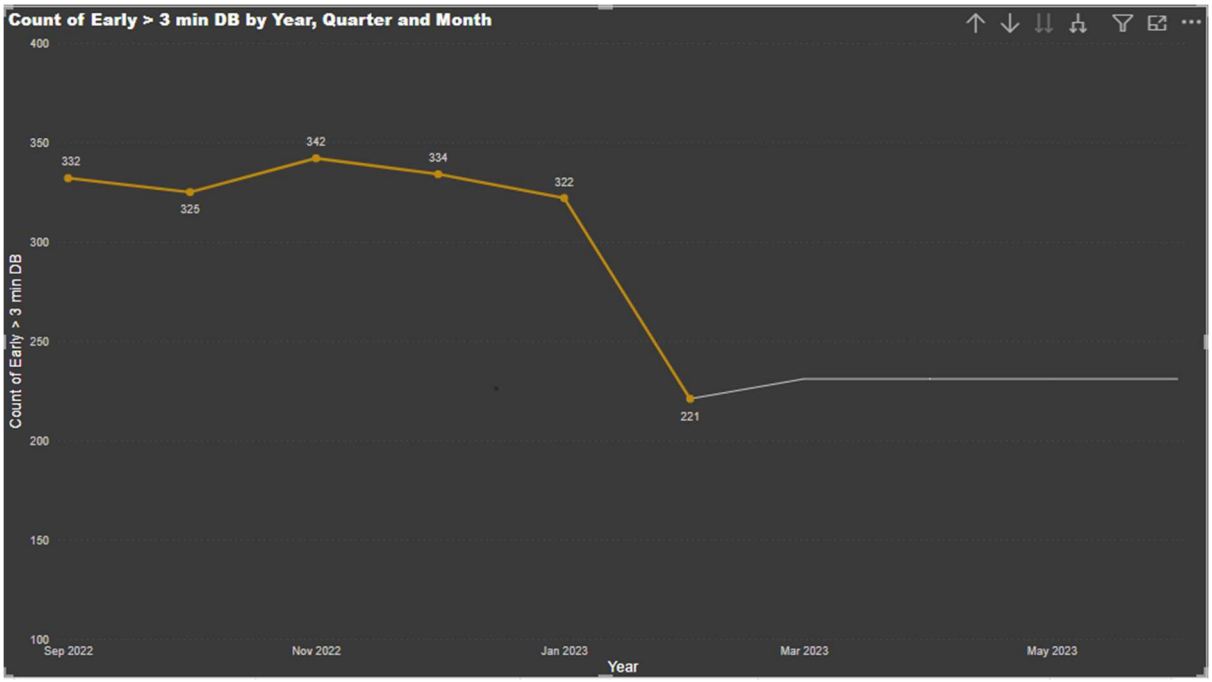
1. LATE BUSES ANALYSIS

The count of buses arriving late by more than 5 minutes has decreased significantly between September 2022 and February 2023, with a 36.84% drop in total. This decrease was mainly seen from December 2022, where the count fell by 28.07% in just two months. During the steepest decline between December 2022 and February 2023, the count of late buses dropped from 367 to 264. Overall, the trend shows a significant improvement in bus punctuality over the past few months.



2. Buses Early by more than 3 Mins

Between September 2022 and February 2023, there was a 36.84% decrease in the count of buses arriving late by more than 5 minutes. The trend of this decrease began in December 2022, where the count fell by 28.07% or 103 buses in just two months. The steepest decline was observed between December 2022 and February 2023, during which the count of late buses dropped from 367 to 264. This shows a significant improvement in bus punctuality, and the trend appears to be continuing.

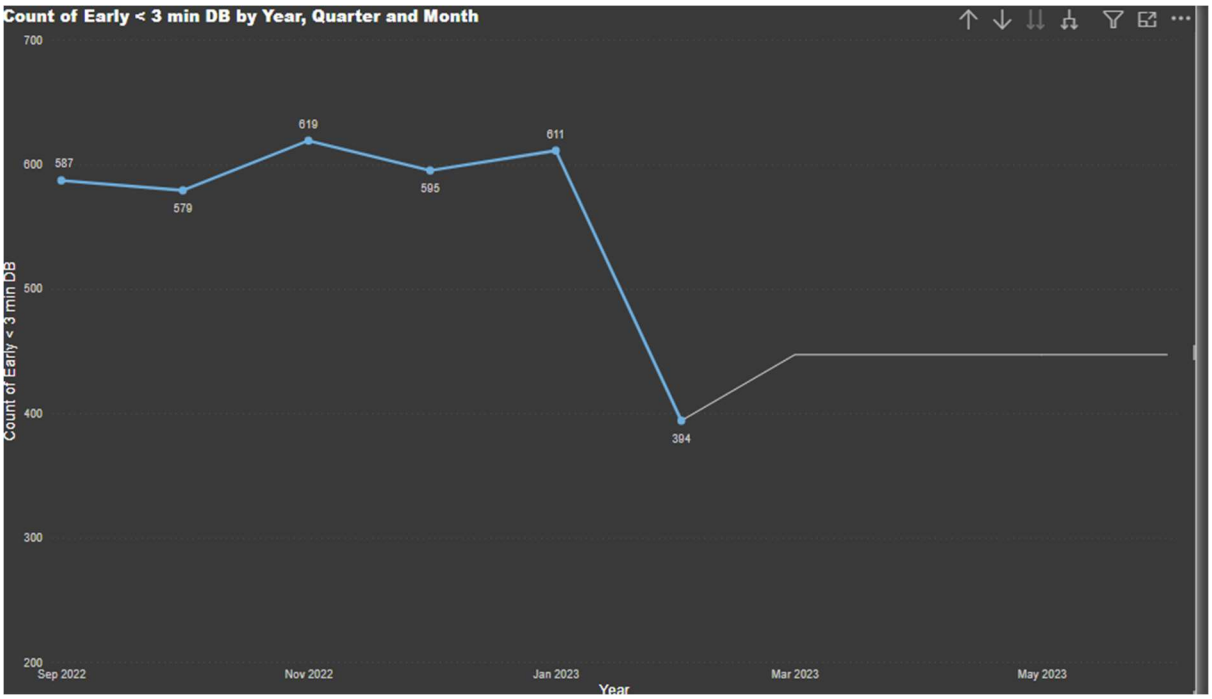


3. Buses Early by less than 3 minutes

The count of buses arriving early by less than 3 minutes has decreased significantly between September 2022 and February 2023, with a 32.88% drop in total. The trend of this decrease began in September 2022, where the count fell by 32.88% or 193 buses in just five months. The steepest decline was observed during this period, between September 2022 and February 2023, during which the count of early buses dropped from 587 to 394.

This trend suggests that the buses are now more accurately scheduled and are arriving closer to their expected arrival times. While arriving early may seem like a good thing, it can cause inconvenience to passengers who may not be prepared to board the bus at that time. The decrease in the count of early buses may indicate that the bus schedules have been adjusted to be more realistic, thereby reducing the number of early arrivals.

Overall, this trend is a positive sign for passengers who can now expect their buses to arrive more reliably and accurately. The decrease in the count of early buses suggests that the transportation system is becoming more efficient and effective in serving its customers**.**



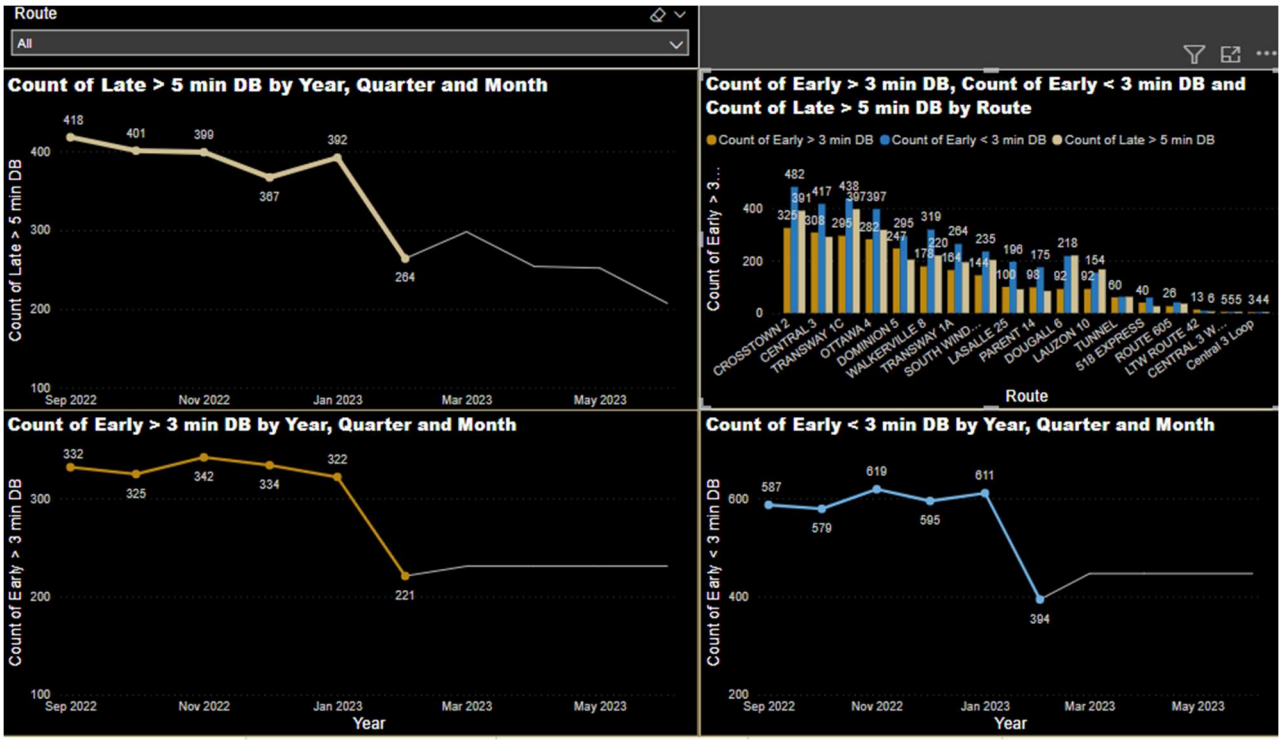
4. Overall Analysis of service based on Route.

Team has developed a dashboard that provides valuable insights into the past trends of bus arrival times. The dashboard allows users to filter the data based on the specific route of the bus, providing a more detailed understanding of the trends on each route. The dashboard provides information on the count of buses arriving late by more than 5 minutes and early by less than 3 minutes. This data is then presented in a visual format, allowing users to easily identify trends and patterns over time.

One of the significant findings from the dashboard is the trend of the decrease in the count of late buses starting in December 2022, falling by 28.07% or 103 buses in just two months. The steepest decline for late buses was observed between December 2022 and February 2023, during which the count of late buses dropped from 367 to 264. The trend of the decrease in the count of early buses started in September 2022, falling by 32.88% or 193 buses in five months. The steepest decline for early buses was observed between September 2022 and February 2023, during which the count of early buses dropped from 587 to 394.

The dashboard also helps to identify which routes may require further attention and adjustments to the schedules to improve punctuality. This information is particularly useful for Windsor Transit as it allows them to prioritize their efforts to improve bus punctuality on the routes that require the most attention.

Overall, the dashboard provides valuable insights into the past trends of bus arrival times, which can help Windsor Transit make data-driven decisions to improve the efficiency and reliability of their transportation system.



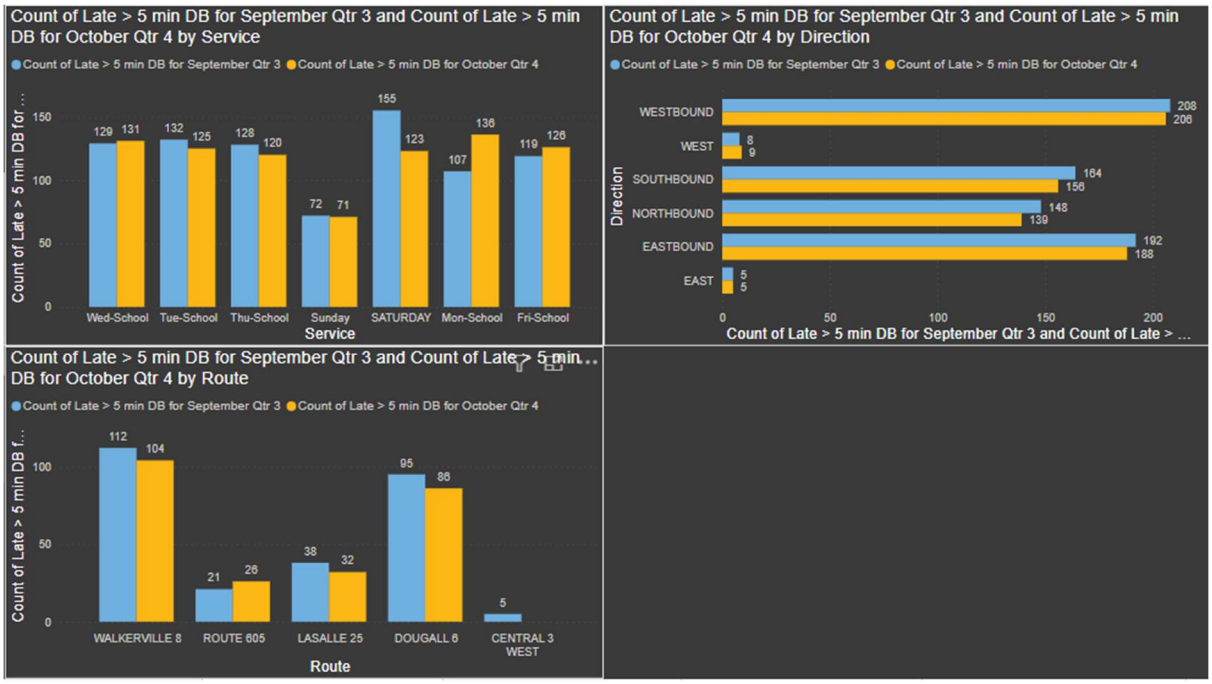
5. Analysis By Direction and Route of Bus

The above dashboard will allow user to know trends based on the route and direction of the bus**.**

Breakdown of Analysis of Late Buses

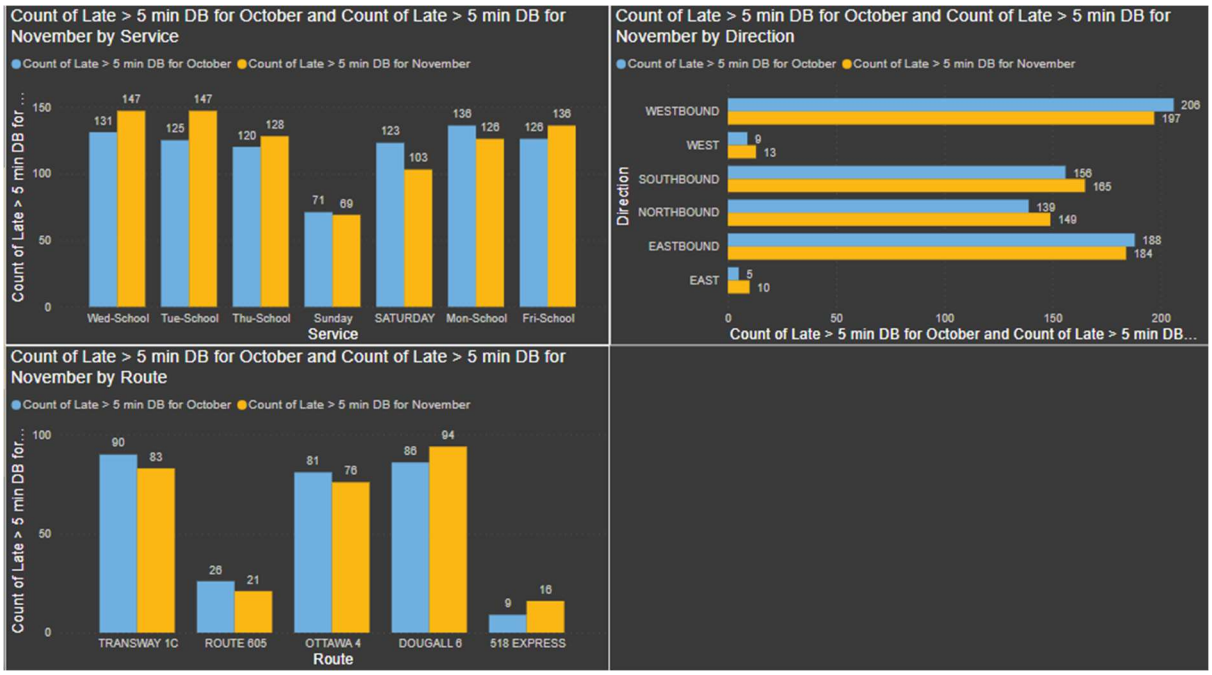
1. For Month September and October

The services that experienced the most significant decrease in bus delays were 'Saturday', 'Thu-School', and 'Tue-School'. Meanwhile, the routes that saw the most significant decrease in bus delays were 'Dougall 6', 'Walkerville 6', and 'Lasalle 25', among others. In terms of direction, the Northbound, Southbound, and Eastbound routes recorded the most significant decrease in bus delays during September and October.



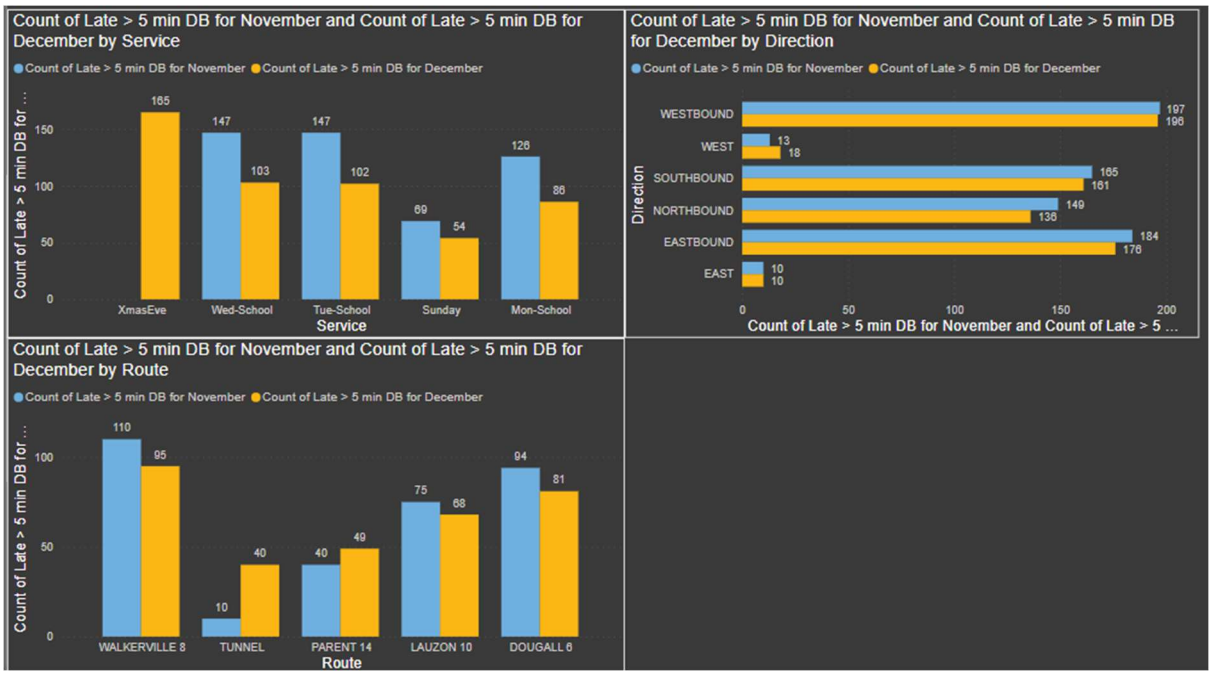
2. For month October and November

During October and November, the 'Saturday', ‘Sunday’, and 'Mon-School' services experienced the most significant reduction in bus delays, while routes such as ‘Transway 1C’, ‘Ottawa 4’, and ‘Route 605' had the most significant decrease in delays among others. When considering direction, the westbound and eastbound routes had the most significant decrease in delays during these months.



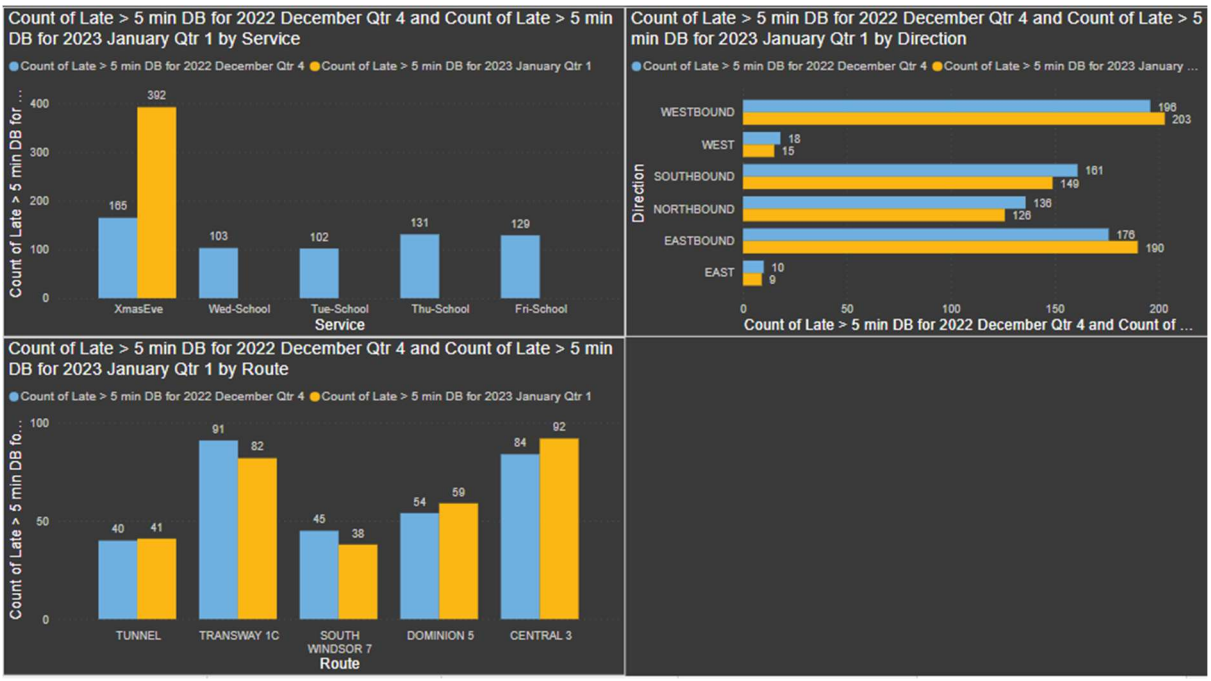
3. For month November and December

During November and December, the most significant decrease in bus delays was observed in services such as 'Mon-School', 'Tue-School', and 'Wed-School'. Similarly, the routes that experienced the most significant decrease in bus delays were 'Walkerville 8', 'Dougall 6', and 'Lauzon 10', among others. As for directions, the Northbound, Southbound, and Eastbound routes recorded the most significant decrease in bus delays during this period. These findings suggest that efforts to improve bus punctuality have been effective across various services, routes, and directions, leading to a more reliable and efficient transportation system for passengers.



4. For month December and January

The month of December and January saw a 6.81% increase in late buses compared to other months. The services that experienced the most significant increase in bus delays during this period were limited to ‘XmasEve’. However, the routes that saw the most significant increase in bus delays were ‘Central 3’, ‘Dominion 5', and ‘Tunnel’, among others. In terms of direction, both Westbound and Eastbound routes recorded the most significant increase in bus delays. These findings suggest that there may have been external factors, such as weather or traffic, Christmas.



5. For month January and February

In January and February, there was a significant 32.65% decrease in the count of late buses compared to other months. The services that experienced the most significant decrease in bus delays were 'XmasEve'. Meanwhile, the routes that saw the most significant decrease in bus delays were 'Central 3', 'Crosstown 2', and 'Transway 1C', among others. In terms of direction, the Southbound, Westbound, and Eastbound routes recorded the most significant decrease in bus delays during January and February.