

## METRO LINE CHRONOLOGY

2008	Transit Projects Branch assigned from Transportation Department to new Capital Construction Department. Branch renamed LRT Design & Construction.
April 16, 2008	City Council approves \$45 million to construct the section of Metro Line LRT tunnel below the EPCOR tower.
September 25, 2008	City Council approves North LRT Extension (Metro Line) Concept Plan.
January 12, 2009	Bylaw 15144 brought to Transportation Committee.
January 23, 2009	City Council approves increase of \$80 million per Bylaw 15144 for land acquisition. Released budget is now \$125 million of \$825 million. \$700 million is subject to Green Trip Funding approval.
May 19, 2009	City Council approves additional \$15 million to fund Detailed Design of the Metro Line. Released budget is now \$140 million.
September 8, 2009	Transportation and Public Works committee approves tender for Prime Consultant services for project management, detailed design, construction engineering, and contract administration for the Metro Line.
January 15, 2010	ETS advises GM that the best solution to address track circuit problems and signal elements cut into embedded track is a CBTC system. Further discussed options for tendering same when Metro line is funded.
January 25, 2010	Transportation GM approves use of CBTC signaling system.
February 7, 2010	ETS as the operator of the LRT system advises Transportation GM HMM (Hatch Mott-McDonald) contract would be amended to include the design of a CBTC system when funding is obtained.
July 8, 2010	Request for Information (RFI) issued to solicit interest from vendors with respect to Communications Based Train Control systems and requirements for delivery of a solution to ETS to be substantially completed by December 2013 and commissioning by April 2014.
July 30, 2010	LRT Design and Construction staff in Capital Construction Department cautions against splitting Metro signals out from the Construction Management contract.
August 17, 2010	Closing of RFI process, seven vendors submit responses.
September 8, 2010	LRT Design and Construction, Capital Construction Department submits proposed summary of responsibilities to ETS for the CBTC execution with ETS "Responsible for day-to-day project management".
September 10, 2010	ETS agrees with proposed summary of responsibilities with clarification that ETS responsible for technical direction in both the brownfield (existing track from Churchill to Health Sciences) and greenfield track (Churchill to NAIT).
	Transportation GM makes decision to allocate CBTC contract management to ETS as the ultimate operator of the signals system.
April 6, 2011	Request for Proposal issued for CBTC signals system on Metro Line. Terms required delivery by December 31, 2013.

## Attachment 2 – LRT Metro Line Chronology

May 2011	Started Earned Value Analysis on the NLRT project including both the civil construction contract and CBTC contract at Milestone level. No direct input into scheduling, only evaluation of performance.
May 19, 2011	Contract Awarded to successful proponent Thales Rail Signalling Solutions Inc. for a Design Build Contract for CBTC signals. Project Manager ETS.
June 1, 2011	In a City structural reorganization, LRT D&C branch is placed under Transportation Services Department.
August 20, 2011	Concept Design Milestone missed.
November 13, 2011	Preliminary Design Report Milestone missed.
October 4, 2012	Thales Revised Project Schedule - Full Revenue Service: April 25, 2014.
January 2013	NLRT Schedule Integration Support. – helping Thales and NLP integrate their schedules as per their contractual agreement.
February 1, 2013	NLP Integrated Schedule – Complete Driver Training March 24, 2014.
July 11, 2013	Transportation Department General Manager retires.
July 2013	Co-facilitated Commissioning Integration Workshop between City, Thales and NLP in an attempt to coordinate all commissioning work. Commissioning Team coordinated workshop results after the workshop.
September 3, 2013	Thales provides schedule “roadmap” indicating April 2014 “Plan B” Metro Line opening to revenue service.
September 3, 2013	New General Manager, Transportation Services hired.
September 11, 2013	LRT Design and Construction and ETS review progress and vendor schedules.
October 2013	GM Transportation takes active role in the managing Metro Line project.
October 9, 2013	ETS questions Thales re: ability to meet April, 2014 opening.
October 17, 2013	Branch Manager meetings to discuss “Plan B” potential delay.
October 21 2013	Civic Election – City Council Meetings September 18 and October 29.
December 4, 2013	ETS Branch Manager advises City Council during operating budget discussions the revised in-service date of Metro Line will be June, 2014.
January 2014	GM begins regular Metro Line meetings to ensure senior level oversight.
	GM begins regular communication with Thales leadership.
	Continued conducting Schedule Risk Assessments on CBTC work remaining to forecast probable completion dates.
January 17, 2014	Thales advises City of revised opening date of July 30, 2014.

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January 22, 2014	City Audit on Capital Projects Advisory Status Report notes that LRT Design and Construction office “continues to apply leading project management practices.”
February 24, 2014	Thales Schedule indicates December 2, 2014 Plan B revenue service date.
March 19, 2014	Transportation Committee advised of December, 2014 revised opening date.
July 21, 2014	HMM attends Thales, Toronto to witness FAT Tests, (unsuccessful).
July 2014	SMA Engineering retained to track As-Built schedule, costs due to delay.
August 2014	Engaged by City to produce independent progress reports on a weekly basis for remaining CBTC work, including forecasting probable end dates as specific levels of confidence.
October 2014	Thales advises that they won't meet the Nov 2 handover and therefore the Dec 2014 opening.
October 8 2014	Update to Council and Public – revised opening date of early 2015.
December 2014	Mayor meets with Thales CEO Mark Halinaty. Mr. Halinaty commits to a Dec 31 handover to City.
January 21, 2015	Update to Council, Thales representative indicates March 23 2015 handover target.
March 23, 2015	Thales hands over system for “Staged Implementation.” HMM indicates system is acceptable for testing and training purposes only.
April 2015	Testing and software upgrades continue. Problems identified requiring attention. 20 Critical items (11 Safety, 9 Reliability) are identified as needing resolve.
May 9, 2015	ETS begins commissioning training. Updated Stakeholders for May 31 launch.
May 27, 2015	May 31 Launch Scrubbed due to lack of software readiness.
June 2, 2015	Complete system failure observed– CBTC system crashes.
June 2, 2015	System failure scrubbs planned June 7 Launch.
June 8, 2015	Council advised via memo that June 7 launch scrubbed, and system failure observed.
June 20, 2015	CBTC-Hardware issues (that caused CBTC system crash) resolved by Thales.
June 30, 2015	Launch attempt scrubbed. Matters identified by HMM still not resolved by Thales relating to Safety Case, status remains not ready for revenue service.
July 7, 2015	Update to City Council: HMM appears to discuss Signalling concerns.
July 9, 2015	Status update Memo to Council from GM.
July 12, 2015	Launch attempt scrubbed. Matters still outstanding.

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July 13, 2015	Transportation Services reviews options identified by HMM to open Metro Line without CBTC signalling.
July 20, 2015	HMM attends Thales main offices in Toronto, at Thales' invitation, to review test processes and documentation related to outstanding items of concern with the Thales Safety Certificate. HMM spends four days in Thales offices.
July 23, 2015	GM update memo to Council advising of HMM activities in Toronto.
July 29, 2015	General Manager Transportation Services informs Thales CEO of HMM that remaining issues could not be successfully closed, and that an independent safety audit would be necessary to close the remaining gaps to permit the City to accept the Safety Certificate and open the line to the public.
July 31, 2015	GM Transportation Services advises Council by email of the results of the HMM review and that the City would be RSC to conduct an independent safety audit. Public service announcement and media availability held later that morning advising public of the independent safety audit and options being investigated to open the line using traditional technology.
August 5, 2015	HMM and Transportation Staff review and prioritize alternative technologies to open Metro Line while CBTC continues to be developed. A modified service option was identified providing for train pre-emption at crossings operating at a lower line of sight mode (25 km/h through crossings).