

# Transit Priority Measure Feasibility Study - First Phase

## Recommendation

That the October 30, 2018, Urban Form and Corporate Strategic Development report CR\_5074, be received for information.

## Previous Council/Committee Action

At the May 22, 2018, Urban Planning Committee meeting, the following motion was passed:

That the revised due date of October 30, 2018, be approved.

At the July 11, 2017, City Council meeting, the following motion was passed:

5. That Administration provide a first phase of a transit priority measure feasibility study as outlined in principle 3.c. of Attachment 1 of the July 5, 2017, Sustainable Development report CR\_4513 by May 2018. This work is to include the infrastructure needs for possible ongoing Bus Rapid Transit and express bus routes for core routes in the Primary Transit Network.

## Executive Summary

Administration is reviewing opportunities for transit priority measures to enhance the operation of Edmonton's future transit network as outlined in the Transit Strategy. Transit priority measures are traffic management tools such as signage, signal priority or additional lanes that give public transit priority over other vehicle traffic and improve speed and reliability of transit service. Transit priority measures fall into three categories: regulatory tools, transit signal priority, and physical changes. A combination of these techniques can be considered based on the specific conditions of a particular location.

During the first phase of analysis, locations are identified where bus travel speeds could be faster or more consistent and would most likely benefit from transit priority measures. The next phase of analysis will identify and prioritize specific locations for in-depth feasibility and cost reviews.

### Report

In July 2017, Council approved the Transit Strategy, which outlines Edmonton's long term vision for transit and guides the ongoing development of the transit system. Transit has the ability to transform our city's urban form, provide sustainable mobility choices, create great neighbourhoods and address social challenges. During the development of the Transit Strategy Edmontonians identified *reliable* and *fast* as two of the key attributes that could provide them with an improved transit experience.

As part of the implementation of the Transit Strategy, Administration is currently working on a Bus Network Redesign informed by extensive public engagement. The Bus Network Redesign will reflect residents' priorities identified in the transit strategy.

Principles identified for the redesign include Guiding Principle 3.4:

*Implement transit priority measures (e.g. transit signal priority, queue jumps, reserved lanes), where required in congested areas in major arterial corridors, to improve service reliability and operating speed.*

Administration initiated a technical study to assess the potential for transit priority measures on various route types defined in the Transit Strategy. This work includes:

- A summary of the types of transit priority measures available and impacts associated with each.
- An assessment of both current and expected future transit operations to identify candidate locations for transit priority measures.
- The development of screening measures to identify a prioritized list of locations and corridors.
- The evaluation of feasible transit priority measures for the prioritized list locations including potential benefits and impacts of the options.

The following sections of this report review the potential transit priority measures and identifies potential locations for further study. Administration will refine the list of locations and complete specific feasibility analysis in tandem with the Bus Network Redesign project.

### Transit Priority Measures

Transit priority measures are traffic management tools that give public transit priority over other vehicle traffic. These measures improve speed and reliability of transit by reducing the delays experienced in mixed traffic.

There are three types of transit priority measures:

Measure Type	Definition	Examples
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Regulatory Tools	Regulations applied to roadway operations to improve performance of the transit system while making use of the existing roadway. They are typically implemented through legislation, signage, or pavement markings.	<ul style="list-style-type: none"> <li>• Parking restriction.</li> <li>• Restricting left turns for general vehicle traffic.</li> </ul>
Transit Signal Priority	The use of traffic signals to reduce delays for transit vehicles. These measures control traffic at intersections to improve the speed and reliability of transit routes.	<ul style="list-style-type: none"> <li>• Coordinated signal timings to reduce bus waiting time at red lights.</li> <li>• Transit only traffic signals dedicated to allow transit movements.</li> </ul>
Physical Changes	Alterations to roadway design to improve transit performance.	<ul style="list-style-type: none"> <li>• Dedicated bus lanes.</li> <li>• Intersection reconfigurations allowing buses to get ahead of queued traffic.</li> </ul>

A detailed overview of transit priority measures is provided in Attachment 1. In order to determine which measures are most appropriate, each location must be assessed to consider factors such as available right-of-way, cause of delay, and existing traffic signals. Measures may also have other impacts on the transportation network and general traffic that must be considered.

## City Wide Feasibility Assessment

To identify locations that may benefit from transit priority measures, a city-wide analysis was conducted considering existing transit network operations, future network operations for the Bus Network Redesign, and traffic modelling of the transportation network in 2030. An overview of the methodology for this analysis is included in Attachment 2.

The locations that are most likely to benefit from transit priority measures are those where bus travel speeds can be improved and made more consistent. Locations were identified based on three indicators:

1. Speed: where slow speeds and delay were identified in the transit network suggesting congestion and/or traffic signal issues.
2. Variability: where some trips between bus stops take considerably longer than average, suggesting periodic disruptions.
3. Routing: where multiple buses/routes are currently expected to operate.

Many locations with low speed and high travel time variability occur in clusters along corridors where congestion occurs during peak hours. This outcome is to be expected, since congestion impacts performance of transit routes operating in mixed traffic. The locations where transit service may improve with implementation of transit priority measures are illustrated in Attachment 3.

### Next Steps

To complete the transit priority measures study, the identified corridors will be prioritized for further detailed study through consideration of local conditions and constraints. A list of potential transit priority measures will be developed for each location, including a conceptual analysis and cost estimate for the feasible options.

This work will complement the Bus Network Redesign to ensure consistency between priority locations and any changes to the transit network. Reporting for this phase two of this feasibility study is planned to accompany the reporting on the finalized bus network in Spring 2019.

### Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmontonians use public transit and active modes of transportation			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Edmontonians use public transit and active modes of transportation	Transit Ridership (rides per capita)	91.6 (2017)	105 (2018)
Efficient and effective transit service delivery	Transit Travel Speeds	TBD (Q4 2019)	TBD (Q4 2019)
Efficient and effective transit service delivery	Transit Schedule Reliability	TBD (Q4 2019)	TBD (Q4 2019)

### Attachments

1. Types of Transit Priority Measures
2. Transit Priority Measures Analysis Methodology
3. Corridors of Consideration for Transit Priority Measures

### Others Reviewing this Report

- C. Owen, Deputy City Manager, Communications and Engagement
- G. Cebryk, Deputy City Manager, City Operations
- A. Laughlin, Deputy City Manager, Integrated Infrastructure Services