GTA West Transportation Corridor Planning and Environmental Assessment Study – Stage 2

Municipal / Regulatory Agency Advisory Group Meeting #3
May 11, 2015
TODAY’S AGENDA

- Study overview
- Update on project activities since PIC #1
- Breakout sessions:

<table>
<thead>
<tr>
<th>SESSION</th>
<th>ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SESSION 1: APPROACH FOR EVALUATING THE SHORT LIST OF ROUTE ALTERNATIVES</strong></td>
<td>Presentation, Facilitated Group Discussion</td>
</tr>
<tr>
<td><strong>SESSION 2: TRADE-OFFS IN THE WEST, CENTRAL AND EAST SECTIONS OF THE STUDY AREA</strong></td>
<td>Presentation, Facilitated Group Discussion</td>
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</tbody>
</table>
THE GTA WEST PROJECT TEAM

- Natalie Rouskov, MTO: Project Manager
- Chris Barber, MTO: Environmental Planner
- Sarah Merriam, MTO: Consultation Lead and Environmental Planner
- Neil Ahmed, MMM: Consultant Project Manager
- Tim Sorochinsky, AECOM: Manager – West Section
- Brenda Jamieson, AECOM: Manager – Central Section
- Jim Dowell, MMM: Manager – East Section
- Sandy Nairn, MMM: Environmental Planning Lead
- Patrick Puccini, AECOM: Consultation Lead
PLANNING WITH VISION, PLANNING FOR PEOPLE

• An open and transparent process that provides opportunities for all stakeholders to help shape the outcome of the project

• Arrive at a recommended solution that provides the best balance of benefits and impacts for the local communities and the users of the transportation system

To accomplish this, we are committed to engaging all of our stakeholders in open two-way communication that leads to meaningful discussions, proactive information exchange and constructive working relationships
STUDY OVERVIEW

Stage 1 (November 2012) recommendations included:

- Optimizing the existing transportation network
- Improving non-roadway transportation modes
- Widening of existing highways
- A new transportation corridor

Even with optimizing the existing transportation network, widening existing highways, and the transit expansion projects identified in Metrolinx’ Regional Transportation Plan, additional road capacity is needed.

This study (Stage 2) focuses on the recommendation for a new transportation corridor:

- From Highway 400 to the Highway 401/407 ETR interchange area
- Includes a 400-series highway, transitway, and potential goods movement priority features
THE NEW CORRIDOR

- The new corridor is anticipated to be a 4- to 6-lane highway with a separate adjacent transitway and potential goods movement priority features
  - Transitway stations will be located at key interchanges and connection points
STAGE 2 OVERALL PROCESS

2014

Data Collection
- Identify existing features and constraints

Route Planning Alternatives
- Develop and screen a long list of route alternatives and interchange locations to arrive at a short list
- Evaluate the short list of route alternatives and interchange locations to arrive at a preferred plan
- For crossing roads not identified as an interchange location, develop treatment at the corridor (i.e. overpass, underpass, or truncation)

Preliminary Design
- Develop the preferred plan to a preliminary design level of detail

Draft Environmental Assessment Report

Submission of Final Environmental Assessment Report

2018
PUBLIC INFORMATION CENTRE (PIC) #1

- PIC #1 was held at 3 venues (Halton, York, Peel) in November/December 2014
- The purpose of PIC #1 was to present an overview of the study background, process, existing conditions, route and interchange alternatives and the Focused Analysis Area
- Over 750 people attended and approx. 200 written comments were received
PIC #1 GENERAL FEEDBACK RECEIVED

- Incorporate recommendations of previously conducted studies (e.g. HPBATS) to avoid unnecessary work
- Bypass specific areas
- Support and opposition for the transitway
- Support for goods movement priority features
- Comments regarding specific route and interchange locations
- Protection of agricultural lands and Greenbelt lands
- Pleased with study progress and the concept of Focused Analysis Area
- Inquiries about the study schedule, process and timing of construction
- Inquiries about property acquisition
- Inquiries about route generation and evaluation
INCORPORATING PIC #1 COMMENTS INTO THE STUDY

• The project team responds to all comments
• Features identified by stakeholders were verified and incorporated into existing conditions mapping
  – These maps will be used when evaluating route and interchange alternatives
• Suggested new routes were evaluated and those with merit will be carried forward for further study
REFINEMENTS TO ROUTE ALTERNATIVES

• **Alternative 2B** in Peel Region has been added to the short list:
  – Provides planning flexibility between Sections 1 and 2
  – Similar potential impacts to other alternatives in the area
REFINEMENTS TO ROUTE ALTERNATIVES

• A refinement to Alternative 427B was made:
  – Facilitates a connection to Alternative 7F
REFINEMENTS TO ROUTE ALTERNATIVES

- A refinement to Alternative 7F was made:
  - Minimizes impacts and access restrictions to community north of King-Vaughan Road at Highway 27
  - Suitable crossing of the East Humber River with minimal impact to environmentally sensitive features
  - Increases impacts to an Equestrian Centre
INTERCHANGE LOCATIONS

• Prior to PIC #1, all existing and planned crossing roads were initially considered for interchanges, then screened based on:
  – Minimizing impacts to significant natural features
  – Minimizing impacts to existing and planned (approved) population and employment areas
  – Ensuring efficient and direct connections and addressing future transportation needs

• Subsequent to PIC #1, the project team began an exercise to confirm the potential interchange locations by using criteria such as:
  – Maximum spacing of 8 km between interchanges
  – Where more than one road meets the spacing criteria, identify the crossing road that best serves transportation needs based on:
    • Road classification
    • Connectivity to existing and planned urban centres
    • Conflicts with other interchanges
    • Forecasted utilization of the interchanges
  – Input from municipalities
FIELD INVESTIGATIONS

• Requests for Permission to Enter were mailed to approximately 800 properties in the study area

• Field Investigations are being conducted to:
  – Inventory natural environmental features, including vegetation, birds, reptiles and amphibians
  – Confirm or update secondary source information
  – Assess the significance of natural features
CONSULTATION & ENGAGEMENT

• Community workshops (4 rounds)
  – Community Workshop #2 planned for June 2015

• Public Information Centres (3 rounds)
  – PIC #2 is planned for late 2015

• Ongoing consultation with First Nation and Métis Councils/Communities

• Stakeholder advisory groups, municipal working groups, meetings with landowners, Council presentations, utilities (Hydro One, TransCanada Pipelines)

• Website, email, toll-free telephone, Twitter
NEXT STEPS

• Remain on schedule

• Further develop, assess and evaluate the short list of route alternatives and the potential interchange locations
  - Meetings with Advisory Groups

• Present the preferred route at PIC #2 (Fall/Winter 2015)

• Present the preliminary design of the preferred route at PIC #3 (Winter/Spring 2017)

Contact the GTA West Project Team

Website:  www.gta-west.com
Email:  project_team@gta-west.com
Toll-Free:  1-877-522-6916
Twitter:  @GTAWestStudy
Session 1: Approach for Evaluating the Short List of Route Alternatives
PURPOSE

• Review and discuss the evaluation methodology for the short list of route alternatives

• Obtain your input on the importance of each of the evaluation factors
WHAT IS THE PURPOSE OF THE EVALUATION?

• Find a location for a new transportation corridor
  – **Balance benefits and impacts to:**
    • Natural environment
    • Land use /socio-economic environment
    • Cultural environment
    • Transportation needs
    • Cost

• The GTA West Study Terms of Reference (ToR) was approved in 2008 and specifies:
  – **Factors to be considered in the evaluation**
  – **Consultation requirements**
A GOOD EVALUATION PROCESS IS:

1. Comprehensive and systematic
2. Rational and understandable
3. Replicable
4. Traceable
5. Participatory
TWO EVALUATION METHODOLOGIES

1. Reasoned Argument Method
   – **Qualitatively (with words)** compares advantages and disadvantages of the alternatives
   – Primary tool to select a preferred route

2. Arithmetic Method
   – **Quantitatively (with numbers)** compares advantages and disadvantages of the alternatives
   – Secondary tool that tests the results of the reasoned argument method by running multiple numerical evaluations, each based on a stakeholder group’s perspective
EVALUATION PROCESS

Review Existing Data and Perform Field Investigations

Identify Impacts and Mitigation Opportunities

Compare Alternatives: Reasoned Argument Method (Primary Tool)

Compare Alternatives: Arithmetic Method (Sensitivity Test)

Review Differences between Evaluation Methodologies

Identify Preferred Route

Consultation
# EVALUATION FACTORS

<table>
<thead>
<tr>
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<th>SUB-FACTOR</th>
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• Fish Community |
| Terrestrial Ecosystems | • Wildlife and Wildlife Habitat  
• Wetlands  
• Woodlands and Vegetation  
• Designated / Special / Natural Areas |
| Ecosystem Services | |
| Groundwater | • Areas of Groundwater Recharge or Discharge  
• Groundwater Source Areas and Wellhead Protection Areas  
• Large Volume Wells  
• Private Wells  
• Groundwater Dependent Commercial Enterprises  
• Groundwater Sensitive Ecosystems |
| Surface Water | • Watershed / Subwatershed Drainage Features / Patterns  
• Surface Water Quality and Quantity |
| Air Quality | • Local and Regional Air Quality Impacts; Greenhouse Gas Emissions |
| **TRANSPORTATION** | |
| System Capacity and Efficiency | • Movement of People  
• Movement of Goods  
• System Performance During Peak Periods |
| System Reliability and Redundancy | |
| Safety | • Traffic Safety  
• Emergency Access |
| Mobility and Accessibility | • Modal Integration and Balance  
• Linkages to Population and Employment Centres  
• Recreation and Tourism Travel  
• Accommodation for Pedestrians, Cyclists and Snowmobiles |
| Network Compatibility | • Network connectivity  
• Flexibility for Future Expansion |
| Engineering | • Constructability  
• Compliance with Design Criteria |
| Construction Cost | |
| Traffic Operations | |
| **LAND USE / SOCIO-ECONOMIC ENVIRONMENT** | |
| Land Use Planning, Policies, Goals, Objectives | • First Nation Land Claims  
• Provincial / Federal Land Use Planning Policies / Goals / Objectives  
• Municipal (Local / Regional) Land Use Planning Policies / Goals / Objectives  
• Development Objectives of Private Property Owners |
| Land Use – Community | • First Nation Reserves  
• First Nation Sacred Grounds  
• Urban and Rural Residential Uses and Properties  
• Commercial / Industrial Uses and Properties  
• Recreation Areas and Tourist Attractions  
• Community Facilities / Institutions  
• Municipal Infrastructures and Public Service Facilities |
| Noise Sensitive Areas | • Transportation Noise |
| Land Use Resources | • First Nation Treaty Rights and Use of Land and Resources for Traditional Purposes  
• Agriculture / Specialty Crop  
• Recreation  
• Aggregate and Mineral Resources |
| Major Utility Transmission Corridors and Pipelines | • Major Existing Utility Transmission Corridors and Pipelines  
• Major Proposed Utility Transmission Corridors and Pipelines |
| Contaminated Property and Waste Management | |
| Landscape Composition | • Terrain  
• Vegetation  
• Visual Impacts  
• Aesthetics |
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• Heritage Bridges  
• Cultural Heritage Landscapes |
| Archaeology | • Pre-Contact and Contact First Nations Archaeological Sites  
• Historic Euro Canadian Archaeological Sites  
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Draft for discussion purposes
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Draft for discussion purposes
**IMPACT ASSESSMENT**

- For each alternative, the project team will determine:
  - Positive and negative impacts
  - Opportunities for mitigation

**Example for illustrative purposes only**

<table>
<thead>
<tr>
<th>Route Alternative</th>
<th>FACTOR &amp; SUB-FACTOR</th>
<th>POTENTIAL EFFECTS BASED ON INDICATORS</th>
<th>MITIGATION / COMPENSATION / ENHANCEMENT MEASURES</th>
<th>LEVEL OF IMPACT</th>
</tr>
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<tr>
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</table>
| Route A | Agriculture / Specialty Crop | • Class 1 soils – 100 hectares impacted  
• Class 4 soils – 30 hectares impacted  
• Class 5 soils – 15 hectares impacted  
• Route bisects two properties farmed by one agricultural operation. No access to one field. | • Provide underpass to facilitate access. | Medium impact on agricultural lands. |
| Route B | Agriculture / Specialty Crop | • Class 1 soils – 20 hectares impacted  
• Class 4 soils – 15 hectares impacted  
• Class 5 soils – 30 hectares impacted | • Maintenance of farm building and field access location. | Low impact on agricultural lands. |

**Review Existing Data and Perform Field Investigations**
- Identify Impacts and Mitigation Opportunities
- Compare Alternatives: Reasoned Argument Method (Primary Tool)
- Compare Alternatives: Arithmetic Method (Sensitivity Test)
- Review Differences between Evaluation Methodologies
- Identify Preferred Route
REASONED ARGUMENT METHOD
REASONED ARGUMENT METHOD

• For each factor, compare the levels of impact between alternatives and explain why one is preferred

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</tr>
<tr>
<td>Agriculture / Specialty Crop</td>
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</tr>
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<td>Urban and Rural Residential Uses and Properties</td>
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<td><strong>Factor Recommendation</strong></td>
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Review Existing Data and Perform Field Investigations
Identify Impacts and Mitigation Opportunities
Compare Alternatives: Reasoned Argument Method (Primary Tool)
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Identify Preferred Route
Consultation
REASONED ARGUMENT METHOD

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<td></td>
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<td>Agriculture / Specialty Crop</td>
<td>• Medium impact on agricultural lands.</td>
</tr>
<tr>
<td>Urban and Rural Residential Uses and Properties</td>
<td>• High impact</td>
</tr>
<tr>
<td></td>
<td>• 29 rural residences displaced.</td>
</tr>
<tr>
<td>Commercial / Industrial Uses and Properties</td>
<td>• Low impact</td>
</tr>
<tr>
<td></td>
<td>• 1 industrial property access realignment.</td>
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**Factor Recommendation**
REASONED ARGUMENT METHOD

- For each factor, compare the levels of impact between alternatives and explain why one is preferred

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<tr>
<td></td>
<td>• 29 rural residences displaced.</td>
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<tr>
<td></td>
<td>• 3 rural residences displaced.</td>
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<tr>
<td></td>
<td>• Medium impact</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>• 4 commercial property displacements.</td>
</tr>
</tbody>
</table>

**Factor Recommendation**

Although Route B displaces 3 additional commercial properties, it minimizes rural residential displacements, and has a low impact on agricultural lands. Therefore, **Route B is preferred from a Land Use/Socio-Economic Environment perspective.**
# REASONED ARGUMENT METHOD

- Summarize factor rankings and identify the preferred alternative overall

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<thead>
<tr>
<th>FACTOR</th>
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<tr>
<td>Natural Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Use / Socio-Economic Environment</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cultural Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
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## RECOMMENDATION

Review Existing Data and Perform Field Investigations  
Identify Impacts and Mitigation Opportunities  
Compare Alternatives: Reasoned Argument Method (Primary Tool)  
Compare Alternatives: Arithmetic Method (Sensitivity Test)  
Review Differences between Evaluation Methodologies  
Identify Preferred Route

Consultation
REASONED ARGUMENT METHOD

- Summarize factor rankings and identify the preferred alternative overall

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</tr>
<tr>
<td>Land Use / Socio-Economic Environment</td>
<td>2nd</td>
<td>1st</td>
</tr>
<tr>
<td>Cultural Environment</td>
<td>1st (Tied)</td>
<td>1st (Tied)</td>
</tr>
<tr>
<td>Transportation</td>
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<td>1st</td>
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RECOMMENDATION
REASONED ARGUMENT METHOD

- Summarize factor rankings and identify the preferred alternative overall

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<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>Environment</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; (Tied)</td>
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**RECOMMENDATION**

**Route B** is preferred from land use/socio-economic environment, cultural environment, and transportation perspectives. These benefits outweigh the slightly larger impact to the natural environment.
LET’S DISCUSS ANY QUESTIONS YOU HAVE REGARDING THE REASONED ARGUMENT METHOD
Review Existing Data and Perform Field Investigations

Identify Impacts and Mitigation Opportunities

Compare Alternatives: Reasoned Argument Method (Primary Tool)

Compare Alternatives: Arithmetic Method (Sensitivity Test)

Review Differences between Evaluation Methodologies

Identify Preferred Route

Consultation

ARITHMETIC METHOD
ARITHMETIC METHOD

- A level of importance (numerical weighting) will be assigned to each factor
  - Higher weight = more important factor to you

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<table>
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<tbody>
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<tr>
<td>TRANSPORTATION</td>
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You will be providing your factor weighting today!
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Weightings will be divided within each factor:

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</tr>
<tr>
<td>Commercial / Industrial Uses and Properties</td>
<td>10</td>
</tr>
</tbody>
</table>
ARITHMETIC METHOD – SCORE

- The qualitative impacts previously determined are converted into numerical scores
  - Higher score = more benefits, lower impacts

<table>
<thead>
<tr>
<th>ROUTE ALTERNATIVE</th>
<th>FACTOR &amp; SUB-FACTOR</th>
<th>LEVEL OF IMPACT</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND USE / SOCIO-ECONOMIC ENVIRONMENT</td>
<td>Route A</td>
<td>Agriculture / Specialty Crop</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Route B</td>
<td>Agriculture / Specialty Crop</td>
<td>Low</td>
</tr>
</tbody>
</table>

Example for illustrative purposes only
ARITHMETIC METHOD

- The level of impact (score) is multiplied by the importance of the impact (weight) to give the weighted score for that factor

Example for illustrative purposes only

<table>
<thead>
<tr>
<th>Factor / Sub-Factor</th>
<th>Route A</th>
<th></th>
<th></th>
<th>Route B</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>Score</td>
<td>Weighted Score</td>
<td>Weight</td>
<td>Score</td>
<td>Weighted Score</td>
</tr>
<tr>
<td>LAND USE / SOCIO-ECONOMIC ENVIRONMENT</td>
<td>30</td>
<td></td>
<td></td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture / Specialty Crop</td>
<td>11</td>
<td>0.33</td>
<td>3.66</td>
<td>11</td>
<td>0.67</td>
<td>7.37</td>
</tr>
<tr>
<td>Urban and Rural Residential Uses and Properties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial / Industrial Uses and Properties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Review Existing Data and Perform Field Investigations → Identify Impacts and Mitigation Opportunities → Compare Alternatives: Reasoned Argument Method (Primary Tool) → Compare Alternatives: Arithmetic Method (Sensitivity Test) → Review Differences between Evaluation Methodologies → Identify Preferred Route
ARITHMETIC METHOD

- The level of impact (score) is multiplied by the importance of the impact (weight) to give the weighted score for that factor

**Example for illustrative purposes only**

<table>
<thead>
<tr>
<th>Factor / Sub-Factor</th>
<th>Route A</th>
<th>Route B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>Score</td>
</tr>
<tr>
<td>Weighted Score (Weight x Score)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LAND USE / SOCIO-ECONOMIC ENVIRONMENT</strong></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Agriculture / Specialty Crop</td>
<td>11</td>
<td>0.33</td>
</tr>
<tr>
<td>Urban and Rural Residential Uses and Properties</td>
<td>9</td>
<td>0.00</td>
</tr>
<tr>
<td>Commercial / Industrial Uses and Properties</td>
<td>10</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consultation

- Review Existing Data and Perform Field Investigations
- Identify Impacts and Mitigation Opportunities
- Compare Alternatives: Reasoned Argument Method (Primary Tool)
- Compare Alternatives: Arithmetic Method (Sensitivity Test)
- Review Differences between Evaluation Methodologies
- Identify Preferred Route
ARITHMETIC METHOD

- The level of impact (score) is multiplied by the importance of the impact (weight) to give the weighted score for that factor

Example for illustrative purposes only

<table>
<thead>
<tr>
<th>Factor / Sub-Factor</th>
<th>Route A</th>
<th>Route B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>Score</td>
</tr>
<tr>
<td><strong>LAND USE / SOCIO-ECONOMIC ENVIRONMENT</strong></td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Agriculture / Specialty Crop</td>
<td>11</td>
<td>0.33</td>
</tr>
<tr>
<td>Urban and Rural Residential Uses and Properties</td>
<td>9</td>
<td>0.00</td>
</tr>
<tr>
<td>Commercial / Industrial Uses and Properties</td>
<td>10</td>
<td>0.67</td>
</tr>
</tbody>
</table>

Compare Alternatives: Reasoned Argument Method (Primary Tool)

Compare Alternatives: Arithmetic Method (Sensitivity Test)

Review Differences between Evaluation Methodologies

Identify Preferred Route

Consultation
**ARITHMETIC METHOD**

- The level of impact (score) is multiplied by the importance of the impact (weight) to give the weighted score for that factor.

---

**Example for illustrative purposes only**

<table>
<thead>
<tr>
<th>Factor / Sub-Factor</th>
<th>Route A</th>
<th></th>
<th>Route B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight</td>
<td>Score</td>
<td>Weight</td>
<td>Score</td>
</tr>
<tr>
<td><strong>LAND USE / SOCIO-ECONOMIC ENVIRONMENT</strong></td>
<td>30</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Agriculture / Specialty Crop</td>
<td>11</td>
<td>0.33</td>
<td>11</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>3.63</strong></td>
<td></td>
<td><strong>7.37</strong></td>
</tr>
<tr>
<td>Urban and Rural Residential Uses and Properties</td>
<td>9</td>
<td>0.00</td>
<td>9</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>+ 0</strong></td>
<td></td>
<td><strong>+ 6.03</strong></td>
</tr>
<tr>
<td>Commercial / Industrial Uses and Properties</td>
<td>10</td>
<td>0.67</td>
<td>10</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>+ 6.70</strong></td>
<td></td>
<td><strong>+ 3.30</strong></td>
</tr>
<tr>
<td><strong>LAND USE / SOCIO-ECONOMIC FACTOR WEIGHTED SCORE</strong></td>
<td></td>
<td><strong>= 10.33</strong></td>
<td></td>
<td><strong>= 16.70</strong></td>
</tr>
<tr>
<td><strong>RANK</strong></td>
<td></td>
<td><strong>2ND</strong></td>
<td></td>
<td><strong>1ST</strong></td>
</tr>
</tbody>
</table>

---

**Consultation**

- Review Existing Data and Perform Field Investigations
- Identify Impacts and Mitigation Opportunities
- Compare Alternatives: Reasoned Argument Method (Primary Tool)
- Compare Alternatives: Arithmetic Method (Sensitivity Test)
- Review Differences between Evaluation Methodologies
- Identify Preferred Route

---
ARITHMETIC METHOD

- The weighted factor scores are added to give a total for each alternative
  - Higher total = more preferred

Example for illustrative purposes only

<table>
<thead>
<tr>
<th>Factors</th>
<th>Route A</th>
<th>Route B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weighted Factor Score</td>
<td>Weighted Factor Score</td>
</tr>
<tr>
<td>Natural Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Use / Socio-Economic Environment</td>
<td>10.33</td>
<td>16.70</td>
</tr>
<tr>
<td>Cultural Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RANK</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ARITHMETIC METHOD

- The weighted factor scores are added to give a total for each alternative
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<table>
<thead>
<tr>
<th>Factors</th>
<th>Route A</th>
<th>Route B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted Factor Score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Environment</td>
<td>15.30</td>
<td>14.10</td>
</tr>
<tr>
<td>Land Use / Socio-Economic Environment</td>
<td>10.33</td>
<td>16.70</td>
</tr>
<tr>
<td>Cultural Environment</td>
<td>21.30</td>
<td>21.30</td>
</tr>
<tr>
<td>Transportation</td>
<td>20.15</td>
<td>25.33</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RANK</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ARITHMETIC METHOD

• The weighted factor scores are added to give a total for each alternative
  – Higher total = more preferred

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<table>
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<tr>
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<th>Route B</th>
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<tbody>
<tr>
<td></td>
<td>Weighted Factor Score</td>
<td>Weighted Factor Score</td>
</tr>
<tr>
<td>Natural Environment</td>
<td>15.30</td>
<td>14.10</td>
</tr>
<tr>
<td>Land Use / Socio-Economic Environment</td>
<td>+ 10.33</td>
<td>+ 16.70</td>
</tr>
<tr>
<td>Cultural Environment</td>
<td>+ 21.30</td>
<td>+ 21.30</td>
</tr>
<tr>
<td>Transportation</td>
<td>+ 20.15</td>
<td>+ 25.33</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>67.08</strong></td>
<td><strong>77.43</strong></td>
</tr>
<tr>
<td><strong>RANK</strong></td>
<td><strong>2nd</strong></td>
<td><strong>1st</strong></td>
</tr>
</tbody>
</table>
ARITHMETIC METHOD

- Rural and urban scenario weightings will be collected from each of these groups:
  - Project Team
  - Public (tentatively June 2015)
  - Community and Greenbelt Transportation Advisory Groups (May 7)
  - Municipalities and Regulatory Agencies (we want your input today!)
  - First Nation and Métis Communities (Spring/Summer)

- The arithmetic method will be run for each group
  - Results from all groups incorporated so that all perspectives are captured
COMPARE RESULTS

• If the results of the reasoned argument method (qualitative) and arithmetic method (quantitative) scenarios are consistent – evaluation is confirmed

• If there are significant differences, the project team will:
  – Revisit the rationale in the reasoned argument method

• The results of the reasoned argument method and the arithmetic scenarios will be available for review at PIC #2 (December 2015)
LET’S TALK ABOUT WHAT FACTORS ARE IMPORTANT TO YOU AND OBTAIN YOUR FACTOR WEIGHTINGS
Session 2: Trade-Offs in the West, Central and East Sections of the Study Area
PURPOSE

• Review the key issues and trade-offs the project team has identified in the west, central and east sections of the GTA West study area

• Obtain your input on the key issues and trade-offs
SHORT LIST OF ROUTE ALTERNATIVES AND POTENTIAL INTERCHANGE LOCATIONS

WEST SECTION

NOTE: POTENTIAL INTERCHANGE LOCATIONS BEING REFINED THROUGH MUNICIPAL INPUT NOW UNDERWAY
EXAMPLES OF TRADE-OFFS

• North vs. south crossing of Credit River
  – Residences, religious institutions, natural environment, proximity to Norval, compatibility with future municipal road network

• Interchange options
  – Land use impacts, access issues, TransCanada Pipeline crossing, compatibility with future municipal road network

• East vs. west of Heritage Road
  – Religious institutions, planned cemetery, Heritage Heights concept plan and landowners, natural environment
SHORT LIST OF ROUTE ALTERNATIVES AND POTENTIAL INTERCHANGE LOCATIONS - CENTRAL SECTION
EXAMPLES OF TRADE-OFFS

- Widening existing Highway 410/10 vs. new direct Highway 410 connection
  - Access and community impacts to Valleywood, access for properties on Hurontario Street, impacts to planned developments, natural environment
EXAMPLES OF TRADE-OFFS

• Road network in the Highway 50 / Coleraine Drive/Highway 427 area
  – Compatibility with future municipal road network, interchange spacing, development

• Northern vs. southern routes
  – Agriculture and fragmentation of land, residences, sensitive environmental features, compatibility with future municipal road network
SHORT LIST OF ROUTE ALTERNATIVES AND POTENTIAL INTERCHANGE LOCATIONS

EAST SECTION

NOTE: POTENTIAL INTERCHANGE LOCATIONS BEING REFINED THROUGH MUNICIPAL INPUT NOW UNDERWAY
EXAMPLES OF TRADE-OFFS

• Road network in the Highway 50/Coleraine Drive/Highway 427 area
  – Compatibility with future municipal road network, interchange spacing, development

• North vs. south crossing of Humber River
  – Natural environment, residences, proximity to Kleinburg

• Interchange options
  – Weston Road vs. Pine Valley Drive, compatibility with future municipal vision (Vaughan Employment Lands), natural environment
GROUP DISCUSSION