

INCREASING EFFICIENCY OF THE TOP BUS ROUTES

Recommendation

That the March 4, 2025, City Operations report CO02673, be received for information.

Requested Action		Information only	
ConnectEdmonton’s Guiding Principle		ConnectEdmonton Strategic Goals	
CONNECTED This unifies our work to achieve our strategic goals.		Urban Places	
City Plan Values	ACCESS		
City Plan Big City Move(s)	A community of communities	Relationship to Council’s Strategic Priorities	Mobility Network
Corporate Business Plan	Serving Edmontonians		
Council Policy, Program or Project Relationships	<ul style="list-style-type: none">● C539A - Transit Service Policy● City Plan and Mass Transit Network		
Related Council Discussions	<ul style="list-style-type: none">● August 27, 2024, Urban Planning and Economy report UPE02216, Mass Transit: Implementing for 1.25 Million People● April 9, 2024, City Operations report CO02242, Bus Network Service Plan Update● March 19, 2024, City Operations report CO02133, Transit Priority Measures Implementation Update● February 15, 2022, Urban Planning and Economy report UPE00342, Mass Transit: Planning for 1.25 Million People		

Previous Council/Committee Action

At the August 27, 2024, Urban Planning Committee meeting, the following motion was passed:

That Administration provide a report outlining low cost opportunities to increase the efficiency of the top bus routes that consistently exceed productivity standards for bus boardings during peak hours as defined through the Transit Service Policy, which could include creating bus lanes, adjustments to parking, inclusion of tow-away zones.

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Executive Summary

- Bus Rapid Transit (BRT) and transit priority measures, two complementary initiatives, represent a significant investment in mass transit planning to improve bus-based transit solutions as Edmonton prepares to be a city of two million people.
- One of the most cost effective strategies to improve the transit network is to implement transit priority measures, which give priority to the movement of buses over other types of traffic. Implementing transit priority measures, such as bus lanes, can help improve operational efficiency, make transit service more reliable and help reduce travel time for transit riders.
- Administration has developed a new metric to identify locations in the ETS bus network where riders spend the most time sitting in traffic. This metric is better suited for prioritizing areas in the bus network that need measures to improve efficiency instead of productivity standards, and can inform future identification of locations warranting transit priority measures.
- Administration will create a formal transit priority measures program to provide a strategic and sustainable approach to improve bus network efficiency. Administration will also review opportunities to align with other initiatives, such as infrastructure renewal and work related to Bus Rapid Transit.
- Additional interventions to improve bus network efficiency related to adjustments to parking and tow-away zones will be considered as part of broader work related to Bus Rapid Transit and the development of a transit priority measures program.
- There are capital and operating costs associated with creating bus lanes, including the cost of implementing and maintaining physical improvements (e.g., painting traffic lanes, installing bollards, signage), enforcement and reductions in on-street parking revenue.

REPORT

The City Plan guides the way Edmonton grows, envisioning an integrated mobility network that enables a more vibrant, well-connected and prosperous city. It shapes the evolution of mobility to reflect the needs of a city of two million people. Advancing the objectives in The City Plan, including establishing a mobility system where people can move seamlessly, facilitate economic opportunities and thrive socially, requires a robust transit network. A robust transit network is also key to fostering social equity by offering better access to transportation options for those who need it.

In 2021, the revised bus network was implemented to respond to growing travel demand and the need to provide more direct and frequent service along major corridors. Since that time, several key investments have further improved transit service including adding 146,000 annual service hours to the network, adding more peak and off-peak service, launching Valley Line Southeast LRT service and increasing On Demand Transit service by 25 per cent. Transit ridership in 2024 increased by 15 per cent from the previous year, and was 12 per cent higher than in 2019 pre-pandemic levels. During this time, the city's population has also been rapidly expanding, with

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12.8 per cent population growth between 2021 and 2024¹. There are several factors that influence transit service reliability including weather, construction, traffic volumes, ridership volumes, fleet reliability, driver behaviour, collisions, security disorder on buses and inaccurate schedules. Over the last several years, population growth has resulted in increased general traffic, which impacts both the speed and reliability of transit service. Due to ridership growth, more transit riders are experiencing the impacts of increased general traffic.

Context For Transit Priority in Edmonton

The City of Edmonton is advancing several initiatives to improve access to and reliability of transit in the broader transportation network, including LRT expansion projects, the design of future Mass Transit routes and implementation of transit priority measures.

The Mass Transit Study² developed in support of The City Plan established the future transit network to support a population of two million. The future transit network was defined through technical analysis focused on metrics tied to city building objectives such as mode shift, climate mitigation and land use outcomes. The study identified several critical success factors, including “Mass Transit Priority,” which refers to the reallocation of existing road right of way to create dedicated transit right of way. The study also introduced transit priority measures to increase capacity, improve reliability, reduce travel times and provide opportunities for service to respond to ridership growth.

As part of The City Plan implementation, Administration completed another technical study³ that identified a mass transit network to support a population horizon of 1.25 million people. This work identified three Bus Rapid Transit corridors for implementation. As part of the 2023-2026 Capital Budget, Council approved \$5.5 million for concept planning of these routes.

Additionally, as part of the development of the Bus Network Redesign, Administration advanced analysis to identify and prioritize locations for transition priority measures to reduce delay and improve reliability of the bus network. In the 2023-2026 Capital Budget, Council approved \$7.1 million in funding for planning, design and implementation of transit priority measures. Design and implementation of these measures are underway and will continue through 2026.

Through these two initiatives, planning and design for Bus Rapid Transit through the Mass Transit Planning project and the implementation of transit priority measures, Administration is currently advancing significant projects to provide greater priority to transit.

¹Edmonton Population. Estimates of the number of people living in a municipality, including Canadian citizens and immigrants as well as non-permanent residents. Prepared by the Government of Alberta. <https://regionaldashboard.alberta.ca/region/edmonton/population/#/?from=2020&to=2024>

² IBI Group. Mass Transit Study - Edmonton's Future Mass Transit Network. Technical Study (2020). Prepared for the City of Edmonton. https://www.edmonton.ca/city_government/city_vision_and_strategic_plan/making-the-city-plan

³ IBI Group. Mass Transit Planning for 1.25 Million (2021). Prepared for the City of Edmonton. https://www.edmonton.ca/city_government/initiatives_innovation/bus-based-mass-transit

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Identifying High Performing Bus Routes

The Transit Service Policy C539A and the associated Transit Service Standards Procedure define productivity standards for bus service, such as boardings per hour, as well as service quality standards such as on-time performance. The productivity standards include a threshold for low performance; however, they do not define an upper threshold for when service would exceed standards.

While Bus Rapid Transit and transit priority measures projects are integrated and complementary, they approach transit priority from different angles. Mass Transit is grounded in future ridership and modal shift while transit priority measures focus on reducing delays for current riders.

Several cities have implemented bus lane programs to improve travel time and reliability of transit service, which helps support mode shift, climate change mitigation and more compact urban form (Attachment 1). Considering the findings from other jurisdictions, as well as Edmonton's context related to Mass Transit and transit priority measures studies, Administration developed a metric that considers both delay to buses and the number of riders on each bus, to identify potential corridors that would benefit from additional transit priority. This metric aims to prioritize areas in the bus network that need measures to improve efficiency rather than rely on productivity standards, and can inform future identification of locations warranting transit priority measures.

A route or a segment of a route, may have high ridership; however, it may not warrant a priority measure such as a bus lane because the route already moves efficiently. Similarly, a route may experience significant delays with lower ridership, and investing in bus lane infrastructure would only benefit a small number of riders. A combined metric quantifies how much time transit riders are spending experiencing delays during their journey. This metric weighs both the delay of a route and the number of people on the route, which ensures investments are directed towards corridors and intersections where they will have the most impact. The evaluation of these corridors consider the difference in travel time during peak and off-peak hours to help identify where increased traffic is causing delays.

Using this new metric, an analysis of transit passenger delay hours throughout the ETS network was completed to identify potential locations for improvement. This analysis was further refined to develop a shortlist of potential locations and the associated bus routes for further study, as shown in Attachment 2. The following factors were considered in developing the shortlist:

- The analysis is based on ridership and delays in the ETS network with current population and ridership patterns, and can be used as a tool to assess the network on an ongoing basis.
- Several corridors identified for priority measures were due to current major construction projects and are expected to improve once construction is complete. This includes projects such as Valley Line West (87 Avenue and the temporary West Edmonton Mall Transit Centre) and Capital Line South LRT Extension (111 Street). These corridors are excluded from the shortlist.
- Some corridors are on the B1 and B2 Mass Transit Routes, including 101 Street, 97 Street and Whyte Avenue. Administration has started the concept planning for both corridors. Any

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short-term improvements to these corridors may conflict with the long-term plans; therefore, the short-term measures will not be advanced.

- The transit priority measures project will be implementing improvements in 2025 and 2026 (including segments of Jasper Avenue, Whyte Avenue and 97 Street).

Low Cost Opportunities to Increase Bus Service Efficiency

One of the most cost effective strategies to improve the transit network is to implement transit priority measures, which give priority to transit over other types of traffic. Doing so helps improve operational efficiency, makes transit more reliable and reduces travel times. Rather than investing service hours to address late buses, ETS can allocate service hours to meet other needs, such as adding new service for growing areas, increasing frequency on busy routes and implementing off-peak service in areas currently underserved.

The concept of transit priority measures refers to a broad set of measures that provide greater priority to public transit in the transportation network. These measures vary in complexity from simple changes, such as adding an exception for turning at select intersections, to more comprehensive solutions, such as adding a signal phase, dedicated bus lanes or bridges designed to prevent speed reductions for transit vehicles.

There are three main categories of transit priority measures, as outlined in the March 19, 2024, City Operations report CO02133, Transit Priority Measures Implementation Update:

- **Traffic Signal Measures:** These involve modifying the timing, sequence or operation of traffic lights to give preference to transit vehicles.
- **Physical Measures:** These are changes made to the physical infrastructure to create dedicated spaces for transit vehicles, for example, dedicated bus lanes. This reduces the interaction of buses with other traffic, aiming to improve travel times and reliability for public transit.
- **Other Measures:** These are strategies that can be implemented using a combination of signs and pavement markings to indicate priority for transit vehicles.

While there is potential for more rapid and low-cost implementation of dedicated bus lanes through removal of on-street parking or other activities in the curb lane, several factors inform the speed and cost of implementation. While bus lanes are generally lower cost, there are capital and operating costs that need to be considered such as the cost of implementing and maintaining physical improvements, (e.g., painting lanes, installing bollards, signage), enforcement, and reductions in on street parking revenue and impacts to patios. Implementation timelines are informed by the amount of technical analysis required to understand where curb-lane opportunities exist, as well as the degree of stakeholder engagement needed to understand community perspectives on benefits and tradeoffs.

Next Steps

Bus Rapid Transit and transit priority measures, two complementary initiatives, represent a significant investment in planning for bus-based transit solutions in Edmonton.

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While transit priority measures have been funded through the current capital budget cycle, there is no established or ongoing program to sustain this work beyond 2026. A transit priority measures program could provide a more strategic and sustainable approach to continue advancing a range of measures, and consider opportunities for rapid implementation of these measures.

Administration will develop a transit priority measures program that can inform decisions about the network. The program outline would include development of key metrics and standards to identify where transit priority measures are warranted, an approach for program evaluation and funding requirements.

At this time, additional interventions to improve efficiency of the bus network related to parking and tow-away zones will be considered as part of broader work related to Bus Rapid Transit and the development of a transit priority measures program, and these measures will not be pursued outside of this context.

Community Insight

The need for fast and more reliable service has been identified by riders through public engagement for the revised bus network, planning for implementing the Mass Transit Plan to 1.25 million people and other ongoing engagement with riders. ETS also regularly engages riders through a robust rider research program.

The online monthly transit rider satisfaction survey assesses satisfaction along the transit journey, including time to get to first stop/station, on-time performance and overall trip duration. In 2024, approximately 3,000 responses were collected from transit riders⁴. During this period, 76 per cent were satisfied their bus or train arrived on time and 76 per cent were satisfied with their trip duration. On-time performance was also previously identified as a key driver for overall satisfaction with transit for frequent riders who take transit for both work or school and non-work or school trips, and for those who ride transit primarily for work or school.

In addition, ETS conducts an online annual survey with non-riders to understand reasons for non-transit use, past satisfaction with ETS, perceptions of ETS and service enhancements that would increase their likelihood of using transit. In 2024, ETS collected feedback from 400 respondents who have not used transit or have used transit very infrequently in the past year⁵. When asked about service enhancements that would increase their likelihood of using ETS again, the most frequently suggested enhancements were increasing safety and security measures, reducing fares, providing more direct service to destinations, improving cleanliness in transit spaces and vehicles, and adding more routes that allow them to reach their destination faster.

GBA+

Many of the bus routes that currently experience the greatest level of rider delay are frequent bus routes or crosstown routes that travel across the city and serve a wide range of rider

⁴ Edmonton Transit Service Monthly Transit Rider Satisfaction Survey, 2024

⁵ Edmonton Transit Service Annual Non-Rider Survey, 2024

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demographics. Longer travel times and lower service reliability can be a barrier for riders who rely primarily on transit.

Data from the 2024 transit rider satisfaction surveys shows transit riders from equity-deserving population groups are more likely to rely on transit as their primary mode of transportation. Using data from the ETS rider satisfaction survey, in 2024, over half of survey respondents who have annual household incomes below \$30,000, identified as being newcomers to Canada (less than five years), younger riders ages 24 and under and Indigenous peoples rely on transit more frequently for a variety of trip purposes, such as for medical appointments, shopping, running errands and leisure. Respondents who use transit more often for various purposes also had lower satisfaction levels with reliability and trip duration than those who occasionally use transit or use it primarily for commuting to work/school.

Transit priority measures contribute to a faster and more reliable, and therefore, more equitable, public transportation network. This directly benefits those who rely on transit as their primary mode of transportation by enabling greater mobility to access social and economic opportunities.

Implementing transit priority measures enables operational efficiencies resulting in a reduction of service hours that can be reinvested back into the transit network. By applying an equity lens, these hours could be used to further reduce service gaps experienced by marginalized communities who have historically been underserved by public transit. Overall, improvements in transit service reliability, travel times and other service planning elements can lead to better access to jobs, social opportunities, education, and other critical services for equity-deserving communities. This, in turn, supports social and economic mobility, helping to break cycles of poverty and isolation that can affect marginalized groups.

Environment and Climate Review

Research by the Intergovernmental Panel on Climate Change⁶ shows that investing in transit growth is one of the most efficient and cost-effective solutions to addressing climate change. To limit global warming, transit capacity must significantly increase in the next few years, requiring substantial investments in transit infrastructure and operational requirements to support a greater mode-shift to transit.

Attachments

1. Bus Lane Programs
2. Potential Transit Priority Locations

⁶ Intergovernmental Panel on Climate Change, [Climate Change 2022: Mitigation of Climate Change](#)