

Re: EX8.12

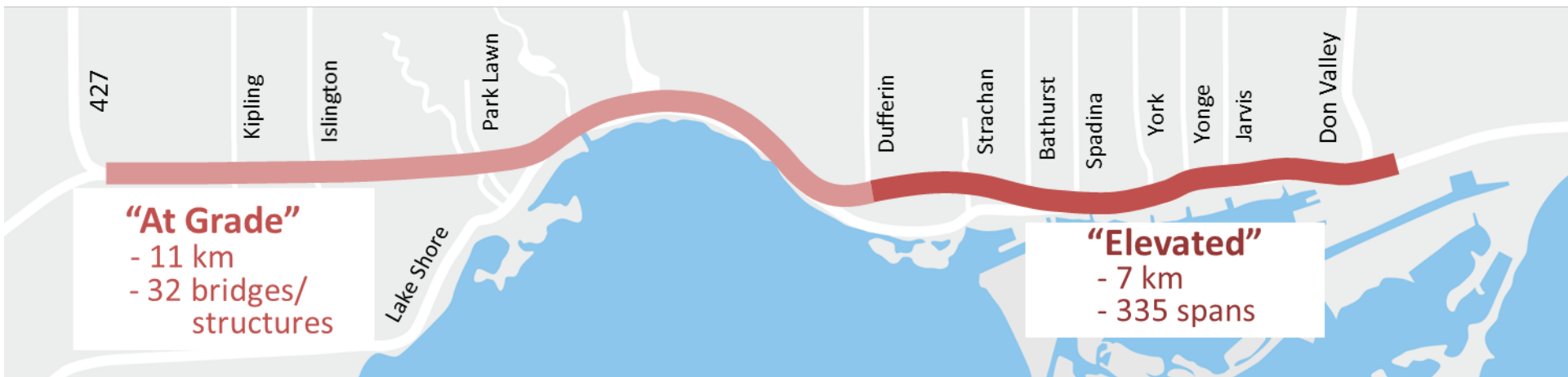
F.G. Gardiner Expressway Strategic Rehabilitation Plan Procurement Strategy

Presentation to Executive Committee
September 21, 2015

Overview

- Project Background
- Procurement Options
- Analysis of Alternative Financing & Procurement Approach
- Procurement of External Advisors
- Project Governance Structure and Timelines
- Recommendations Summary

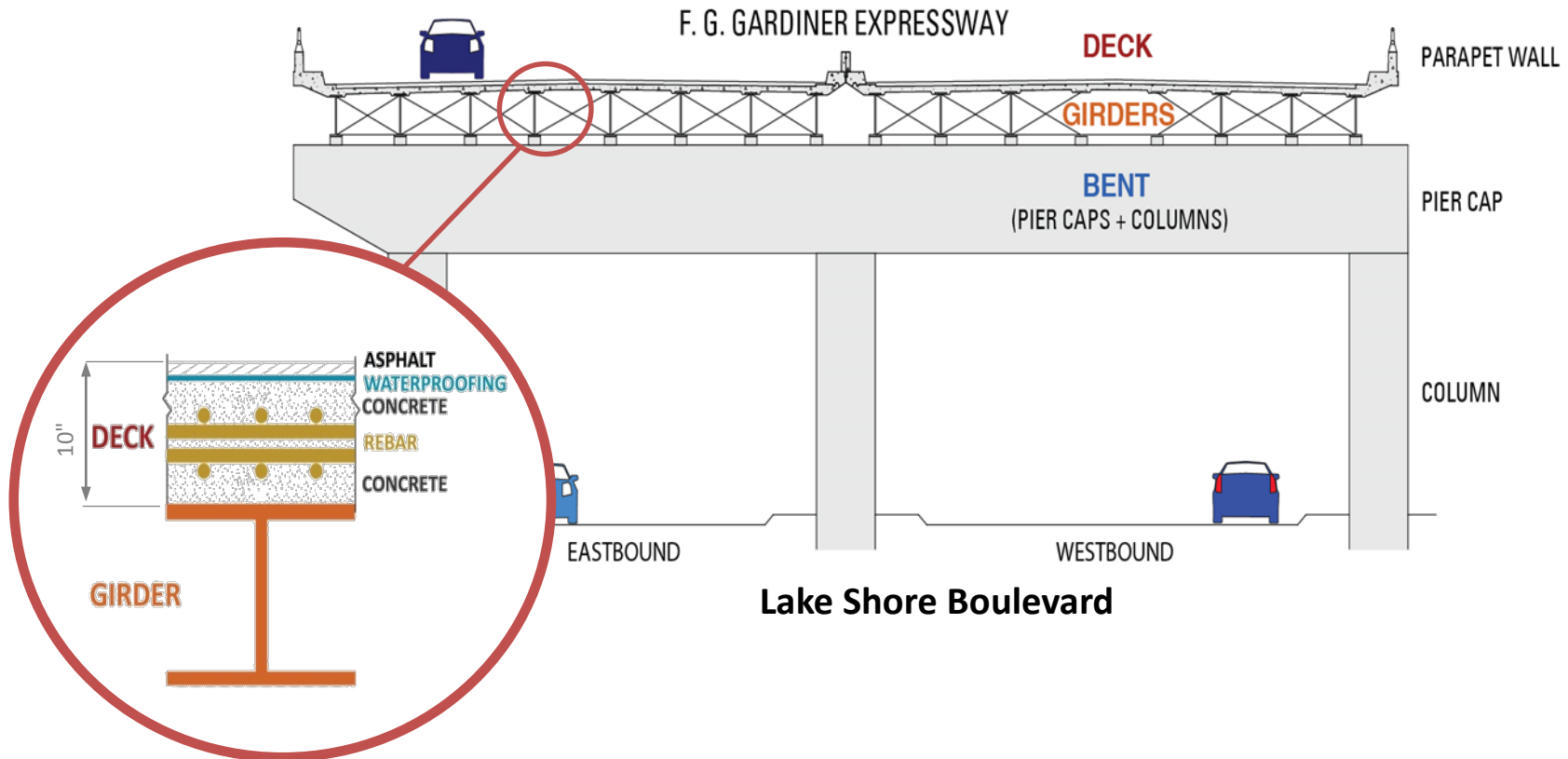
Background – F.G. Gardiner Expressway



- “At-grade” section: Hwy. 427 to Dufferin Street (1955 to 1958)
- “Elevated” section: Dufferin Street to Logan Avenue (1959 to 1966)
- Strategic Rehabilitation Plan
 - Study area: Highway 427 to Logan Avenue (Don Valley Parkway)
 - Recent condition assessments and prioritization of works based on public safety and needs
 - Consideration given to recently completed interchange EA studies
 - Identify: immediate, short term and longer term rehabilitation needs

Expressway – Cross Section of Span

F.G. Gardiner Expressway



Condition Assessment Key Findings

- Elevated Section:
 - Concrete Deck and Barrier Walls are in poor condition and nearing the end of their service life
 - Some of the Bents require extensive concrete repair work
 - Drainage modifications are necessary
 - Concrete T-beams and Box Girders are in good to moderate condition
 - Steel girders are good condition and will be in need of recoating within the next 25 years
- At Grade Section:
 - Overpass and Underpass Concrete Repairs
 - Pavement reconstruction and resurfacing
 - Roadside safety improvements

Strategic Rehabilitation – Accelerated Bridge Construction Approach

Advantages

Less weather dependent

Mitigates noise, dust, vibrations

Highest quality end product due to prefabrication in controlled environment

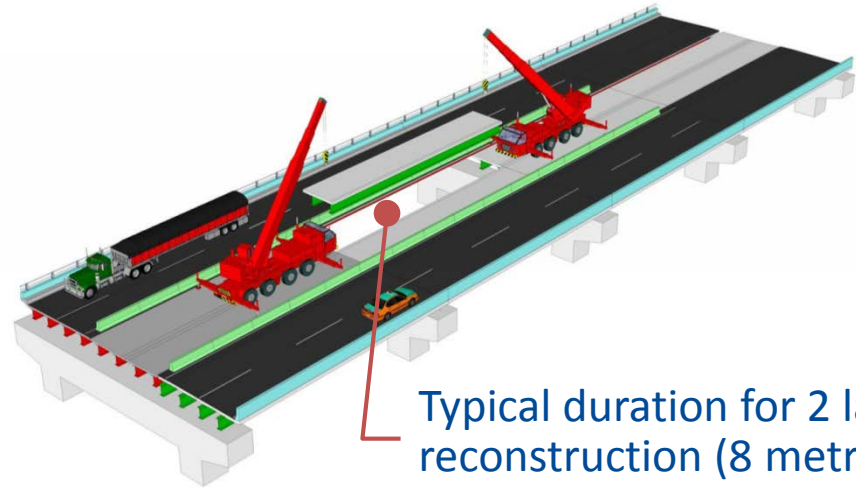
Traffic delays and public inconvenience on the Expressway is minimized by reducing the duration of lane closures thereby lowering the user cost

Disadvantage

Unforeseen risks inherent with unconventional methods exist

Capital cost premium

Accelerated Bridge Construction Approach

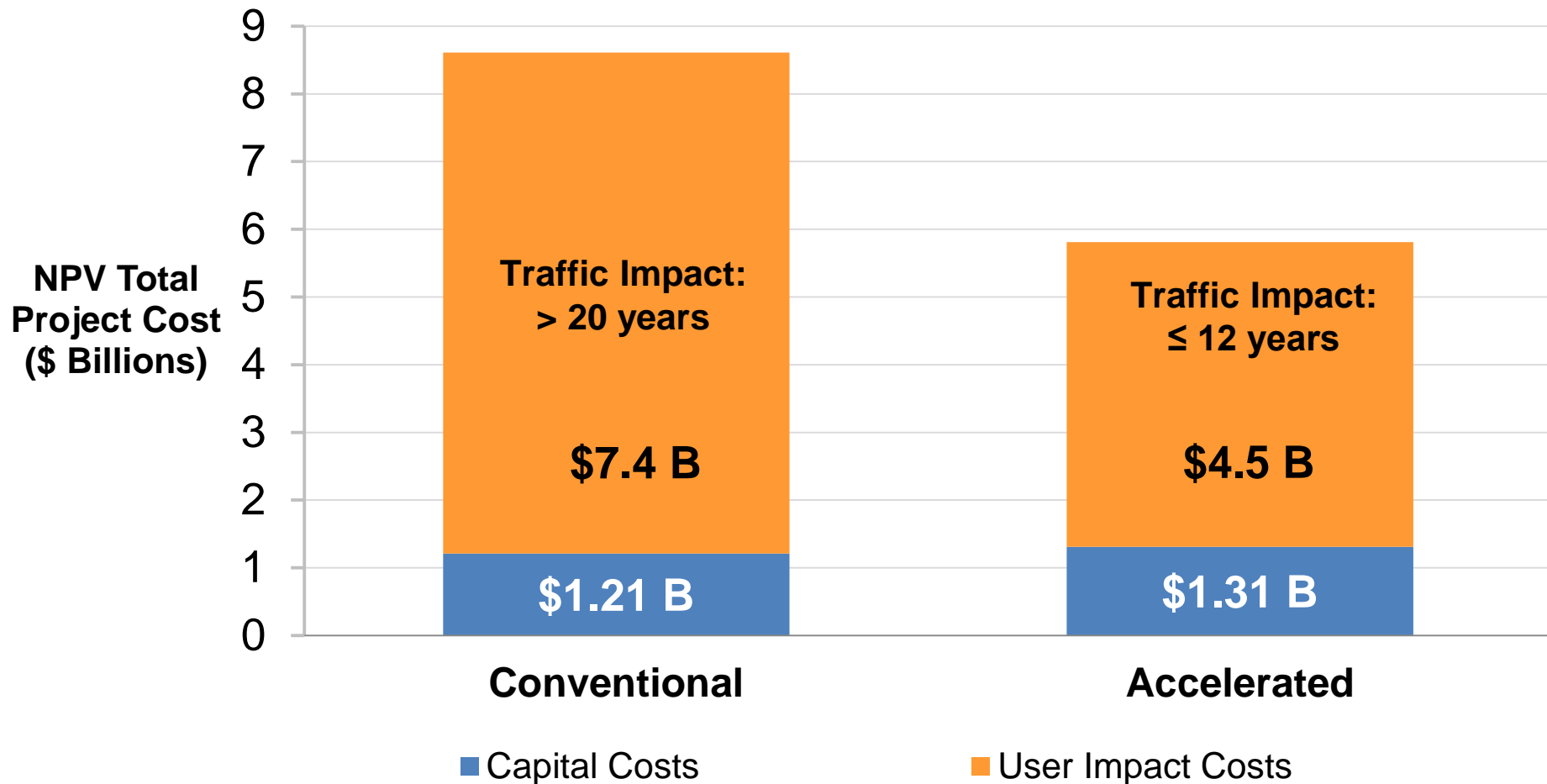


Typical duration for 2 lane reconstruction (8 metres X 400 metres) = **2 months** (6 months for entire section)



Prefabrication Facility

Strategic Rehabilitation – Conventional vs. Accelerated Bridge Construction



Council Decision (April, 2014) – Strategic Rehabilitation Plan

- Approved “Accelerated” Construction Approach
- Report back through Transportation Services’ 2015 Capital Budget and 2016 to 2024 Capital Plan submission on:
 - Procurement approach & project delivery schedule
 - Multi-year cash flow requirements & financing strategy
- Update the Strategic Rehabilitation Plan to account for the Gardiner East EA preferred option
- Proceed with the conventional construction approach for the West Deck (Exhibition Place to west of Bathurst Street: 800 metres) because:
 - Two “at-grade” construction projects also planned for 2014
 - Estimated 3 year lead time to begin accelerated construction approach

Background – Gardiner East EA



Note: Certain disciplines will conduct investigations at a city or regional level. These areas are not defined here.

Gardiner East EA – Hybrid Option

3 Hybrid Design Alternatives are being evaluated
(PWIC – September 22, 2015)



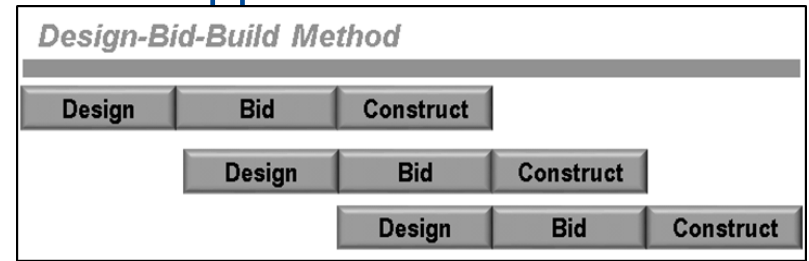
Strategic Rehabilitation Plan – Revisions

- Revised Strategic Rehabilitation Plan: incorporates the Hybrid Option for elevated section of the Expressway east of Jarvis Street
- For purpose of procurement analysis – "base case" hybrid option presented to Council in June, 2015, was used
- The Hybrid Option Design Alternatives may incur higher capital costs over the "base case"
- The recommended procurement option is not expected to be affected by the choice of Hybrid Option Design Alternative, but project costs will be affected

Procurement Options – Traditional

- **Design-Bid-Build**

- Most common approach used in City municipal works construction:
 - Procure engineering design and construction separately, and sequentially
- 12-year implementation schedule for the Strategic Rehabilitation Plan using the Accelerated Bridge Construction approach is based on Design-Bid-Build



- **Design-Build**

- Bundle the design and construction of a project
- Use one competitive procurement to hire a private sector firm at a fixed fee
- Applying the Design-Build model to the Revised Strategic Rehabilitation Plan could lead to further compression of the schedule

Alternative Financing & Procurement (AFP)

- AFP is a project procurement and delivery model
- Expressway remains in City ownership
 - City continues to control all aspects of Expressway
- AFP approach is typically used for large, complex projects
 - Used across Canada and United States
- Process is designed to transfer risks to the contractor, where project schedule and construction challenges are taken into account in their bid
- 2 AFP approaches considered
 - Design-Build-Finance
 - Design-Build-Finance-Operate-Maintain

AFP Procurement Options

- **Design-Build-Finance**
 - Places responsibility for project financing, as well as the engineering design and construction, with the contractor
- **Design-Build-Finance-Operate-Maintain (DBFOM)**
 - Adds a long-term operations and life cycle maintenance concession contract to the design and construction contract
 - Contractor is also responsible for short and long term financing of all project costs
 - City only pays a portion of project cost at substantial completion of construction

Procurement Options – Contractor Roles & Responsibilities

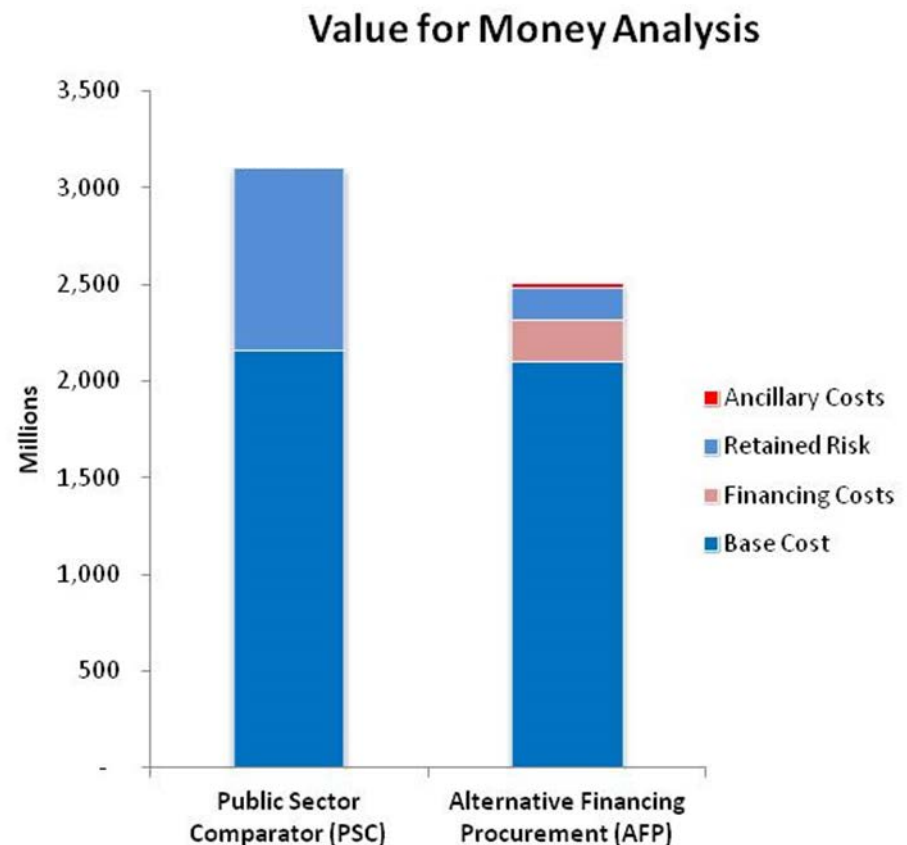
Procurement Option	DBB	DB	DBF	DBFOM
Preliminary design		✓	✓	✓
Detail design		✓	✓	✓
Design and construction co-ordination		✓	✓	✓
Construction	✓	✓	✓	✓
Maintenance				✓
Lifecycle (major capital refurbishment)				✓
Operations				✓
Short-term financing during construction			✓	✓
Long-term financing				✓

Qualitative Analysis – Design-Build-Finance-Operate-Maintain

- Potential further acceleration of construction (from 12 to 6 years)
- Improved schedule certainty
 - Stronger incentives for on-time completion
- Procurement supports innovation in design and delivery
 - Can add significant value
- Long-term effective warranty as a result of 30-year concession contract
- Private sector (financier) oversight assures contractor compliance
 - particularly schedule
- DBFOM is a requirement for P3 Canada Funding

Value for Money Analysis – Present Value Cost Comparison of Traditional Procurement vs AFP (DBFOM)

- Positive Value for Money after adjustment for retained risks of at least 16% or \$500 million (NPV) over:
 - 6-year construction period; and
 - 30 year concession period (for O&M and lifecycle maintenance)



Provincial Auditor General Review of IO-AFP Projects – December 2014

- AG review of 74 Infrastructure Ontario AFP projects:
 - Indicated project cost estimates \$8 billion higher than traditional estimates, before consideration of estimated \$15 billion avoided/transferred costs/risks
 - Acknowledged that AFP projects were for the most part on time and at contracted cost
 - Identified concerns about IO estimates of value of transferred/avoided risks (inadequate empirical data, formula inconsistencies, cost estimates overly conservative)
 - Led to improvements to IO value for money assessment

DBFOM Approach – Estimated Construction Capital Costs

Preliminary Estimated Project Construction Capital Costs	\$ Millions (As spent)
Construction Cost	\$2,460
Professional Services	\$110
Total Capital Project	\$2,570
Preliminary Estimated 1/3 Federal Contribution	(\$820)
Net Capital Cost to City	<u>\$1,750</u>

DBFOM Approach –

Estimated 10-year Capital Costs: 2016-2025

Preliminary Estimated 10 year Capital Outlay 2016 -2025	\$ Millions nominal / as spent
Professional Services	\$110
Net City Substantial Completion Payment (85%)	\$1,265
Amortized Construction Payments 2024 -25	\$58
Total City Estimate 2016 – 2025	<u>\$1,433</u>

Assumptions

- 100% debt financed
- 15% capital cost financed over concession period
- 30-year debt
- Excludes O&M, Lifecycle maintenance costs

DBFOM Approach –

Total Estimated Contract Value (with 30 year concession period O&M)

	\$ millions as spent
Construction Cost (2018-2023)	\$2,460
Concession Charges: O&M, Lifecycle Maintenance, Capital Financing (2024 – 2053)	\$1,390
Total Estimated DBFOM Contract Value	\$3,850
Less Estimated Federal Capital Funding	(\$820)
Estimated Net Contract Value	<u>\$3,030</u>

Infrastructure Ontario (IO) – Proposed Continued Support

- IO brings extensive experience procuring and managing large-scale, complex infrastructure projects using an AFP approach
- Proposed support:
 - Develop Project Specific Output Specifications (PSOS) Documents
 - Identify, procure, manage necessary technical advisors
 - Manage the Request for Qualifications and Request for Proposal processes
 - Assist with negotiations with the Preferred Proponent to reach Commercial and Financial Close
- Fee estimate for continuing assistance from IO is approximately \$12 million inclusive of non-recoverable HST

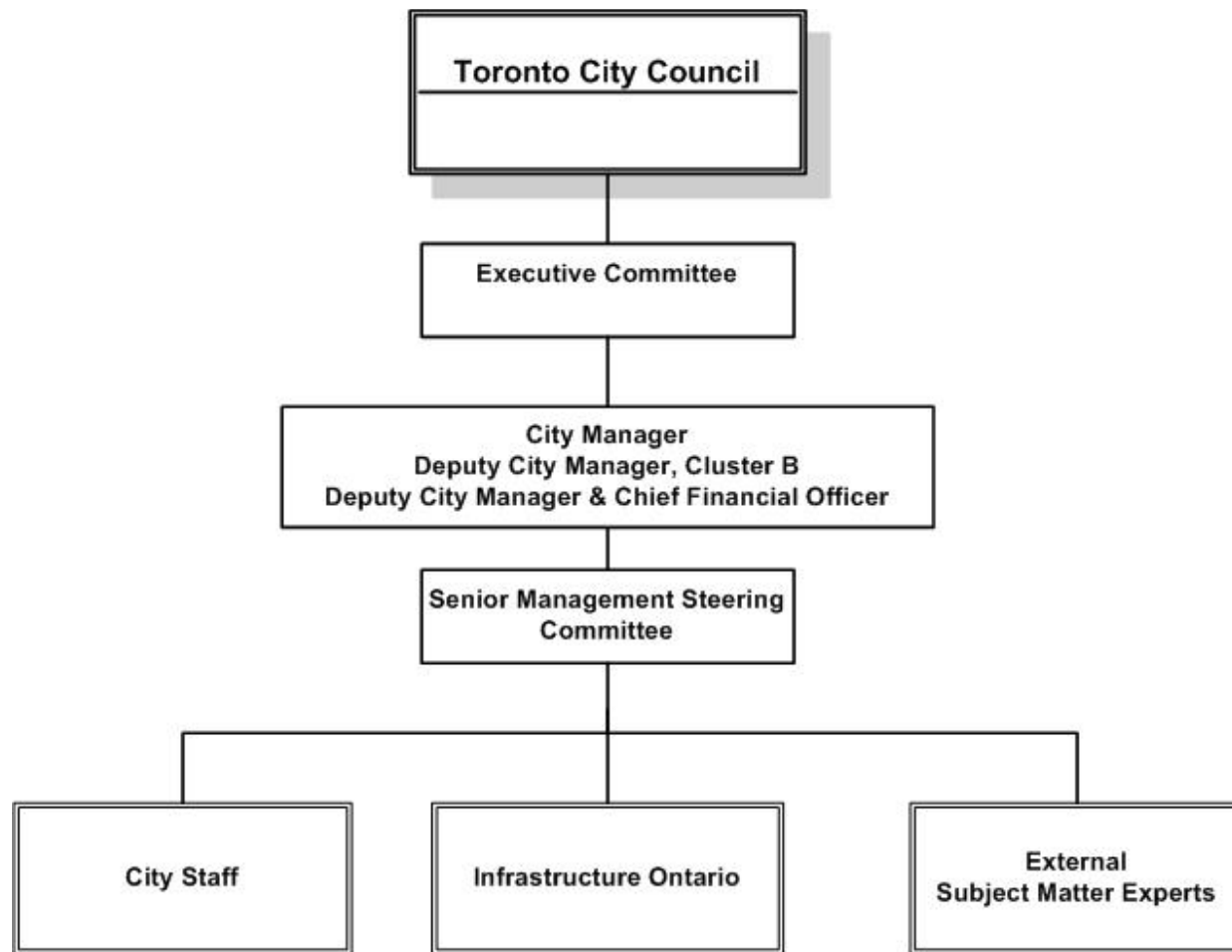
Additional External Advisors

- Additional external advisors:
 - Fairness Monitor
 - Insurance Consultant
 - Quality Advisor
 - Technical Advisor
 - Financial Advisor
 - Legal Advisor
 - Scheduling Consultant
 - Traffic Consultant
- All additional external advisors will be retained as required through competitive processes
 - Some of the advisors could be procured by IO, with the City retaining all final decision making authority on the advisors retained
- The fees for External Advisors are estimated to be \$40M

Public Consultation

- Top issue identified through the polling:
 - Ensuring that the rehabilitation of the Expressway is completed on time and on budget
 - Project delivery by the private or public sector was not considered relevant
- Survey results identified the following top 5 priorities:
 1. Ensure that the construction work that is undertaken is of high quality
 2. Minimize traffic congestion caused by construction
 3. Minimize construction duration
 4. Deliver the construction work on budget
 5. Keep the costs to the City as low as possible

Project Procurement Governance Structure



Project Timelines

PROJECT PHASE	Timeline
Preparation of Procurement Documentation	2015
Procurement of the Preferred Proponent to deliver the Revised Strategic Rehabilitation Plan	2016
Recommend AFP Contract Award to Council	2017
Commencement of Construction	2018
Completion of Construction	2023
Commencement of Operations and Maintenance	2024

Recommendations – Overview

- Implement the Strategic Rehabilitation Plan using a Design-Build-Finance-Operate-Maintain procurement approach
- Submit business cases to P3 Canada and Infrastructure Canada for 1/3 of the eligible capital construction costs
- Request 1/3 matching funding from the Province of Ontario
- Enter into an agreement with Infrastructure Ontario for assistance with the DBFOM procurement
- Submit proposed cash flows and funding sources as part of the 2016 Budget process
- Report back to Executive Committee and Council on the results of the procurement process and to seek authority to award a contract