Eglinton West LRT

Community Working Group Meeting #2

April 3, 2018

Agenda

- Welcome
- Planning and Decision Making Process
- Business Case Frameworks
- Review of Draft Work Plan
- Workshop of Potential Alignments
- Next Steps

Community Input to Decision Process

Project Team

Made up of representatives from the City of Toronto, Metrolinx and the TTC.

Provides information to public, stakeholders and Elected Officials

Receives information from:

- TAC
- Technical Experts
- SAG
- CWG
- General Public

Documents public/stakeholder comments in final Consultation Summary Report

Reports technical findings to Council and Board

Considers all inputs and makes recommendations to Council or Board

Community Input to Decision Process

General Public

Includes all citizens, members of the public and external groups, as well as SAG + CWG, with an interest in the project.

Provides input through:

- Public meetings and online comments documented in the final Consultation Summary Report
- Direct communications with Elected Officials

Community Input to Decision Process

Stakeholder Advisory Committee (SAG)

‘External’ invited representatives from stakeholder groups from across the City who have an interest or stake in the project.

Provides input through:

- Direct communications with Project Team on technical work
- Comments documented in the final Consultation Summary Report

Community Input to Decision Process

Community Working Group (CWG)

A select group of local residents & representatives nominated by Elected Officials

Provide input through:

- Direct communications with Project Team on the technical planning and design process for the project
- Comments documented in the CWG Summary Report and final Consultation Summary Report

Technical Input to Decision Process

Technical Advisory Committee (TAC)

Committee of ‘internal' stakeholders from City Divisions and Agencies.

Reviews work of Technical Experts and Project Team.

Technical Experts

Includes both staff expertise and external consultant support.

Reports findings and conclusions of work directly to the Project Team.

Community Input to Decision Process

City Council

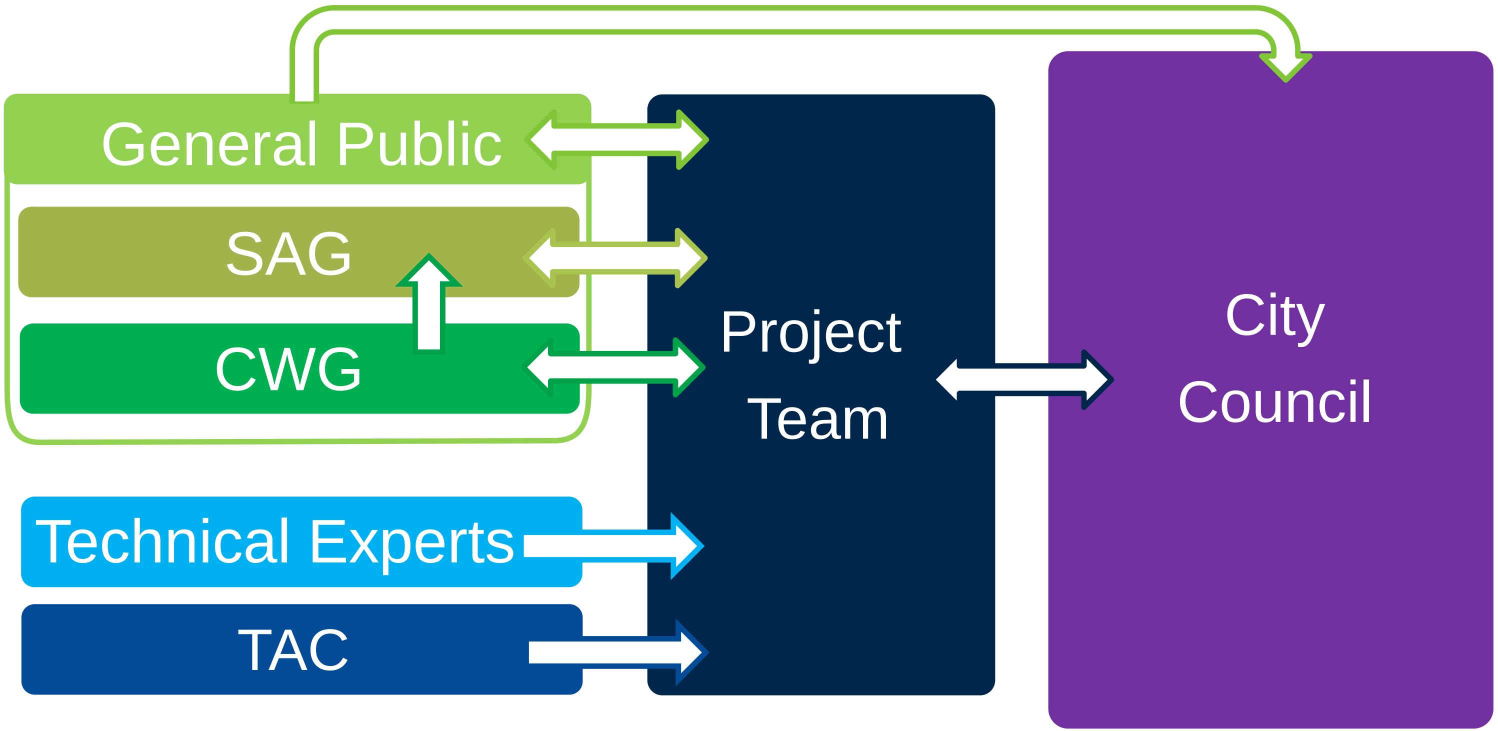
Receives information from:

- Staff recommendations and project information via Council or Board reporting process.
- Community input through direct communications with general public

Provides direction to staff, including the Project Team

Has approval of projects based on recommendations as well as other inputs, including communications with public

Community Input to Decision Process



EGLINTON WEST

Planning Process and Decision Points

Problem or Opportunity

Project is identified in high level documents (like the City's Transit Plan or Metrolinx RTP)

Phase 1: Project Definition

1. Problem Statement
2. Feasibility + Options Analysis

Phase 2: Design

3. Preliminary Design
4. Detailed Design + Procurement Prep

Phase 3: Procurement + Construction

5. Procurement
6. Construction and Delivery

Phase 4: Operations

There are several key decision points for a project – as indicated in the red.

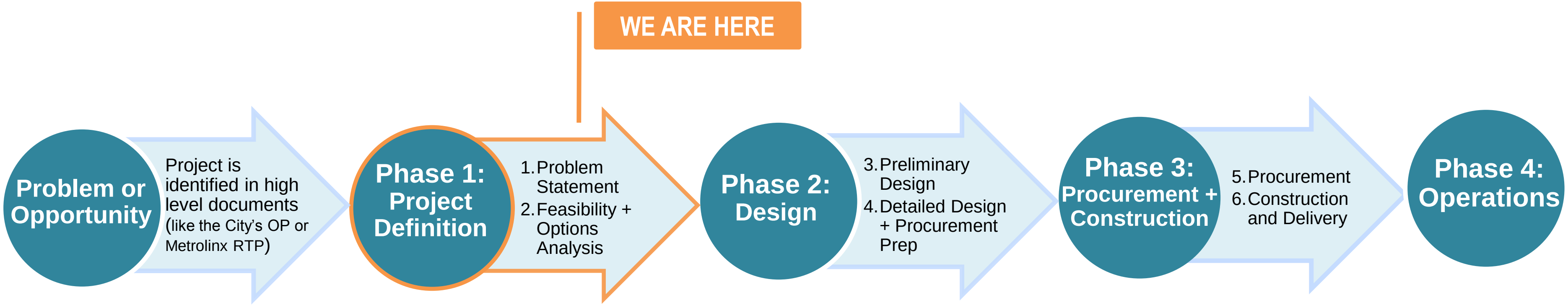
DECISION POINT
Funding for Planning & Preliminary Design

DECISION POINT
Recommended Design

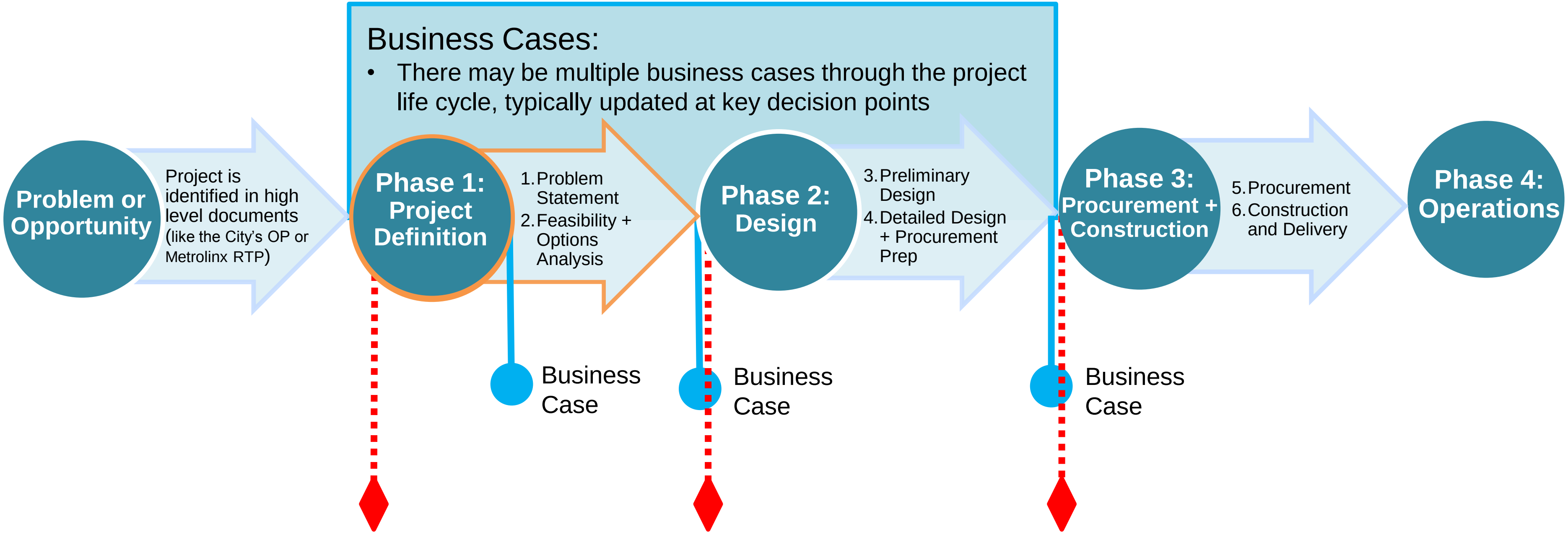
DECISION POINT
Funding for Construction

TORONTO METROLINX

Planning Process



Planning Process



Planning Process

Business Cases: CWG Meeting 1

Problem or Opportunity

Project is identified in high level documents (like the City's OP or Metrolinx RTP)

Phase 1: Project Definition

1. Problem Statement
2. Feasibility + Options Analysis

Phase 2: Design

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4. Detailed Design + Procurement Prep

Phase 3: Procurement + Construction

5. Procurement
6. Construction and Delivery

Phase 4: Operations

The focus of this meeting will be around Phase 1 and 2 of the project cycle – through the Business Case lens.

Business Case Analysis

METROLINX

Eglinton West LRT
Community Working Group Meeting No. 2

Metrolinx Business Case Framework & 2016 Initial Business Case

Becca Nagorsky
Director, Rapid Transit Project Planning, Metrolinx

Matt Routley
Manager, Planning Analytics, Metrolinx

APRIL-3-18

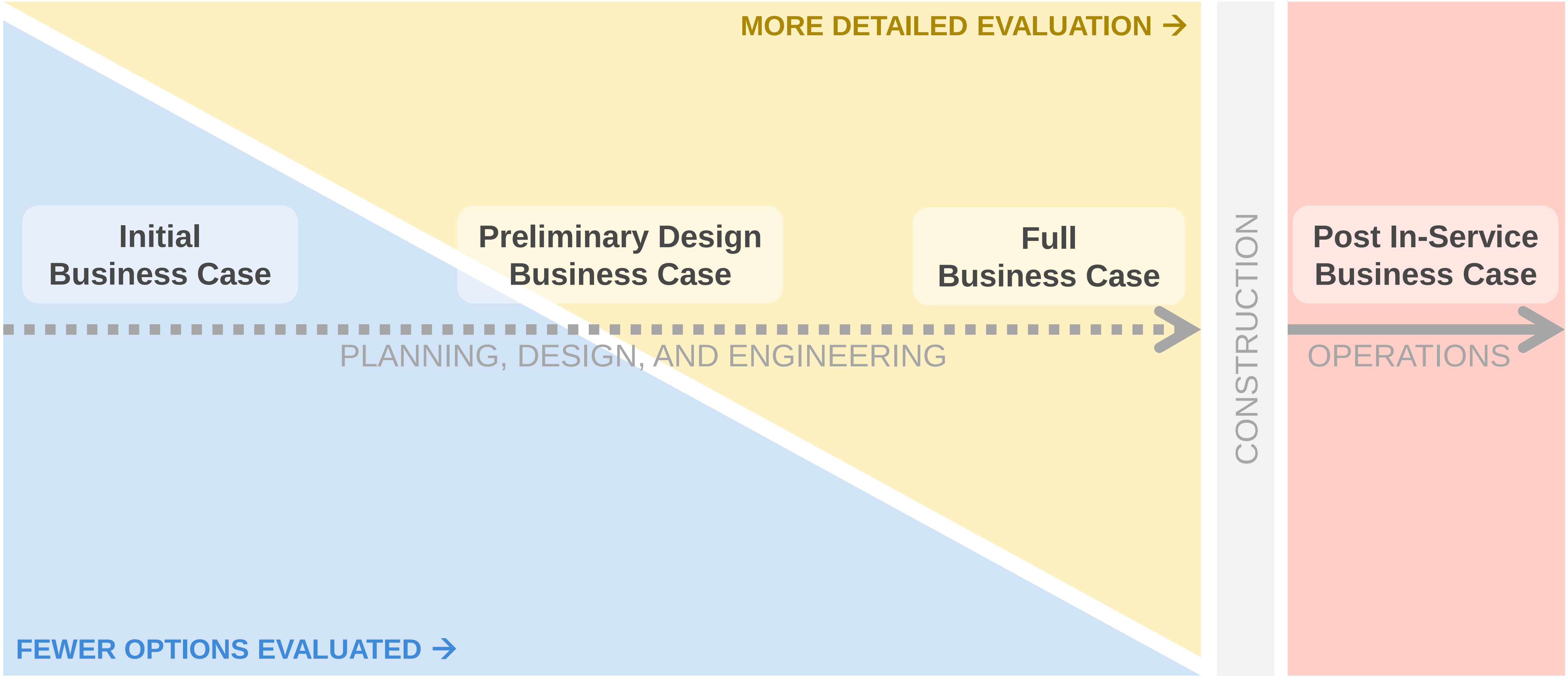
METROLINX BUSINESS CASE FRAMEWORK

- Key component of overall approach to **evidence-based decision-making**
- **One of the inputs** for decision-making
- Each Business Case uses a **consistent and comparable approach**
- **Required by Metrolinx's Business Case policy** for:
  - Capital infrastructure investments with an impact of $50 million or more over the lifecycle
  - Rehabilitation/expansion/renewal/replacement investments with an impact of $75 million or more
- **Required during different stages**:
  - Options analysis
  - Preliminary design
  - Procurement
  - Post in-service

METROLINX BUSINESS CASE OBJECTIVES

- Ensure investments are consistent with our **goals and strategic objectives**
- Identify projects that deliver **good value for money**
- Assess which projects are **financially affordable**, **implementable**, and can be **operated successfully**
- **Accountability** and **evidence-informed decision making**
- Help **prioritize investments**

METROLINX BUSINESS CASES THROUGHOUT PROJECT LIFECYCLE



METROLINX BUSINESS CASE FRAMEWORK

Strategic Case

How does the investment achieve strategic goals and objectives?

- Determines the strategic value of addressing a problem
- Options are evaluated against strategic objectives
- Establishes 'why' a project should be pursued

Economic Case

What is the investment's overall value to society?

- Assesses economic costs and benefits to individuals and society
- Establishes 'what the benefit to society' is in economic terms

Financial Case

What are the financial implications of delivering the investment?

- Assesses affordability and financial value for money
- Focuses on capital and resource requirements for the corporation
- Establishes 'how much the project will cost' in financial terms

Deliverability and Operations Case

What risks and requirements must be considered for delivering and operating the investment?

- Provides evidence on engineering viability
- May consider procurement strategies, and deliverability and operating risks
- Establishes 'what is required to deliver and operate' the project

METROLINX BUSINESS CASE FRAMEWORK

STRATEGIC CASE INPUTS

- For projects in Toronto, use **City of Toronto's Rapid Transit Evaluation Framework**
  - Multi-factor evaluation framework
  - Developed through extensive public consultation in 2013
  - On its own, incorporates many aspects of Metrolinx Business Case Framework
  - Considers:
    - Ridership
    - Travel times
    - Number of transfers
    - Service to neighbourhood improvement areas
    - Impact on environment, cultural/heritage/archaeological resources
    - Impact on stable neighbourhoods
    - Proximity to key destinations
    - Sustainable development potential
    - *Etc…*

CITY OF TORONTO RAPID TRANSIT EVALUATION FRAMEWORK

		Similar Case in Metrolinx Business Case Framework
PEOPLE	**Choice** Develop an integrated network that connects different modes to provide for more travel options	Strategic Case
PEOPLE	**Experience** Capacity to ease crowding/congestion; reduce travel times; make travel more reliable, safe, and enjoyable	Strategic Case Deliverability & Operations Case
PEOPLE	**Social Equity** Provide everyone good access to work, school, and other activities	Strategic Case Economic Case
PLACES	**Shaping the City** Use the transportation network as a tool to shape the residential development of the City	Strategic Case Economic Case
PLACES	**Healthy Neighbourhoods** Changes in the transportation network should strengthen and enhance existing neighbourhoods; promote safe walking and cycling within and between neighbourhoods	Strategic Case Deliverability & Operations Case
PLACES	**Public Health & Environment** Support and enhance natural areas; encourage people to reduce how far they drive	Strategic Case Deliverability & Operations Case
PROSPERITY	**Affordable** Improvements to the transportation system should be affordable to build, maintain, and operate	Financial Case Deliverability & Operations Case
PROSPERITY	**Supports Growth** Investment in public transportation should support economic development; allow workers to get to jobs more easily; allow goods to get to markets more efficiently	Economic Case

METROLINX BUSINESS CASE FRAMEWORK

$ FINANCIAL CASE INPUTS

- Capital cost
- Operating and maintenance cost
- Revenue
  - Fare revenue
  - Non-fare revenue (e.g., property)
- Labour force requirements
  - Additional staff that need to be hired

METROLINX BUSINESS CASE FRAMEWORK

ECONOMIC CASE INPUTS

- Capital cost
- Operating and maintenance cost
- User impacts
  - Travel time
  - Reliability
  - Crowding
  - Amenity (service / urban realm quality and design)
  - User costs (perceived and unperceived cost of travel, including fares, auto operating costs, tolls, parking)
  - Congestion
- External impacts
  - Wellbeing
    - Health benefits (active travel)
    - Road safety benefits)
  - Environment
    - Green House Gas (GHG) emissions
    - Local air quality
    - Noise

METROLINX BUSINESS CASE FRAMEWORK

DELIVERABILITY AND OPERATIONS CASE INPUTS

- Project delivery and construction
  - Project sponsors and governance agreements
  - Major project components and complexities
  - Project management plan
  - Environmental assessment
  - Construction impacts and complexities
- Operations and maintenance plan
  - Changes to service
  - Changes in maintenance plan
  - Trade-offs between capital and O&M phases
  - Project dependencies
  - Human resources and change management
- Procurement plan
  - Role of Infrastructure Ontario
  - Industry capacity and experience
  - Procurement options
  - Risk management
  - Future-proofing and long-term contracts

METROLINX BUSINESS CASE FRAMEWORK

STRATEGIC CASE

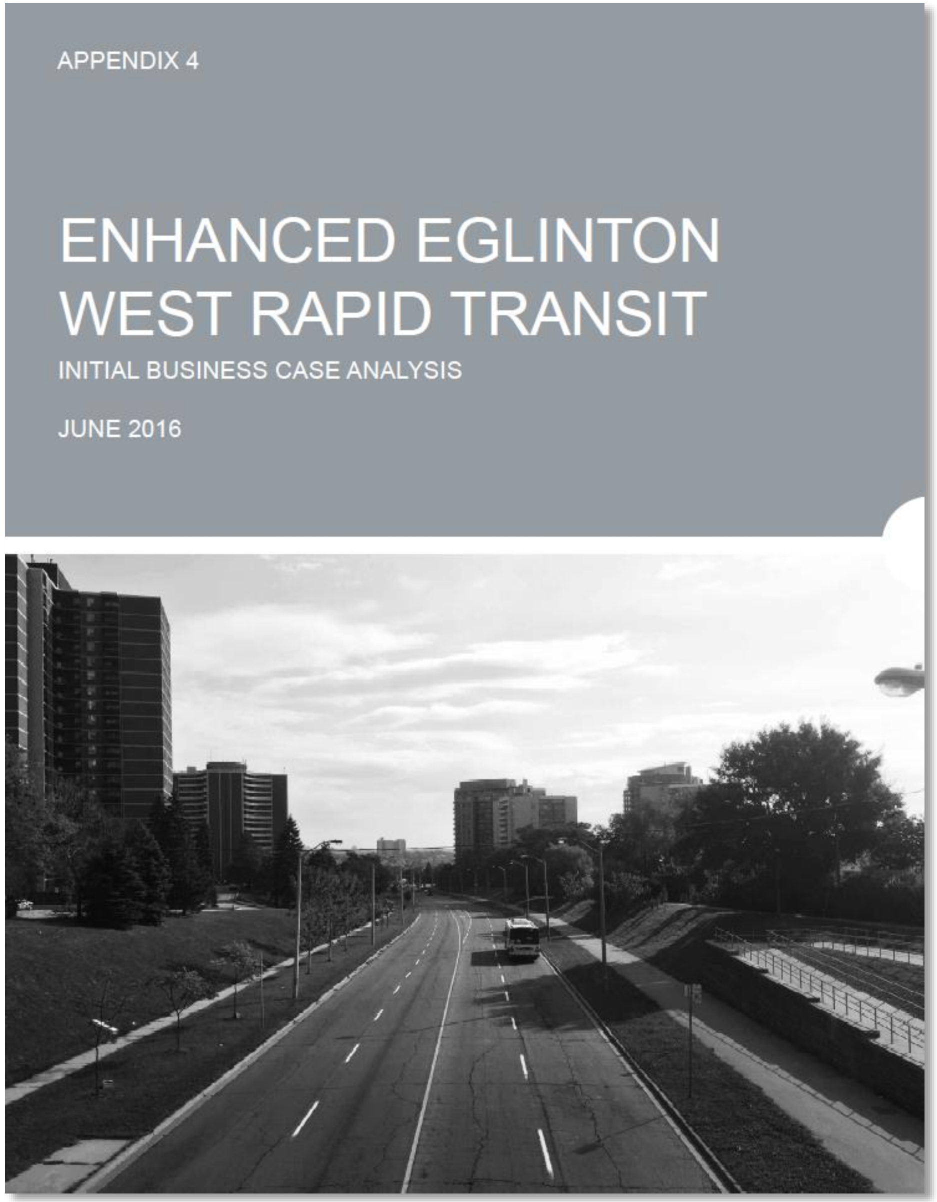
ECONOMIC CASE

FINANCIAL CASE

DELIVERABILITY & OPERATIONS CASE

Recommendations are made **considering <u>all four cases</u>**.

INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)


APPENDIX 4

ENHANCED EGLINTON WEST RAPID TRANSIT

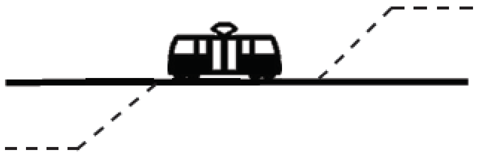
INITIAL BUSINESS CASE ANALYSIS

JUNE 2016

INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

OPTIONS EVALUATED

At-Grade LRT



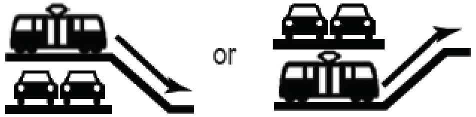
1 **17 stops** (14 on Eglinton) Approved EA option
Designed for local access

2 **11 stops** (8 on Eglinton)
Designed to balance speed and access

3 **6 stops** (3 on Eglinton)
Designed for higher speed and longer trips

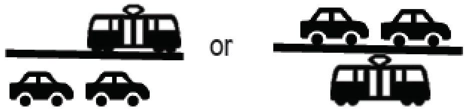
+ Potential Targeted Grade Separations

At-Grade LRT, with Grade Separations at Arterials



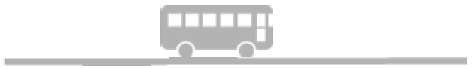
4 **6 stops** (3 on Eglinton)
Designed to avoid intersection delay

Fully Grade Separated LRT



5 **6 stops** (3 on Eglinton)
Designed for maximal speed and longer trips

At-Grade BRT

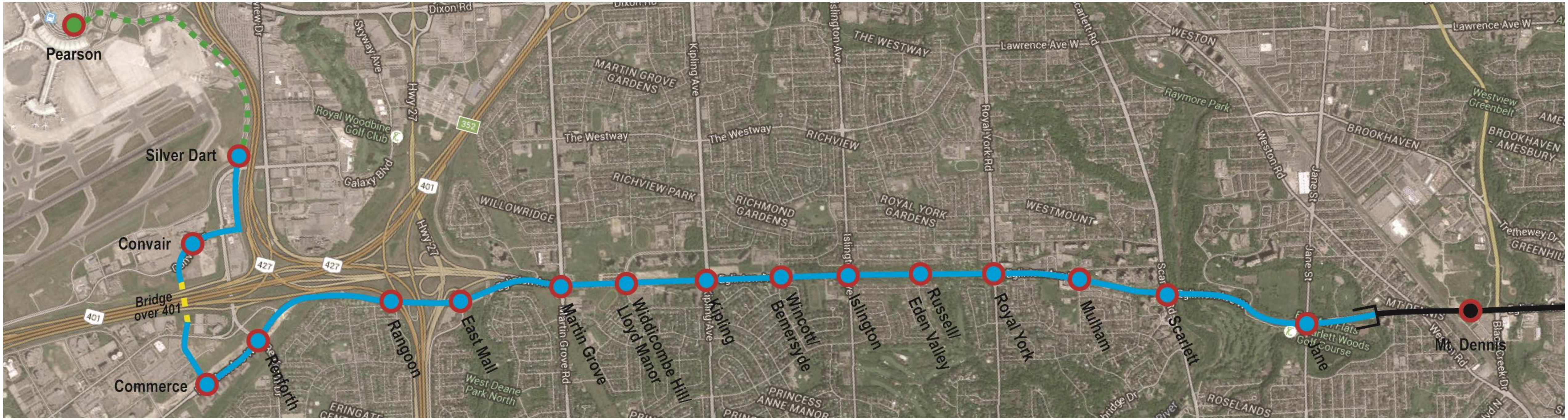


6 **17 stops** (14 on Eglinton)
Designed for local access

INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

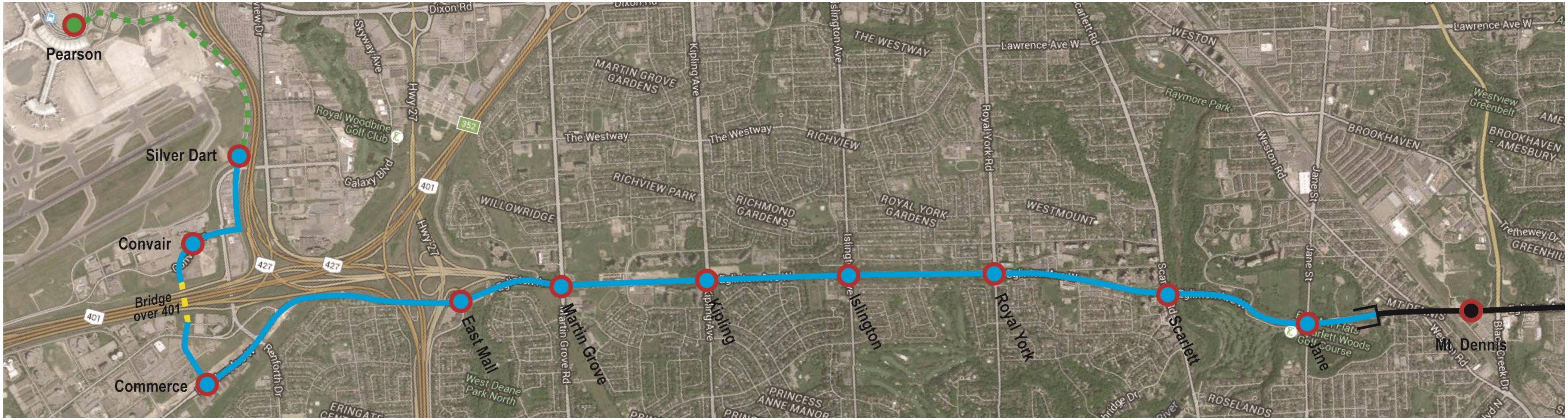
<u>1. AT-GRADE, LOCAL ACCESS (EA APPROVED)</u>
14 STOPS ON EGLINTON

- Stops located at major intersections and mid-blocks
- Consistent with ECLRT at-grade stop spacing
- Average of 640m between stops
- Transit signal priority
- No net loss of traffic lanes



2. AT-GRADE, SPEED & ACCESS BALANCE
8 STOPS ON EGLINTON

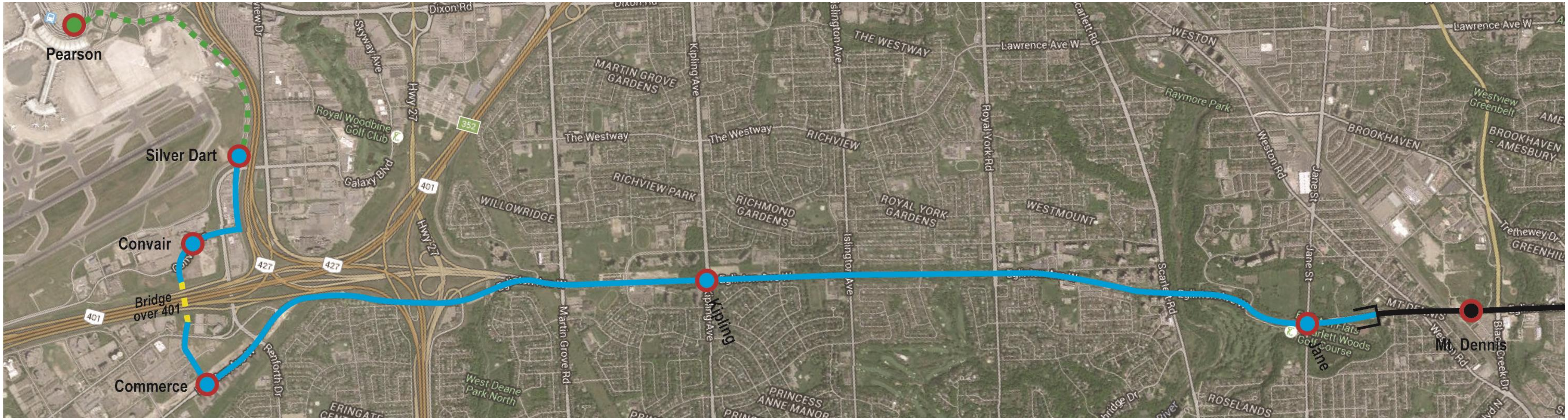
- Stops located at major intersections with N-S bus routes
- In keeping with finding that majority of riders come from bus transfers
- Average of 1,100m between stops, about 1.3-1.6X ECLRT stop spacing
- Transit signal priority
- No net loss of traffic lanes



INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

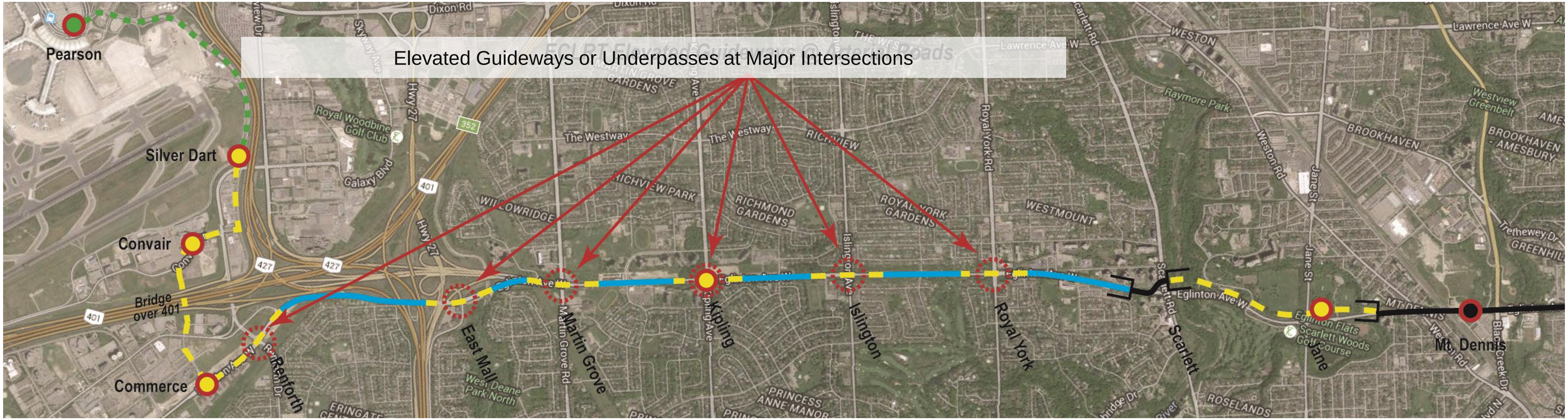
3. AT-GRADE, MAXIMIZE SPEED
3 STOPS ON EGLINTON

- Stops located at most significant bus-LRT transfer points
- Average of 3,000m between stops
- Transit signal priority
- No net loss of traffic lanes



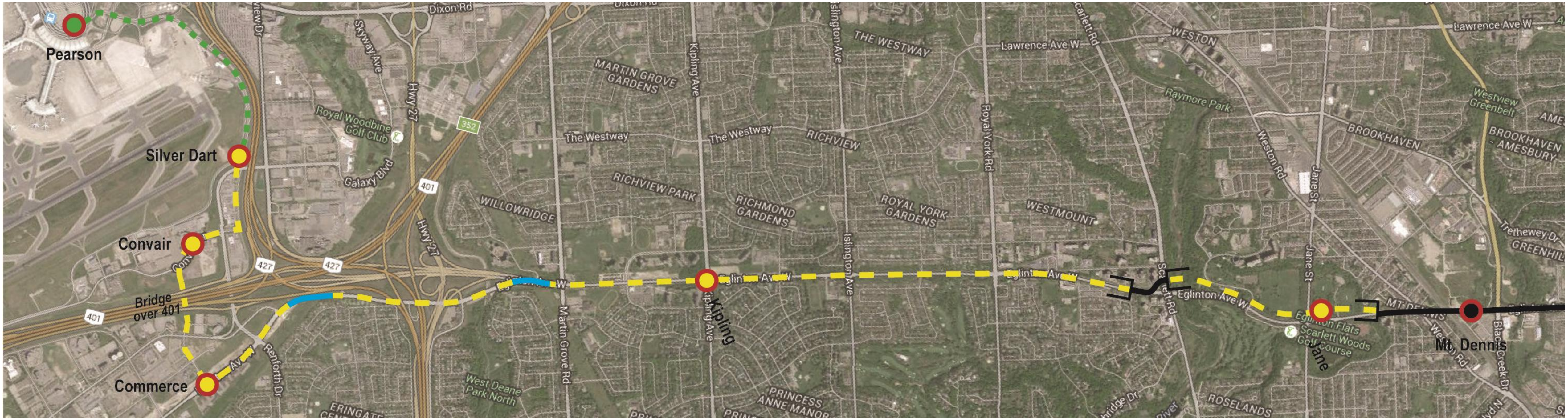
4. GRADE-SEPARATED AT INTERSECTIONS
3 STOPS ON EGLINTON

- Stops located at most significant bus-LRT transfer points
- Average of 3,000m between stops
- No net loss of traffic lanes



5. FULLY GRADE-SEPARATED
3 STOPS ON EGLINTON

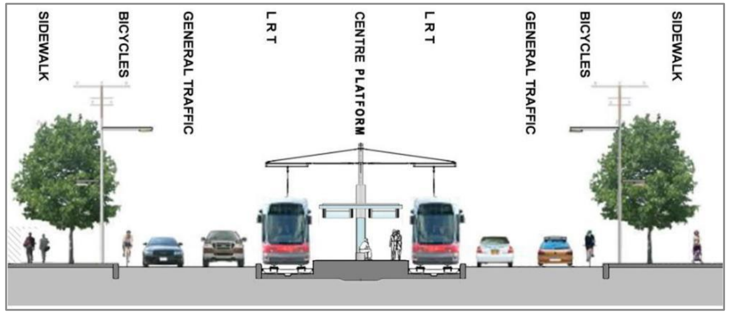
- Stops located at most significant bus-LRT transfer points
- 3,000m
- No net loss of traffic lanes

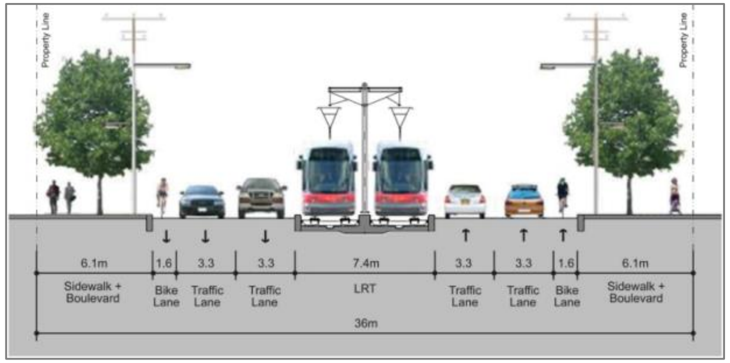


INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

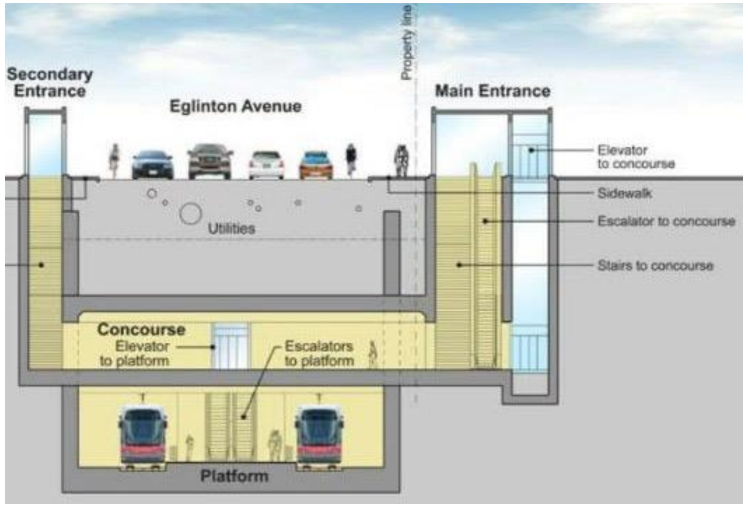
REPRESENTATIVE CROSS-SECTIONS

<u>At Grade</u>

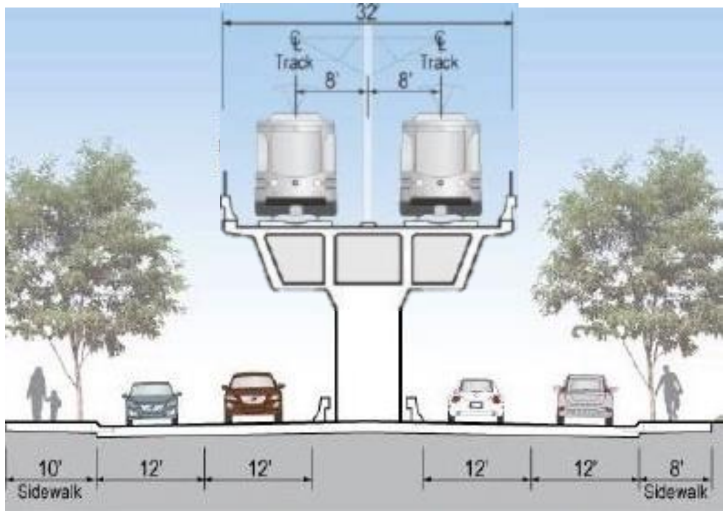




<u>Below Grade</u>



<u>Elevated</u>

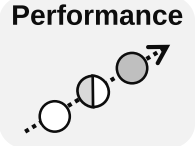


Note: All images are representative cross-sections only, illustrating only how the right-of-way <u>could</u> look.

INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

STRATEGIC CASE

Option	Strategic Performance	Summary
1. At-Grade, Local Access (EA Approved) (14 stops on Eglinton)	• Provides best local access • Slower for longer distance trips	◐
2. At-Grade, Speed & Access Balance (8 stops on Eglinton)	• Limits stops to major arterials and increases travel speed slightly	◐
3. At-Grade, Maximize Speed (3 stops on Eglinton)	• Provides opportunity for longer distance trips at lower cost • Challenge for local access	○
4. Grade-Separated at Intersections (3 stops on Eglinton)	• Enables faster speed and greater reliability at lower cost than full grade separation • Challenging passenger experience because of grade changes • Elevated sections at intersections would have visual impact • Challenge for local access	○
5. Fully Grade-Separated (3 stops on Eglinton)	• Provides best opportunity for longer distance trips between Toronto and Mississauga • Challenge for local access	○



INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

FINANCIAL CASE ECONOMIC CASE

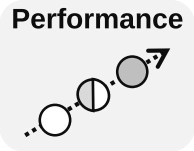
Option	Benefit Cost Ratio	Capital Cost (2014$)*	Lifecycle O&M Costs (2014$)**	Lifecycle Costs (2014$)***	Discussion
1. At-Grade, Local Access (EA Approved) (14 stops on Eglinton)	0.9	$1.4 - 1.7B	$0.9B	$2.0B	• Benefits distributed along the corridor
2. At-Grade, Speed & Access Balance (8 stops on Eglinton)	1	$1.4 - 1.7B	$0.7B	$1.8B	• Benefits are similar to EA Option • Costs are slightly reduced due to fewer stops
3. At-Grade, Maximize Speed (3 stops on Eglinton)	0.9	$1.3 - 1.6B	$0.9B	$1.9B	• Larger concentrations of benefits at Airport and other sites in Mississauga as well as York U and downtown Toronto
4. Grade-Separated at Intersections (3 stops on Eglinton)	-	$1.7 - 2.1B	-	-	-
5. Fully Grade-Separated (3 stops on Eglinton)	0.9-1.2	$2.0 - 3.0B	$0.7B	$2.3 - 2.9B	• Speed improvements drive much higher benefits • BCR is above 1 in spite of higher costs

* Undiscounted ** Discounted *** Discounted

INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

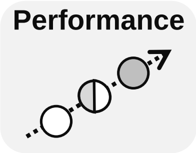
DELIVERABILITY AND OPERATIONS CASE

Option	Deliverability and Operations	Construction Time	Summary Score
1. At-Grade, Local Access (EA Approved) (14 stops on Eglinton)	• Potential turn restrictions and traffic issues • Community challenges	5-6 years	
2. At-Grade, Speed & Access Balance (8 stops on Eglinton)	• Requires further traffic analysis to assess impact of fewer stations on traffic and community	5-6 years	
3. At-Grade, Maximize Speed (3 stops on Eglinton)	• Requires further traffic analysis to assess impact of fewer stations on traffic	5-6 years	
4. Grade-Separated at Intersections (3 stops on Eglinton)	• Significant traffic and turning issues, depending on type of grade separation • Some property acquisition required • Customer comfort issues with ascending and descending LRT	6-7 years	
5. Fully Grade-Separated (3 stops on Eglinton)	• Elevated guideway would create substantial visual impact, especially at stops • Below grade alignment would generate complexity associated with tunneling	7-8 years	



BUSINESS CASE SUMMARY

Option	Strategic Case	Economic Case	Financial Case	Deliverability and Operations Case
1. At-Grade, Local Access (EA Approved) (14 stops on Eglinton)	◐	◐	●	◐
2. At-Grade, Speed & Access Balance (8 stops on Eglinton)	◐	◐	●	◐
3. At-Grade, Maximize Speed (3 stops on Eglinton)	○	◐	●	◐
4. Grade-Separated at Intersections (3 stops on Eglinton)	○	—	◐	○
5. Fully Grade-Separated (3 stops on Eglinton)	○	●	○	○



INITIAL BUSINESS CASE: ENHANCED EGLINTON WEST RAPID TRANSIT (2016)

FINDINGS & FURTHER STUDIES

Findings of the 2016 Initial Business Case		Further Studies defined by the 2016 Initial Business Case
An LRT with 8 stops on Eglinton, potentially with some targeted grade-separation, is an appropriate transit solution for Eglinton West. (Provides a mix of local access and longer-distance travel opportunity for people commuting between Toronto and Mississauga.)	➡	Stop Location Study (City of Toronto) • Evaluated stop locations based on existing TTC bus stop usage, connecting TTC routes, existing and projected population and employment, development potential, and nearby destinations • Findings: 10-11 stop locations on Eglinton to be carried forward

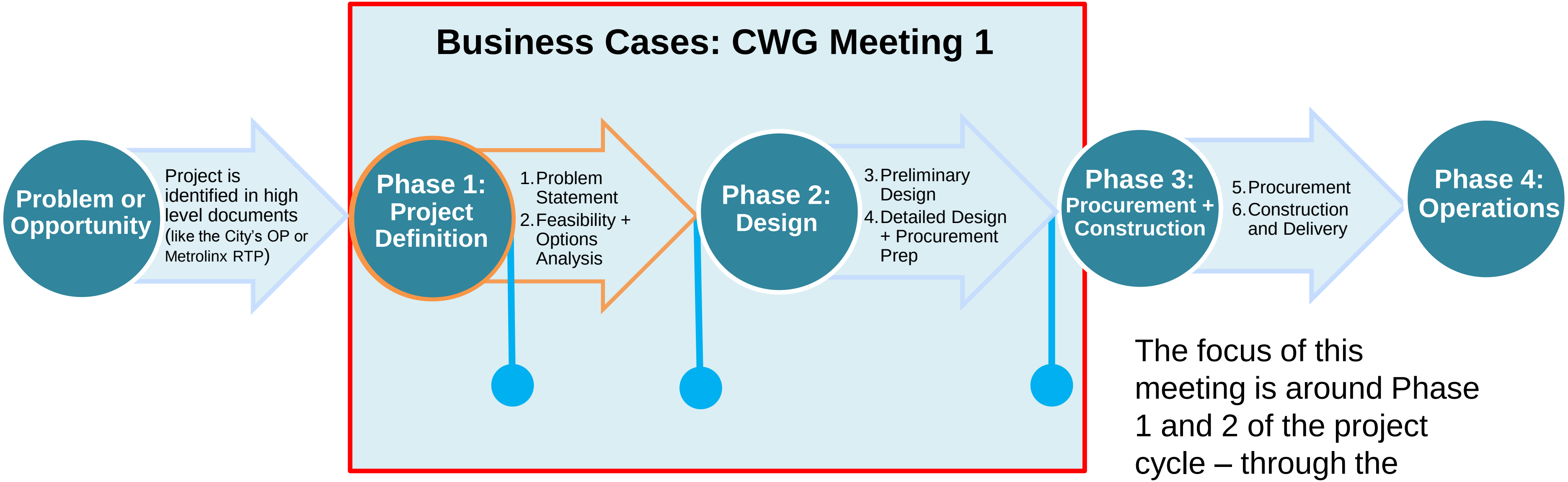
Targeted grade separations should be investigated further.	➡	Grade Separation Study (City of Toronto)
		• Benefit-cost assessment of grade separations at arterial roads
		  • Included detailed costing, comprehensive review of impacts, detailed micro-simulation to understand localized traffic impacts
		• Findings: Grade separations are <u>not</u> preferred
		  • High costs are not offset by benefits

Further analysis on traffic should be undertaken.	➡	Traffic Operations (City of Toronto) Martin Grove Functional Planning Study (City of Toronto) • Assess local traffic impacts due to Eglinton West LRT • Review local traffic operations, identify concerns and propose potential solutions • Findings: Enhanced traffic modelling currently underway for full corridor and Martin Grove area
Further planning and design work on the Airport Segment should be undertaken.	➡	Airport Segment Feasibility Study (Metrolinx) • Assessing stop and alignment options from Renforth Station to Pearson Airport • Findings: Study currently underway

METROLINX

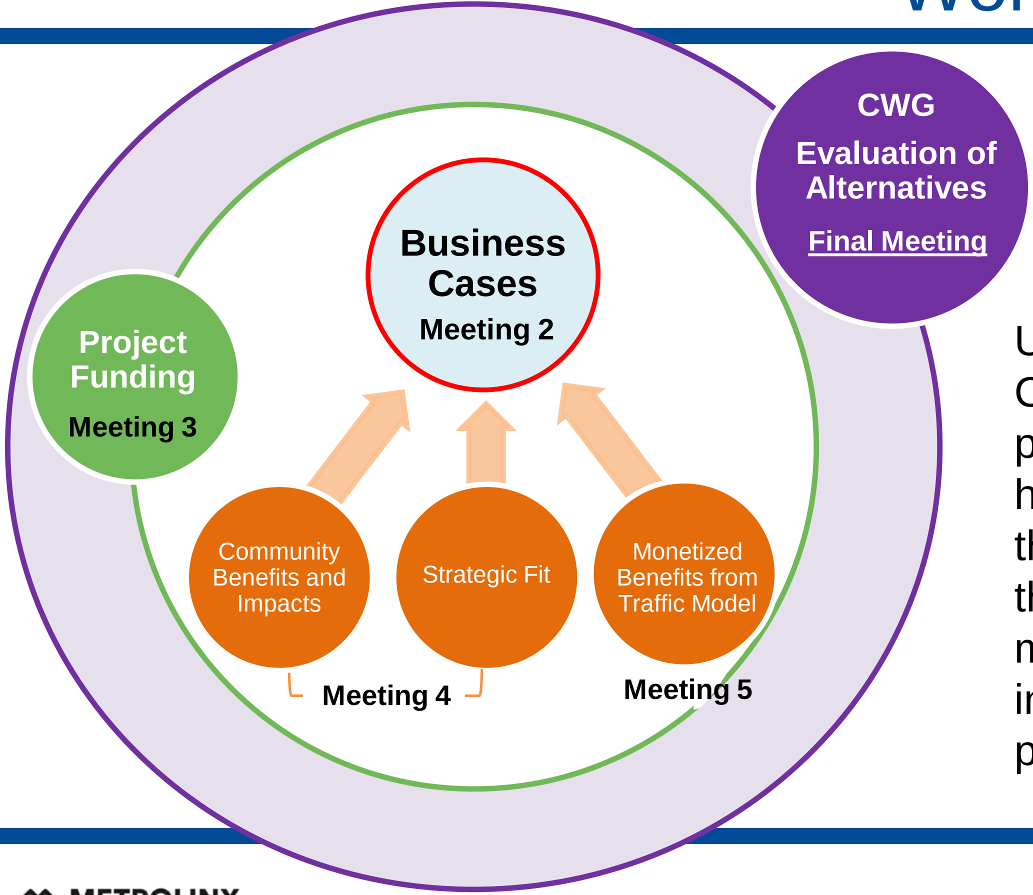
Review of Draft Work Plan

Planning Process



The focus of this meeting is around Phase 1 and 2 of the project cycle – through the Business Case lens.

Work Plan



Using the Business Case as the focal point, this highlights how the different themes identified by the CWG at the last meeting have been integrated into the proposed work plan.

Workshop of Long List of Options

Using the available technologies and the above, below or at-grade options, develop a project concept on the distributed charts.

Technologies

people per vehicle/train

~~Heavy Rail~~

1944
(12 cars/seated)

Source: Metrolinx

~~Subway~~

1111

Source: TTC

~~Streetcar~~

130

Bus

51 to 74

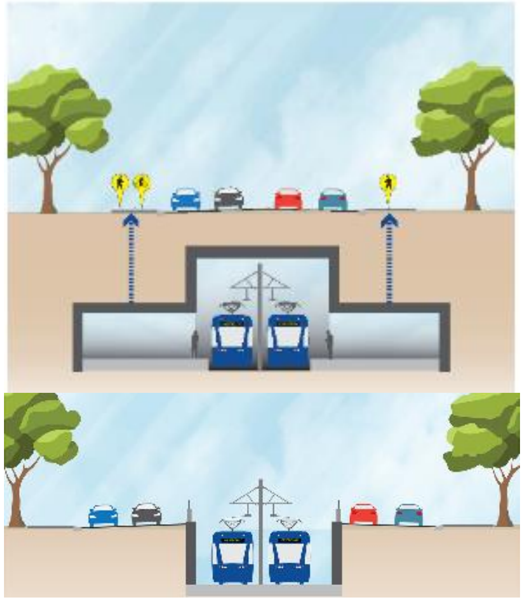
Light Rail Transit (LRT)

Up to 490*

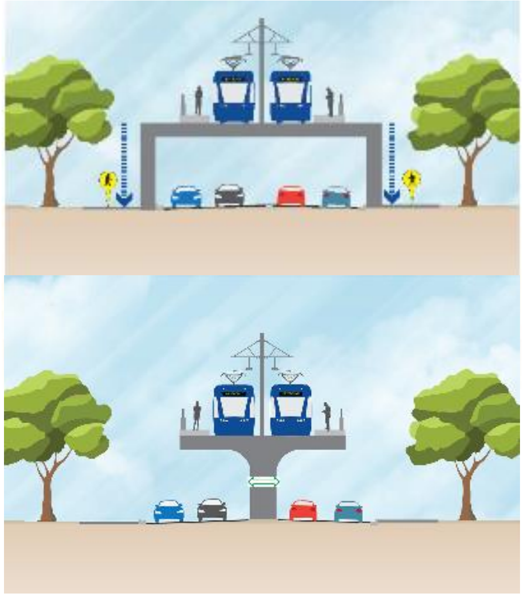
*depending on the type and number of Light Rail Vehicles

Potential Options

tunnelled or trenched



elevated



at-grade

Eglinton West LRT Approved Alignment

Next Steps

Next Meeting

- May 8, 2018
- 6 to 9 PM
- Etobicoke Civic Centre
- Topic – To be approved by CWG

Thank You

For more information:

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- Call us at 416-338-2848
- Visit our website: www.eglintonwestlrt.ca

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