

Metro Line Update

Testing Results

Recommendation:

That the September 2, 2015, Transportation Services report CR_2866, be received for information.

Report Summary

This report provides a summary of the work and progress to date to bring the Metro Line LRT to revenue service beginning September 6, 2015, including summaries of impacts to traffic and public education.

Previous Council/Committee Action

At the August 25, 2015, City Council meeting, the following motion was passed:

That Administration provide a report to the September 2, 2015, Transportation Committee meeting that outlines any difficulties encountered in connection with the testing of the Metro Line.

Report

Metro Line Update

Transportation Services and its external contractors continue to complete scenario testing in advance of opening the Metro Line to revenue service on September 6, 2015.

Simulated Metro Line Service began on Monday, August 24, and continued through to August 28. Initial simulations identified startup issues documented in daily issues logs for resolution by ETS or contractors as appropriate. Transportation Services is working collaboratively with the signal contractor, Thales, confirming necessary support levels required for the September 6 opening. Additionally, Edmonton Transit and Traffic Operations continue their efforts to synchronize train scheduling and traffic signals to optimise intersection crossings and lessen the negative impacts for traffic of LRT operations.

Simulated Operations Testing

Testing of the Metro Line has been run during late evenings to assess the interaction of traffic and rail systems and their response to the 15 minute LRT service intervals. Testing is being used to find the optimal travel time for LRT passengers, while minimizing traffic disruptions. Using learnings from the opening of the South LRT Extension, ETS and Traffic Operations are coordinating scheduling of train movements.

Testing has found the optimal scenario requires trains to hold at MacEwan station until both northbound and southbound trains can be timed at 111 Avenue to simultaneously

cross roadway intersections. LRT passengers will observe that trains travel slower than on the Capital Line, slowing to 10 km/h crossing over track switches, and that trains may wait at MacEwan Station for up to five minutes; however, the total journey from Churchill to NAIT will still take approximately 15 minutes.

As northbound and southbound trains approach an intersection, warning bells will sound and gates will be activated and remain down for up to four minutes at Princess Elizabeth and 111 Avenue while the trains approach and then clear the intersection. A summary of train crossing gates delay times required to accommodate trains crossing at key locations is provided in Attachment 1.

Traffic Impacts

The traffic delays expected on key routes will be significant during peak rush hours. Princess Elizabeth Avenue/106 Street and 111 Avenue/Kingsway Avenue will be particularly busy and traffic will queue in all directions. The addition of regular LRT service will create situations where queues will persist and lengthen until a train cycle has cleared and vehicle traffic cycles through for the intervening 15 minutes. Motorists are being advised to expect delays and be patient as during peak hours it may take up to four cycles for a vehicle to have the opportunity to clear one of these intersections and that means up to 16 minutes waiting in a queue that extends multiple blocks.

Past traffic modelling and off-peak traffic flow observations have identified the following key routes and directions expected to have significant traffic delays and long queues.

Princess Elizabeth Avenue/106 Street Southbound:

- Queuing expected through the traffic circle at 118 Avenue
- During peak hours may take three to four traffic light cycles to move through the intersection. Motorist may wait 12-16 minutes during rush hour.

111 Avenue/Kingsway Avenue Eastbound and Westbound

- Morning and afternoon peak commutes result in multiple block queues in both directions
- During peak hours may take three to four traffic light cycles to move through the intersection. Motorist may wait here 12-16 minutes during rush hours.

Based on previous experience with the Capital Line, the City expects traffic wait times to decrease as motorists grow accustomed to Metro Line operations, allow more time for travel, and find alternate routes.

Lessons Learned - 51 Avenue

The South LRT experience has highlighted the need to minimize the variability of train arrival and departure times. In the 51 Avenue failure, signals were programmed to operate with trains arriving every five minutes with less than 30 seconds of variability. When trains began operating widely outside of this schedule, traffic signals were unable

to resume normal cycles and some directions were held for up to 20 minutes without a green phase. Transit and Traffic Operations worked to stabilize the reliability of LRT arrival times at traffic signals and redesigned the traffic signals to allow each traffic direction their turn, in sequence, to ensure a more balanced traffic signal delay time for all traffic directions.

The Metro Line LRT design has incorporated the balanced traffic signal delay time approach as a foundational part of the work completed in preparation for opening to revenue service. Although traffic will be moving through in a more regular pattern, motorists will experience a slowdown in their commute. It is also important to note that when the Metro Line advances to full service at full speed with 10 minute headways, the traffic impacts will remain similar.

Risk Mitigation and Contingency Planning for Traffic Disruption

The City is prepared to open the Metro Line to public service on September 6 using a 'line of sight' operation that restricts train speeds to 25 km/h between MacEwan Station and NAIT Station. The City is also increasing bus service frequency on routes 8, 9, and 15 to supplement public transit between downtown and NAIT. In the event of any significant malfunction of Metro Line operations, the City is prepared to introduce contingency bus service immediately, with bus bridging along the Metro Line route and additional "Ookspres" service between downtown and NAIT.

Traffic Operations staff will be stationed at key intersections and key corridors to monitor traffic problems and communicate with the Traffic Operations Centre in Century Place downtown. Minor modifications to phasing may be implemented.

Transportation Services is advising and maintaining liaisons with key partner organizations including Edmonton Police Service, Edmonton Fire Department, Emergency Medical Service, DATS Transit, and EPCOR.

Public Education

The City is implementing a public education campaign to inform citizens about Metro Line operations and impacts. This campaign has three phases:

- Phase One (beginning August 25) -- Outreach to key stakeholders. The City has longstanding relationships with many key stakeholder groups (including NAIT, NAIT Student Association, Royal Alexander Hospital, Kingsway Mall, MacEwan University, etc.) that have been impacted by Metro Line construction and will be impacted by Metro Line operations and associated traffic impacts. During the first phase of the campaign, the City has increased the number of contacts within key stakeholder groups and the frequency of engagement with them.
- Phase Two (August 31-September 11) -- Outreach to LRT passengers and local residents/businesses/institutions. During the second phase of the public education campaign -- before, during and after Metro Line public service begins September 6 -- City staff are riding the LRT system to engage with passengers and explain the LRT service changes that Metro Line operations will bring. City

staff are also travelling the streets adjacent to the Metro Line extension between MacEwan Station and NAIT Station to explain LRT service changes and traffic impacts to local residents, businesses and institutions. A media tour of the Metro Line is planned for September 3 as part of the campaign's second phase.

Outreach to key stakeholder groups continues.

- Phase Three -- Throughout the Metro Line project, the City's primary communication tactic has been a quarterly newsletter distributed electronically to interested parties and by mail to residences, businesses, and institutions impacted by Metro Line construction and operations. The City has also initiated the ETS TraxSafe program, which includes a safety information campaign and continued outreach to stakeholder groups.

The City continues to update Metro Line web pages, 311, and scripts for the LRT Projects Message Centre.

Attachments

1. Duration of Traffic Impacts
2. Train Approach to Traffic Signal Sequencing