

2

ADVANCED PROCUREMENT OF TUNNELLING EQUIPMENT FOR SOUTHEAST COLLECTOR TRUNK SEWER PROJECT

The Transportation and Works Committee recommends:

- 1. Receipt of the presentation by Wayne Green, Senior Project Manager, Engineering, Environmental Services; and**
- 2. Adoption of the recommendations contained in the following report dated March 27, 2009, from the Commissioner of Environmental Services, subject to Recommendation 2 being amended to read as follows:**
 - 2. The Regional Chair and Regional Clerk be authorized to execute the necessary agreement for this procurement, subject to review by Legal Services, with the final approval decision to be delegated to the Regional Chair and the CAO.**

1. RECOMMENDATIONS

It is recommended that:

1. The Region enter into an agreement with Lovat Inc. for manufacture, supply and delivery of four earth pressure balance Tunnel Boring Machines for the Southeast Collector Trunk Sewer Project, for an amount not to exceed \$27,593,952, excluding GST, pursuant to the sole source provisions of the Purchasing By-law.
2. The Regional Chair and Regional Clerk be authorized to execute the necessary agreement for this procurement, subject to review by Legal Services.

2. PURPOSE

At its meeting of June 19, 2008, Regional Council authorized staff to undertake a sole-source negotiation with Lovat Inc, a local manufacturer of tunnel boring equipment, for the sole-source purchase of four earth pressure balance Tunnel Boring Machines (TBMs) required for the construction of the Southeast Collector trunk sewer.

The purpose of this report is to update Council on the process followed for negotiating this sole source purchase and to obtain Council authorization to execute a formal agreement with Lovat Inc. for manufacture, supply and delivery of these TBMs to meet the project completion date for commissioning of the new Southeast Collector trunk sewer infrastructure by the end of 2012.

3. BACKGROUND

Southeast Collector trunk sewer will extend 15 kilometres from within the Town of Markham to within the City of Pickering

The proposed Southeast Collector trunk sewer extends 15 kilometres from the area of 9th Line and 14th Avenue in the Town of Markham to the area of Finch Avenue and Valley Farm Road in the City of Pickering.

The proposed sewer route extends along 14th Avenue for a length of approximately 4.5 km from 9th Line, east to Townline Road, south on Townline Road for approximately 3.5 km to the Hydro corridor, east on the Hydro corridor for approximately 5.5 km to Liverpool Road, south on Liverpool Road for approximately 0.5 km to Finch Avenue and east on Finch Avenue for approximately 1.0 km to Valley Farm Road (*see Attachment 1*).

Project's Individual Environmental Assessment report currently with the MOE for approval and design and procurement phases underway

The Individual Environmental Assessment (IEA) report for the Southeast Collector (SEC) trunk sewer is currently before the Ministry of the Environment (MOE) for approval. The IEA report recommends construction of a new Southeast Collector trunk sewer along with appropriate inflow and infiltration and water efficiency measures all needed to provide hydraulic capacity to accommodate the Region's future growth, up to 2031 and beyond. The IEA report also recommends that the new SEC trunk sewer be constructed using tunnel boring technology and in particular recommends the use of Earth Pressure Balance (EPB) tunnelling technology, EPB will help insure a minimal impact to private wells, groundwater and surface water systems, and the natural environment.

During MOE's ongoing review of the IEA, the Region is proceeding with multiple projects to have the Southeast Collector trunk sewer commissioned by 2012. The IEA detailed design and the procurement phases are being undertaken concurrently on the basis that the MOE will provide their final approval of the IEA within reasonable timelines.

Negotiation of sole source procurement of four Tunnel Boring Machines approved by Regional Council in June of 2008

The type of Tunnel Boring Machines recommended in the IEA for the SEC project will take approximately 12 months to manufacture. To meet the project completion date of 2012, the TBMs must be procured by the Region in advance of receiving project approvals from MOE and other agencies. This will permit the commencement of the tunnelling activity immediately upon receipt of all required approvals and ensure approximately three years of onsite construction activity. With the deployment of four

TBMs working concurrently during this three-year period, the Southeast Collector trunk sewer can be commissioned by December 2012.

At its meeting of June 19, 2008, Regional Council authorized staff to undertake a sole source negotiation with Lovat Inc, a local manufacturer of tunnel boring equipment, for sole source purchase of four earth pressure balance Tunnel Boring Machines (TBMs) for the construction of the Southeast Collector trunk sewer.

Regional staff negotiated best and final price from Lovat Inc. for Tunnel Boring Machines

Prior to commencing formal negotiations with Lovat Inc., Regional staff developed technical specifications for the TBMs that detailed key aspects such as machine size, performance, expected soil/groundwater conditions, tunnel lining system and health and safety requirements.

Further, KPMG Inc. was retained by the Region as a “fairness consultant” to assist the Region’s Negotiating Team and to observe and report on the overall fairness and transparency of the negotiation process. The Negotiating Team included Regional staff from Environmental, Legal and Supplies and Services.

The activities above commenced immediately upon Council authority in June of 2008. The final documents were subsequently ready for formal presentation to Lovat Inc. to commence the negotiation process in February 2009. As a first step in these negotiations, an initial meeting was set to discuss the terms and conditions of the contract including key issues such as equipment delivery timelines, payment schedule, and warranties. In March 2009, the final version of the proposed contract and technical specifications developed by the Region were submitted to Lovat Inc. for reference in preparation of their detailed quotation.

The negotiation process ultimately culminated with a best and final price from Lovat Inc. in the amount of \$27,593,952, excluding GST, for manufacture, supply and delivery of four 3.6 metre diameter earth pressure balance tunnel boring machines.

4. ANALYSIS AND OPTIONS

Lovat Inc.’s best and final price is within Region’s established price benchmark

To ensure that the sole source quotation submitted by Lovat Inc. is competitive in today’s market, Regional staff developed a “benchmark price” which was based on a thorough review of Lovat’s selling prices for similar TBMs since 2005. In this regard, 20 machines sold by Lovat Inc. were selected as comparables for detailed pricing analysis.

All prices were verified to be either competitively bid or signed contracts. A number of these contracts and bids were for multiple machine deliveries. For each selected machine, the selling price was converted to 2009 Canadian Dollars. Further adjustments were made to the selling prices to account for features that are included or excluded for the Region's application. The adjusted selling prices for all selected machines were reviewed for trends and price ranges.

Specific factors including the estimated efficiencies for design and manufacturing of four TBMs at the same time and the rating of York Region as a low risk and strategic customer for the supplier were also considered. Based on the above approach, the benchmark price for one TBM at the same size and with the same features as the Region's specified TBMs is estimated to be in the range of \$7,097,079 to \$7,326,205. This benchmark price was established prior to receipt of Lovat's offer.

As stated above, the best and final price from Lovat Inc. for the manufacture, supply and delivery of four complete EPB TBMs is \$27,593,952. This equates to an average value of \$6,898,488 per machine. The price of the four machines is approximately 4.5% below the midpoint of the established benchmark price.

Per Council authorization of June 2008, Lovat Inc. was selected as a sole source supplier due to the advantages of their local knowledge, local support during construction, ease of monitoring during the manufacture process and their commitment to providing an open book comparison with previous supply contracts.

Given the above, Regional Staff is confident that the best and final price quoted by Lovat Inc. is a market competitive price, and provides the best value to the Region.

Additional features and upgrades have been added to the Tunnel Boring Machines since Council authorization of June 2008

It should be noted that the June 19, 2008 Council Report authorizing these negotiations identified an estimated cost associated with the procurement of these four TBMs to be in the order of \$20,000,000. The discrepancy between this previous estimate and the submitted quote can be accounted for as follows:

- Since June 2008, a detailed analysis of the existing soil and groundwater conditions has been finalized and documented in a formal Geotechnical Statement Report. The findings of this soil and groundwater analysis have necessitated incorporation of a number of features and accessories to the TBMs required to minimize construction risk and ensure proper performance in the field. These include upgraded technologies for the liner system installation, low energy motor drives and an optional conversion to non-earth pressure balance mode for improved production rate where site conditions will allow.

- Based on lessons learned from other tunnel projects undertaken by the Region, the specifications for these TBMs were upgraded to incorporate an advanced grouting system for groundwater control and a remote machine data collection system to allow the Region the ability to monitor the contractor's daily progress.
- A significant portion of the TBMs' components are procured on the global market including approximately 30% from US sources. This makes the pricing on tunnelling equipment vulnerable to changes in monetary exchange rates. In this regard, the US to Canadian exchange rate has increased over 28% since May 2008.

5. FINANCIAL IMPLICATIONS

The total cost for the sole source advanced procurement of four Earth Pressure Balance Tunnel Boring Machines from Lovat Inc. is \$27,593,952 excluding GST. As outlined in this report, this sole source procurement strategy is necessary to fulfill the project's aggressive schedule obligations. Also as outlined in this report, Regional staff has gone to extensive efforts to ensure that the price quoted by Lovat Inc. is reasonable and competitive in today's market.

Lovat Inc.'s current best and final price is non binding to the Region until such time as a formal contract is executed. Should Council authority not be provided at this time, the Region will not be exposed to any penalties or liabilities.

Lovat Inc.'s best and final price provides an option for the Region to sell the equipment back to Lovat. Alternatively, the Region could opt to transfer the ultimate ownership of all or some of the TBMs (i.e. novate) to the awarded construction contractor(s). The final decision on the best option for the Region will be determined at the time of tendering of the construction contract(s).

The approved 2009 Capital Program outlines a total budget for this project of \$529,400,000, with approved funding in 2009 of \$34,091,000. Approximately \$38,000,000 of the total project budget was allocated to procurement of these TBMs. Given that the "cash flow" for this procurement will extend into 2010, there are sufficient funds in the 2009 budget for this as well as other anticipated project expenditures this year.

6. LOCAL MUNICIPAL IMPACT

The new Southeast Collector trunk sewer is required to be in service by 2012 to provide the sewer capacity for the continued growth in York Region as identified in the current and planned updates to the Region's Official Plan. A new Southeast Collector trunk sewer has to be constructed to carry projected sewage flows up to the year 2036.

7. CONCLUSION

At its meeting of June 19, 2008, Regional Council authorized staff to undertake a sole source negotiation with Lovat Inc., a local manufacturer of tunnel boring equipment, for sole source purchase of four Earth Pressure Balance Tunnel Boring Machines required for the construction of the Southeast Collector trunk sewer.

Throughout the negotiation process, Regional staff has gone to extensive efforts to fully develop the specifications for the Tunnel Boring Machines to ensure that the sole source price received is inclusive, reasonable and competitive in today's market.

Accordingly, it is recommended that the Region enter into an agreement with Lovat Inc. for manufacture, supply and delivery of four Earth Pressure Balance Tunnel Boring Machines for the Southeast Collector Trunk Sewer Project, for an amount not to exceed \$27,593,952, excluding GST, pursuant to the sole source provisions of the Purchasing By-law.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery at Extension 5070.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)



Southeast Collector Trunk Sewer Individual Environmental Assessment

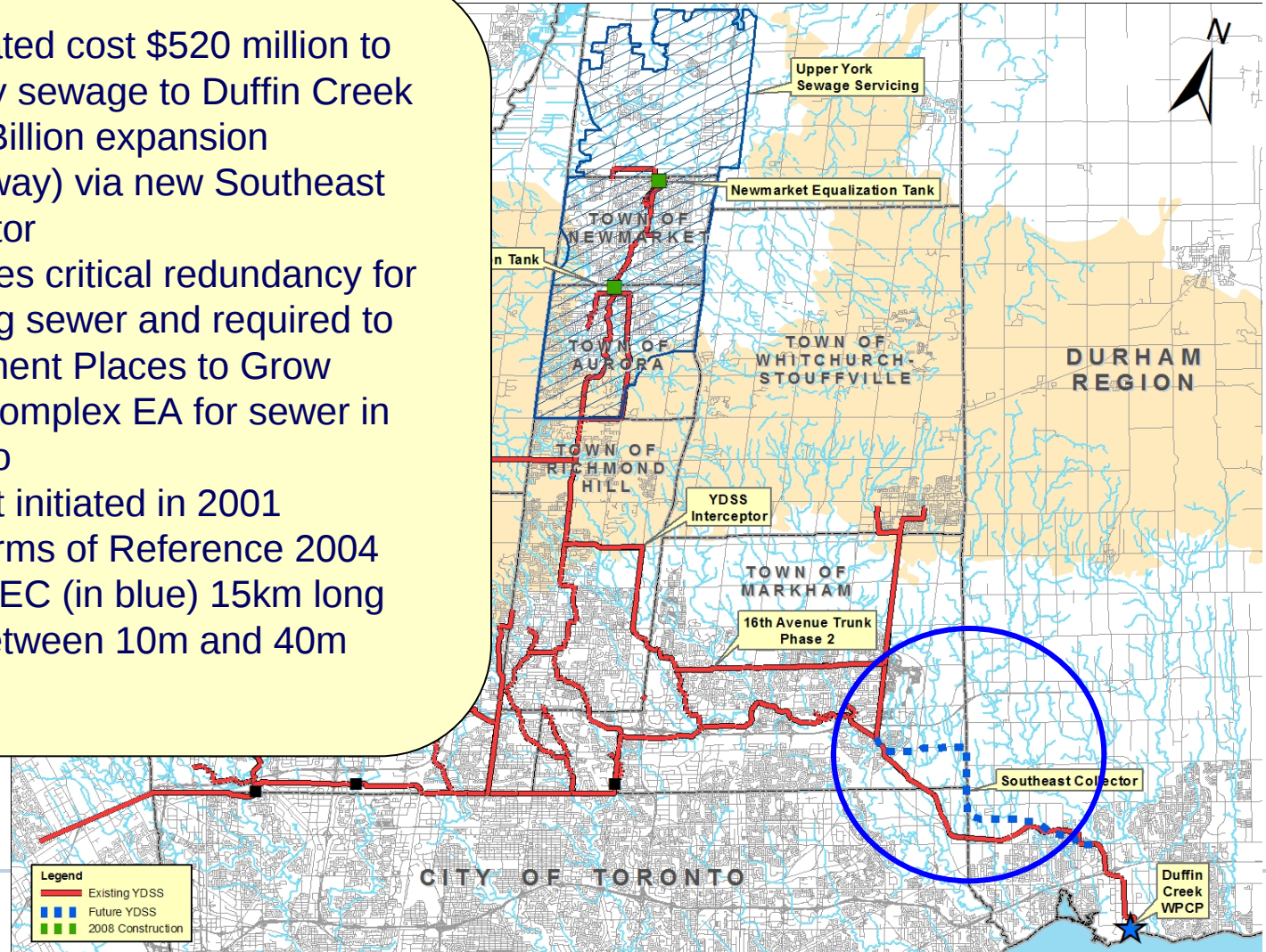
**Presentation to Transportation
and Works Committee**

Wayne Green

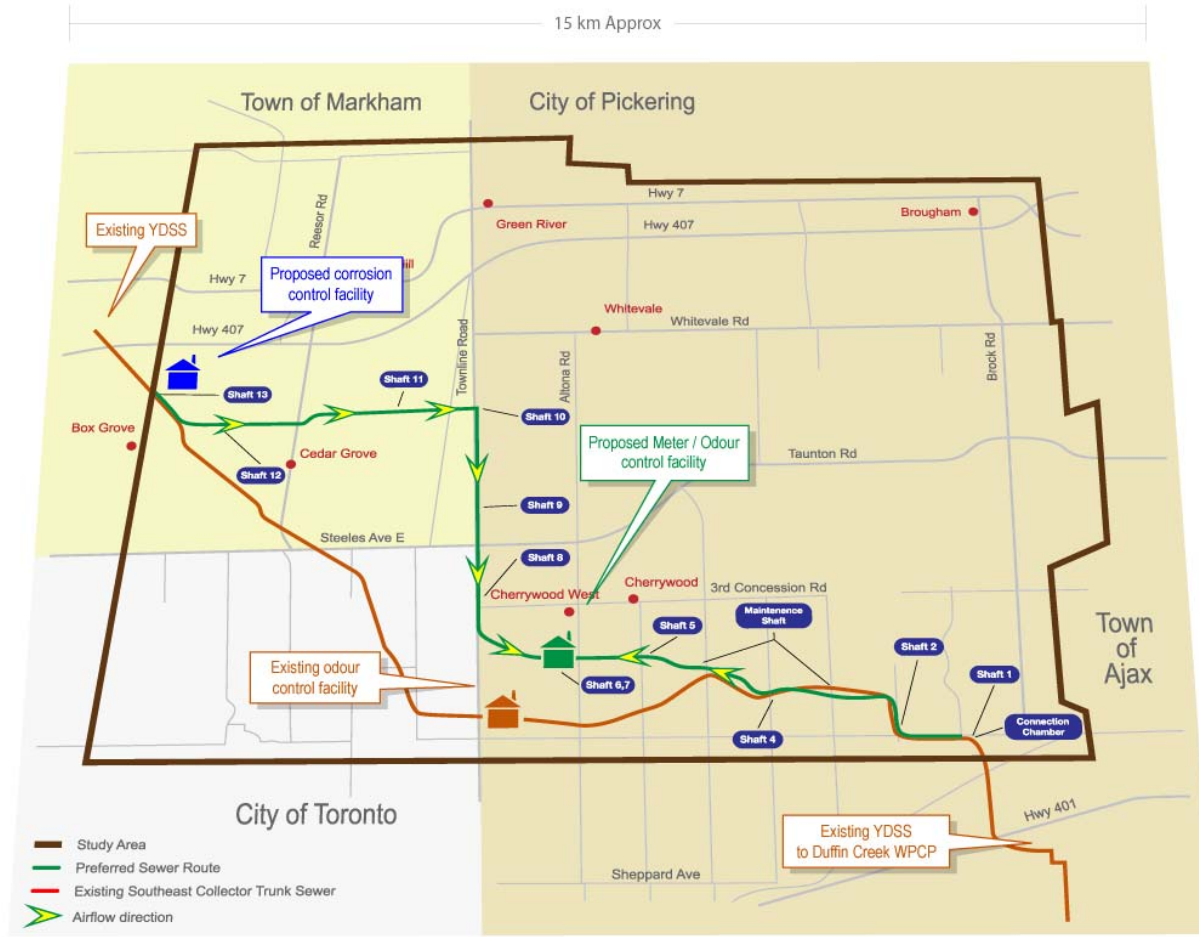
April 8, 2009

York Durham Sewage System Overview

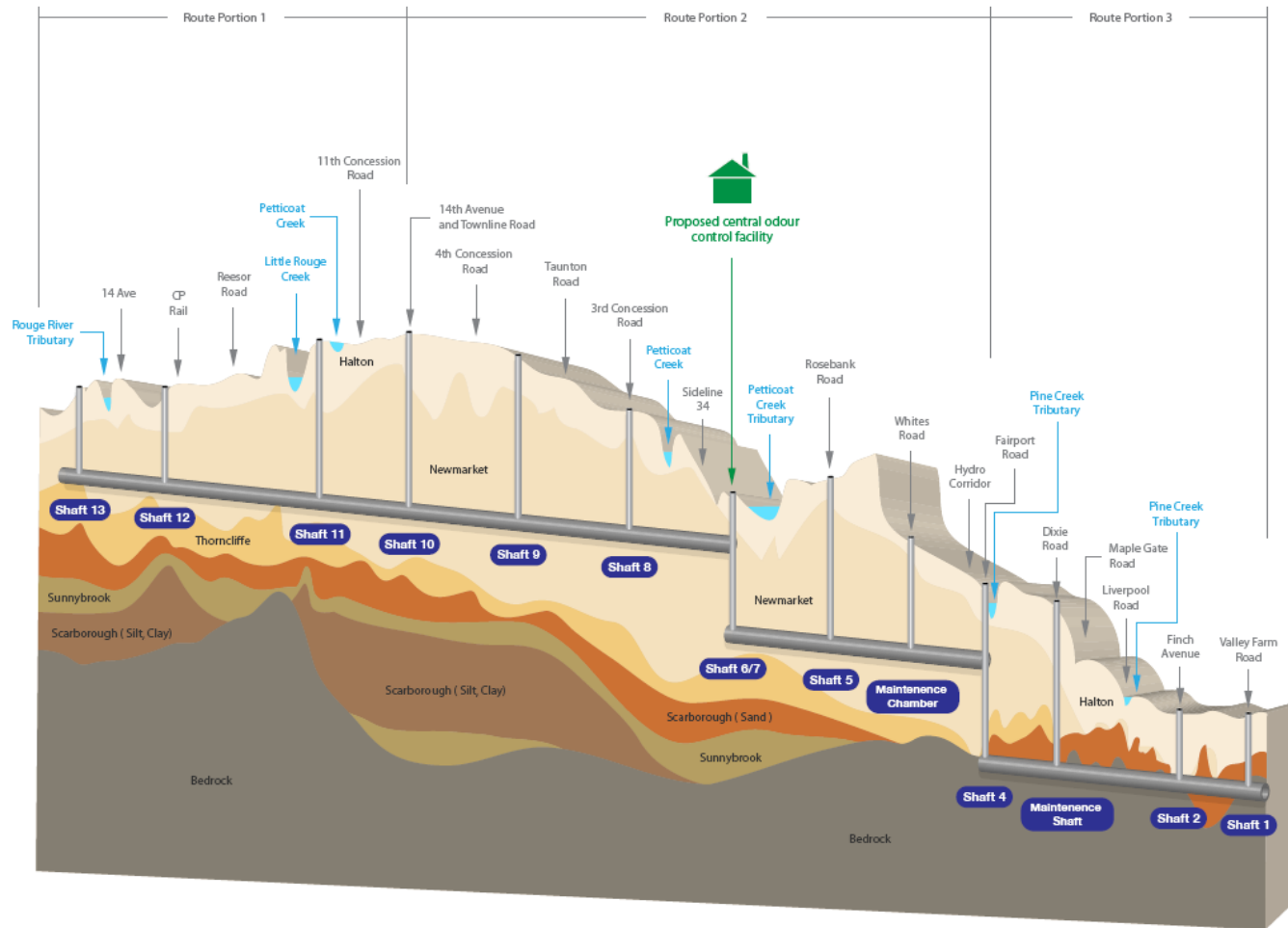
- Estimated cost \$520 million to convey sewage to Duffin Creek (\$0.5 Billion expansion underway) via new Southeast Collector
- Provides critical redundancy for existing sewer and required to implement Places to Grow
- Most complex EA for sewer in Ontario
- Project initiated in 2001
- EA Terms of Reference 2004
- New SEC (in blue) 15km long and between 10m and 40m deep



Study Area (inside brown outline)



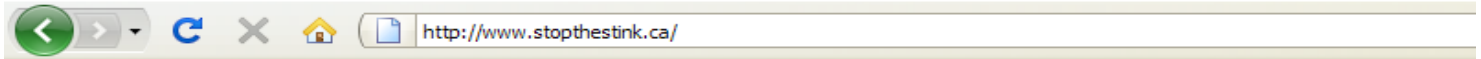
Geologic Cross Section Proposed Sewer



Proposed Odour Control Facility Site Plan



Opposition to Altona Road Site



Stop The Stink !



Main Page

OPPOSE YORK REGION'S PLAN TO BUILD AN ODOUR CONTROL FACILITY IN PICKERING !!!

- ❑ Approximately 50 residents presented deputations at a recent Durham Works Committee meeting
- ❑ March 11, 2009 – Durham Council unanimously vote to “request that the location of the OCF be moved to a location in York Region”

We continue to work closely with Durham staff to develop odour control options



Procurement of Tunnel Boring Machines



TBMs will take approximately 12 months to manufacture and must be procured in advance of IEA approvals

Next Steps



- ❑ Develop alternative solutions to respond to Durham Council resolution
- ❑ Undertake additional consultation on alternate Odour Control solutions
- ❑ Continue meeting with Durham and MOE to address community and stakeholder concerns
- ❑ Re-activate processing of IEA when additional consultation has been completed
- ❑ Minister's decision on IEA
- ❑ Continue detailed design, prequalification of contractors, and procurement of TBMs to meet required December 2012 completion date

Questions



