

# TORONTO TRANSIT COMMISSION REPORT NO.

**MEETING DATE:** November 18, 2013

**SUBJECT:** NORTH YONGE SUBWAY LINE EARLY CLOSURE

**ACTION ITEM**

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## **RECOMMENDATION**

It is recommended that the TTC Board approve the North Yonge Subway early closure for 2014 and 2015 as recommended in the attached presentation. The presentation provides the background and reasons for the early shutdown.

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1-6-6  
Attachment - Presentation



# NORTH YONGE SUBWAY LINE EARLY CLOSURE





## Structural Repair Requirements

- Pre-cast Concrete Tunnel Liners
- Lawrence Station Concrete Tunnel Ceiling

## Asbestos Removal – Subway Tunnel Walls

## Early Closure - Bus Shuttle Service

## Recommendations



# STRUCTURAL REPAIR REQUIREMENTS



## PRECAST CONCRETE TUNNEL LINERS

**Prior to Insulation Removal**

**After Insulation Removal**



# NORTH YONGE SUBWAY TUNNEL STRUCTURAL CONCRETE REPAIR



## PRECAST CONCRETE TUNNEL LINERS

- Condition Survey Identified Deteriorated Concrete Tunnel Liners in 2000
- 620 Liners Identified as High Priority for Repair
- Insulation Removal from 6,000 Liners Recommended for More Detailed Condition Assessment
- Restricted Work Hours 2:30 to 5:00 a.m.
- 1 <sup>3</sup>/<sub>4</sub> Hours Required for Mobilization, Work Zone/Power Cut, Site Set Up and Site Tear Down
- <sup>3</sup>/<sub>4</sub> Hour Available for Repair Work
- Repair Design and Work Methodologies Developed to Minimize Track Level Time
- Peer Review Panel Input

HIGH PRIORITY REPAIRS COULD NOT BE COMPLETED WITHIN AN  
ACCEPTABLE TIME FRAME



# PRE-CAST CONCRETE TUNNEL LINERS



## Early Subway Closure

- 12:30 to 5:00 a.m.
- Additional 2 Hours/Night for Repair Work
- Board Approved Early Closure Commencing June 2008
- Bus Shuttle Service from Eglinton to Finch Stations 12:30 to 2:30 a.m.

## Pumped and Formed Liners



## Work Site Setup





## Status (High Priority Repairs)

- Man Made Fiber Insulation Removed from 4,330 Liners for Detailed Condition Survey
- Repairs to 920 Liners (88% of Safety Critical Repairs Identified to Date)

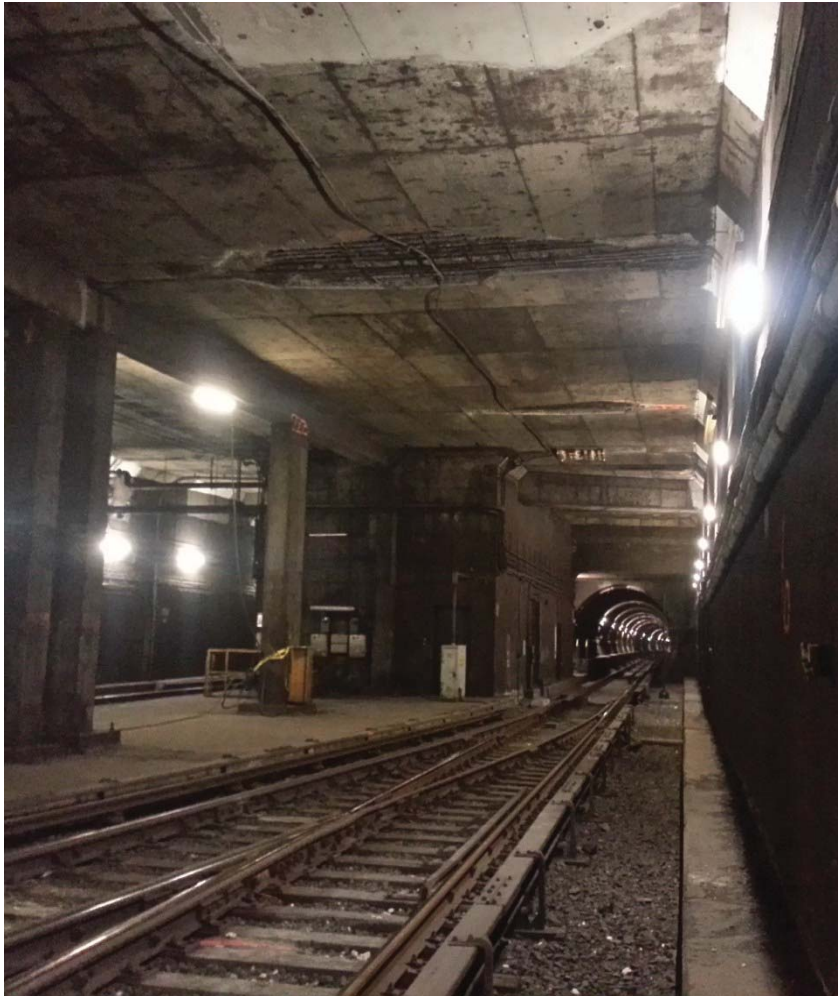
## Outstanding Work (Low Priority Repairs)

- Man Made Fiber Insulation Removal from 1,660 Liners
- Quantity of Liner Repairs to be Determined and Prioritized

HIGH PRIORITY REPAIRS COMPLETE BY DECEMBER 2013



# LAWRENCE STN CONCRETE TUNNEL CEILING



- Signs of Concrete Delamination and Cracking Identified in 2008
- Bus Platform Roadway Above
- Condition Assessments Completed in 2009, 2010, 2012 and 2013
- Loose Concrete Identified & Removed
- Assessed to be in a Safe Condition
- Repair Work Deferred for High Priority Tunnel Liner Repair Work
- Concrete Deterioration Continues







## Recent Inspection

- 10 Safety Critical Locations Identified for Repair Within 2 Years

## Repair Work Scheduled to Begin January 2014

## Risks of Not Repairing Within 2 Years

- Concrete Deterioration May Impact Structural Capacity of Bus Roadway Above
- Closure of Bus Platform Above
- Closure of Subway Operations Below

	<b>Regular Work Window</b>	<b>Early Closure Work Window</b>
<b>Time</b>	2:30 a.m. - 5:00 a.m.	12:30 a.m. - 5:00 a.m.
<b>Hours</b>	2 ½ Hours	4 ½ Hours
<b># Weeks</b>	172 Weeks	86 Weeks
<b># Years</b>	3.4 Years	1.7 years





## Program Description

- Remove Asbestos from Tunnel Walls to Eliminate Risk of Asbestos Fibers Becoming Airborne Due to Damage From Maintenance Activities
- Long Term Program with Restricted Work Hours
- Early Closure will Provide an Opportunity to Accelerate Removal for Customer Service Critical Maintenance Programs
  - ATC and Resignalling Projects
  - CCTV Camera Installations
  - Tunnel Leak Remediation Program
  - Tunnel Liner Repair Program



# EARLY CLOSURE BUS SHUTTLE SERVICE

- Bus Shuttle Hours - 12:30 a.m. to 2:30 a.m.  
Sunday to Friday Night
- Customers Impacted - Average of 1,250 Customers/Night
- Service Delivery - Minimum Delays and Crowding



# RECOMMENDATION



## Extend Early Closure for Two Years 2014/2015

### Benefits

- 100% Improvement in Productivity
- Eliminate the Risk of Lawrence Station Bus Platform Closure
- Eliminate the Risk of Subway Tunnel Closure at Lawrence Station
- Eliminate the Risk of Delays to Service Critical Projects due to Presence of Asbestos Insulation

### Impacts

- Bus Shuttle Service for Customers after 12:30 a.m. from Eglinton to Finch Stations
- \$700,000/Year for Bus Shuttle

### Performance Management

- Monitor Actual Repair Time versus Scheduled
- Monitor Actual Quantity of Concrete Repair versus Scheduled
- Establish Productivity Targets for Asbestos Removal Activities and Monitor
- Pursue Continuous Improvements in Mobilization & Productivity

