METRO LINE
DELAY FAQ

May 4, 2015

1. **What's happened?**

   The City has been working diligently with the LRT system signalling contractor, Thales Rail Signalling Solutions Inc., for many months to bring the Metro Line into safe and reliable public service. City staff have been reviewing the documentation (e.g. test results, safety certification, etc. handed over on March 23, 2015) related to the new signalling system and working with Thales to address issues as they arise.

   While the City's review of the documentation required for Metro Line operations is ongoing, it is sufficiently complete for ETS to begin safely commissioning the new signalling system and continue training ETS staff. Edmonton Transit System (ETS) staff started using the new LRT signalling system required for Metro Line operations and began field training on Saturday, May 2.

   While we are not yet prepared to announce an opening date for the Metro Line, we remain committed to opening it to safe, reliable public service as soon as possible.

2. **Why has the opening date for the Metro Line changed?**

   Although construction is complete and the infrastructure (tracks, stations etc.) is ready, it's taken longer than anticipated for Thales to complete the signalling system.

   In September 2013, the latest schedule from Thales had the Metro Line on track for an April 2014 opening date with reduced service. By December 2013, Thales had updated their schedule for a June 2014 opening with reduced service. By spring 2014, it became clear that this timeline wasn't workable and the City adjusted its plans.

   At this point the City aimed to open the Metro Line by the end of 2014 with reduced service. Thales then committed to delivering the signalling system so trains could open with reduced service by early 2015. The City did not receive the system by the end of the 2014, but Thales committed to providing an updated schedule in January 2015 with a projected system handover date of March 23, 2015.

   On March 23, 2015, Thales provided a great deal of handover material and we completed an initial review. Since then, City staff have been reviewing the documentation (e.g. test results, safety certification, etc. handed over on March 23, 2015) related to the new signalling system and working with Thales to address issues as they arise.

   We requested additional documentation and have now received enough for ETS to begin safely

commissioning the new signalling system and continue training their staff in its use. In the meantime, we will continue to review the documents we have received.

3. **Do you have any more details on the opening date?**

   Our goal is to open a safe, reliable system as soon as possible. On March 23, 2015, the City received much of the documentation required from Thales for handover of the Metro Line signalling system to City control. After completing our initial evaluation of the documents, we requested additional material. We've now received enough for ETS to begin safely commissioning the new signalling system and continue training their staff in its use. Meanwhile, we will continue to review the documents we have received.

   While we are not currently able to provide an opening date for the Metro Line, we remain committed to opening the line to safe, reliable public service as soon as possible.

4. **What does a signalling system do?**

   It controls train traffic. Signalling systems track train movements to keep trains safe and on schedule, and share train location publically (e.g. digital and audio announcements at LRT stations).

   These systems also manage intersections by triggering traffic signals and crossing warning systems (warning bells, flashing lights and gates) at exactly the right time so that trains, motorists and pedestrians can move through each intersection as quickly and safely as possible.

5. **Why is the City installing a new signalling system?**

   As Edmonton grows, so does the need for mass transit like LRT. Signalling systems need to evolve and adapt to safely meet this increase in demand.

   The City's current system controls trains using sections of track called blocks. Each block is protected by signals that prevent a train from entering an occupied block. The City is replacing this traditional fixed block system with a modern CBTC (moving block) system, which essentially means that rather than maintain a fixed block of empty space on LRT tracks a block of empty space is maintained around each train as it is moving. This allows trains to operate closer together, which increases the frequency of trains arriving at stations and increases an LRT system's overall capacity for ridership.

   The CBTC is a cutting-edge signalling system that uses computers on trains that report into a central controller to pinpoint the exact location of each train and constantly adjust the speed, spacing and routing of trains to keep trains safe and on schedule. It safely tightens up the spacing between trains so that Metro Line and Capital Line trains can share the same tracks between

Health Sciences/Jubilee Station and Churchill Station. Edmonton Transit currently runs peak-time trains every 5 minutes through downtown, but this frequency will be increased to every 2.5 minutes when the Metro Line is fully operational.

6. **Why is it taking the contractor longer than expected to complete the CBTC?**

   Neither the City nor Thales expected the installation of the CBTC to take as long as it has.

   The CBTC has proven to be particularly complex. It's computer-based, so Thales has to upgrade hardware (the 'muscle' of the CBTC) in the tracks and the trains. There have been logistical challenges because any upgrades or testing on the tracks have to happen late at night after LRT service has stopped.

   Upgrading the trains has also taken longer than expected because Edmonton has a mixed fleet that was not designed for a CBTC. Some of the trains are more than 30 years old and have been upgraded many times already, while other trains are new, so the contractor has to treat each train as an individual case. In spite of these complexities, the hardware upgrades are on track. Thales has upgraded enough trains with new signalling system hardware to support the operation of the Metro Line.

   The critical piece that has pushed the Metro Line opening is the software (the 'brains' of the CBTC). The software wasn't performing as expected in simulation tests. Thales progressed to running tests on the trains and tracks in Edmonton. The majority of these tests have taken place outside of service hours. In an effort to expedite the process, the City has taken the unprecedented step of shutting down the LRT several times to provide Thales with longer windows of time for testing.

7. **Who is the signalling contractor, and why were they selected?**

   Thales Rail Signalling Solutions Inc. is a multi-national contractor with expertise in train control. They have completed systems in many cities including Vancouver (Canada Line). They're also currently working on Ottawa's LRT.

   Thales was selected as the best team by an evaluation committee of City of Edmonton staff and signals experts through a competitive RFP process which included evaluation of the proponents, the project teams, the proposed solution and the price.

8. **What exactly are you doing to help Thales to deliver the signalling system?**

   As the project progressed, the City increased oversight of the project. We tracked milestones on a daily basis in an effort to keep Thales moving forward and streamlined our review and approval processes. We continued to help the contractor in scheduling their work and in co-ordinating their

subcontractors, particularly with train upgrades.

We also increased our resources on the project, providing additional ETS and consulting staff support. We provided more work space for train retrofits and more track shutdowns for testing. We have also taken the unprecedented step of shutting down the LRT several times to provide Thales with longer windows of time for testing.

The City worked diligently to help Thales meet their delivery date and on March 23, 2015, we received much of the documentation required for the signalling system to be handed over to ETS control. On March 31, 2015, we completed an initial review of these documents and found that we required some additional material before we could consider the handover complete. We requested that Thales meet this requirement and have now received enough for ETS to begin safely commissioning the new signalling system and continue training their staff in its use. In the meantime, we will continue to review the documents we have received.

We look forward to opening the Metro Line soon. While it's taken longer than initially planned, we remain cautiously optimistic that the Metro Line will soon be up and running, and supporting Edmonton's growing transit needs for decades to come.

9. Can you use people to manage train movements until the signalling system is ready?

We've certainly explored that option, but it doesn't meet our requirements for cost, safety, reliability or efficiency. We would need flag people stationed at any rail crossover where the Metro Line and Capital Line will overlap (between Health Sciences/Jubilee Station and Churchill Station), and at each intersection on the Metro Line (including 105 Street/105 Avenue, 105 Street/106 Avenue, 105 Street/107 Avenue, 104 Street/Kingsway, 106 Street/111 Avenue, 106 Street/Princess Elizabeth Avenue, and all pedestrian crossings). It would be resource-intensive and there would be higher risk of incidents due to human error.

10. Can you use the old fixed block signalling system to manage train movements until the new CBTC system is ready?

No. The City has installed the new CBTC signalling system hardware between Churchill Station and NAIT Station. This is new infrastructure, so there is no old system to fall back on between those stations. We would have to install new fixed block signalling system hardware between Churchill Station and NAIT Station in order to use the old signalling system to manage Metro Line train movements. It would take time and money to design, install and test the new fixed block signalling system, so wouldn't help us to open the line sooner.

11. Will the delay affect the project's budget?

No. The Metro Line is actually $90 million under its $755-million budget. These savings are being

applied to the Valley Line project ($81 million), with $9 million remaining in a reserve fund for LRT projects.

12. What happens to ETS service?

The Edmonton Transit System (ETS) will continue to serve northwest Edmonton with buses. Current bus service will be maintained until the Metro Line is fully operational.

In order to open as soon as possible, Metro Line trains will initially run between Century Park Station and NAIT Station at a reduced frequency. Capital Line trains will continue to run between Century Park Station and Clareview Station, but their frequency will initially be impacted by the Metro Line opening. Further details will be available closer to the opening of the new line.

In the longer term, Metro Line trains will run between Health Sciences/Jubilee Station and NAIT Station. This longer-term plan best addresses network ridership needs.

There have been periodic service disruptions on the Capital Line to accommodate signalling system tests. These disruptions will continue as our contractor works to complete the signalling system. If there are any major disruptions, we will notify the public and provide extra ETS service (i.e. bus bridges).

13. Are you feeling badly about the delay, City of Edmonton?

Everyone involved with the Metro Line project regrets the delay of this exciting transportation project. We ask for your patience and hope you'll continue to bear with us as we work towards bringing the Metro Line into service as soon as possible.