

MANAGEMENT REPORT TO METROLINX

Report Title:	Project Prioritization Framework Principles				
Report Number:	ISP 09-002	Date to Board:	February 20, 2009	Date to Committee:	N/A
Report To:	<input checked="" type="checkbox"/> BOARD		<input type="checkbox"/> ADVISORY COMMITTEE <input type="checkbox"/> AUDIT COMMITTEE <input type="checkbox"/> GOVERNANCE COMMITTEE <input type="checkbox"/> HUMAN RESOURCES COMMITTEE <input type="checkbox"/> TECHNICAL ADVISORY GROUP <input type="checkbox"/> OTHER:		
Report Referred From:	Investment Strategy and Projects (ISP) Unit				
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Item Class:	IN CAMERA		DECISION	<input checked="" type="checkbox"/>	INFORMATION <input type="checkbox"/>

1.0 RECOMMENDATION:

RESOLVED:

THAT the Metrolinx Board: receive Report ISP 09-002 “Project Prioritization Framework Principles”;

THAT the following five principles guide the development of the Project Prioritization Framework:

- A clear, logical and transparent Framework;
- An evidence-based and data-driven Framework;
- Consistent, region-wide application of the Framework across the Metrolinx Top 15 Priority Projects;
- Builds on the goals and objectives in The Big Move and project-level evaluation work completed through the Metrolinx Benefits Case Analysis (BCA) process; and
- Accommodates strategic policy preferences and weightings as may be directed by the Board rather than a strictly quantitative-driven and prescriptive process

THAT criteria broadly consistent with the following categories guide the development of the Project Prioritization Framework:

- Transportation customer and user benefits;
- Financial impacts;
- Environmental impacts;
- Economic development impacts;
- Social and community impacts; and
- Other impacts as appropriate (e.g., potential network implications).

THAT Metrolinx staff consult with municipal, transit agency, provincial and other stakeholders and partners in the ongoing development of a viable Project Prioritization Framework; and

THAT Metrolinx staff report back to the Board:

- In May 2009 with the next iteration of the Prioritization Framework, including project prioritization ranking scenarios based on BCA and RTP data inputs; and
- In July 2009 with a final report and recommendations for prioritizing the balance of the RTP Top 15 Priority Projects, and to support the development of the Metrolinx 2010/11 Capital Plan and update to the rolling Five-Year Capital Plan.

2.0 PURPOSE & EXECUTIVE SUMMARY

The purpose of this Board report is to establish high-level principles and criteria to guide Metrolinx Board of Directors in the development of a Project Prioritization Framework for the RTP Top 15 Priority Projects. This report also provides a high-level overview of project prioritization approaches currently in use by other jurisdictions.

3.0 BACKGROUND

On November 28, 2008, the Metrolinx Board approved the Regional Transportation Plan and Investment Strategy, entitled “The Big Move”, which sets out a vision for regional rapid transit expansion and improvements over the next 25 years. The “Big Move” identified 15 Priority Projects for early implementation leveraging the provincial government’s \$11.5 billion (B) MoveOntario 2020 commitment. While the MO 2020 commitment is historic in its size and nature, additional money will be necessary in order to complete even the top 15 projects identified by the Big Move. As outlined in the Investment Strategy, Metrolinx will work with its municipal and provincial partners, stakeholders and the public to develop options for funding the whole of the balance of the regional rapid transit network envisioned in The Big Move, and report back to the Province with recommendations by 2013.

On November 28, 2008, the Board also received and approved report CA 08-033, entitled 2009/10 and Five-Year Capital Plan. The plan calls for a \$495.5 million (M) capital

investment in rapid transit expansion in 2009/10, and a total 2009/10 to 2013/14 five-year expenditure profile of \$6,996.2M.

Also approved within the report was a division of the Top 15 Priority Projects by implementation readiness status. Two projects were approved for immediate implementation funding in 2009, namely York Region's VIVA and Toronto's Sheppard East Light Rail Transit (LRT) projects.

In order to maintain project momentum for the remainder of the Top 15 projects not approved for immediate implementation funding, report CA 08-033 included a recommendation that funding of \$320M be requested from the Province in 2009/10 to support planning, design and engineering (PDE) activities – to bring the balance of the Top 15 projects towards a stronger state of implementation readiness.

In addition, the Board directed staff to complete project-level Benefits Case Analysis (BCA) work for the remaining Top 15 Priority Projects, beyond the six projects that comprise the "first wave" of BCA evaluations and those with pre-existing, legacy funding commitments (including the Toronto-York Spadina Subway extension, Pearson Airport-Union Station Rail Link, Mississauga Transitway and Brampton AcceleRide projects). The second wave of BCAs is targeted for completion by summer 2009. Details of the BCA work plan and timelines were approved in report ISP 08-016, and are illustrated in Figure 1 below:

Figure 1 – BCA Work Plan Strategy

<i>Project</i>		<i>BCA Completion</i>	<i>Proposed Workplan Strategy</i>
Wave 1 BCAs	Sheppard East LRT	February 2009	Construction start in 2009
	York Viva	October 2008	Construction start in 2009
	Yonge North Subway Extension	Spring 2009	
	GO Lakeshore Electrification	Spring 2009	
	Scarborough RT	November 2008	
	Eglinton Crosstown	Spring 2009	
Finch West LRT	February 2009		
Wave 2 BCAs	Durham Highway 2 RT	Summer 2009	
	GO Transit Bowmanville Rail Extension and Other Service Improvements	Summer 2009	
	Hamilton King-Main RT	Summer 2009	
	Halton-Peel Dundas RT	Summer 2009	
	Peel Hurontario RT	Summer 2009	
Pre-existing Commitments	Mississauga Transitway		
	Peel Queen Street RT		
	Pearson Airport-Union Rail Link		
	Spadina Subway Extension		

4.0 DISCUSSION

Proposed Prioritization Framework Workplan

To inform the decision-making process and help ensure optimal multi-year project staging decisions within the \$11.5B available MoveOntario 2020 allocation, Metrolinx staff are developing a Project Prioritization Framework for Board consideration. The final version of the Framework is targeted for presentation to the Board in summer 2009, following the completion of the remaining Top 15 Priority Project BCAs.

Consistent with the goals and objectives of The Big Move, the BCA process provides a standardized basis for assessing the “triple bottom line” economic, environmental and social impacts of potential transit investments across the Greater Toronto and Hamilton Area (GTHA). The Prioritization Framework is intended to build on the results of the project-level BCA assessments to provide decision-makers with a comparative, evidence-based evaluation and ranking of the Top 15 Priority projects. The outcomes of this prioritization process will in turn support the development of the 2010/11 Metrolinx Capital Plan and the next iteration of the rolling Five-Year Capital Plan.

Metrolinx staff recommend a three-step approach for developing the Prioritization Framework, taking into consideration the time required to complete the remainder of the current BCA outputs, and to allow sufficient time to consult with municipal, transit agency, provincial and other stakeholders. The consultation process is critical as Metrolinx and its partners are collaborating to establish, for the first time in the region’s history, a viable, transparent and evidenced-based tool for prioritizing multiple, concurrent projects as part of a multi-billion rapid transit expansion program.

The recommended workplan development timeline and Board decision milestones are as follows:

1. Board approval of guiding principles for the Framework (the key purpose of this staff report) in February 2009;
2. Board review of potential prioritization scenarios, weighting and criteria following the completion of additional BCA reports in Spring 2009; and
3. Final project prioritization recommendations, supported by final project-level BCA outputs, presented for Board approval in summer 2009.

Proposed Prioritization Guiding Principles

Metrolinx staff propose the following five principles be adopted to guide the development of the Project Prioritization Framework:

1. Prioritization process should be clear, logical and transparent;
2. Prioritization decisions should be evidence-based and data-driven;
3. Prioritization criteria should be applied consistently to projects to enable comparative project evaluation across the broad regional-scale Metrolinx mandate area;
4. The Framework should build on the analytical work completed through BCA process, and be consistent with the goals and objectives in The Big Move; and

5. The Framework should provide advice and support to decision-makers, but not prescribe decisions based strictly on quantitative-ranking schemes – for example, the Framework should accommodate weighting factors that respond to the key public policy imperatives of the day.

The Framework is intended to support the optimal timing and staging of projects to ensure that region-wide transportation user, economic, environmental and social benefits of transit investments are maximized. The process should be straight forward, defensible and transparent so that the rationale for project prioritization decisions by the Metrolinx Board is clearly evident and understandable for the public and stakeholders, including project funding partners.

The process should also build upon the significant effort, time and resources that have been dedicated to the evaluation of the Top 15 Priority Projects through the BCA process, which provides a comparative, standardized assessment of the triple bottom-line costs and benefits of each project. While the BCA process provides a wide and robust array of quantitative and qualitative measures to form the starting point for project prioritization criteria, the BCA outputs should be reviewed to ensure the data will be relevant for comparing different projects, in addition to alternative scopes within a defined project. Staff also recognize that the prioritization process could be restricted by incomplete or uneven data.

Finally, the Framework should help to inform the decision-making process, not prescribe prioritization decisions based strictly on rigid quantitative scoring and ranking schemes. The Framework should present information clearly, concisely and on a consistent basis to enable decision-makers to consider the potential implications and trade-offs involved with prioritization decisions, and the impact of alternative strategic policy preferences on project priority selection.

Proposed Prioritization Evaluation Criteria

The BCA process provides an assessment of feasible project options, which could include technology, scope and/or phasing alternatives. To ensure that a broader public policy perspective is taken into account, the assessment is based on a Multiple Account Evaluation (MAE) methodology. MAE entails the systematic assessment of the project options against a set of accounts which represent the incremental direct project impacts (costs, revenues and user benefits), as well as the broader triple bottom line public policy goals that underpin The Big Move, namely:

- A high quality of life;
- A thriving, sustainable and protected environment; and
- A strong, prosperous and competitive economy.

A key principle of the MAE methodology, however, is that not all benefits and costs associated with a project option can be expressed in monetary terms. To provide a more holistic appraisal, the Project Prioritization Framework process could take into consideration both quantitative and qualitative measures based on five separate “accounts” representing

the high-level financial and public policy goals against which project priority options are assessed. These accounts include:

- Transportation User Benefits;
- Financial;
- Environmental;
- Economic Development; and
- Social/Community.

It is not intended, nor desirable, that the measures from each account be combined into a single measure of net benefit for each project alternative. Rather the accounts are intended to provide the necessary information for decision makers to consider the potential trade-offs and weighting emphasis between each account (for example, financial costs versus potential environmental impacts).

The following provides an overview of the five accounts, and other criteria that could potentially be used to inform the Project Prioritization Framework. For the purposes of the Framework, the BCA measures can be scaled to assess project benefits in a comparable manner (e.g., benefits per dollar invested, per kilometre, per new rider).

1. Transportation User Benefits

The Transportation User Benefits account measures the incremental benefits to transit users and non-transit users affected by the project in terms of increased choices, faster travel times, reduced automobile use, passenger comfort, accessibility, reliability and safety. It is important to note that travel time savings capture the effect of a transit project on both transit riders and automobile users. This includes the benefits of faster transit travel times, increased transit ridership and reduced road congestion.

The assessment of user benefits and costs incorporates both quantitative (monetary) and qualitative measures. Monetary measures include the value of the change in annual travel time for both transit and highway users, automobile operating cost savings for highway users and safety benefits (based on accident reductions), all of which are discounted to present values (as shown in Table 1).

The transit and highway demand and travel time savings estimates are derived from the Greater Golden Horseshoe Travel Demand Model, which was the basis for the development of The Big Move. The use of this model for the BCA process provides for consistent, comparable evaluation results across all projects. The model provides results for two forecast years - 2021 and 2031. Annual forecasts between 2021 and 2031 are interpolated, and for years prior to 2021 they are extrapolated based on the relationship between 2021 and 2031 forecasts.

Qualitative measures include assessments of travel time reliability, system crowding, and other journey experience factors such as convenience, access and overall service quality for each project alternative.

TABLE 1 SUMMARY OF TRANSPORTATION USER ACCOUNT

All Values in Net Present Value (\$M)	Option 1	Option 2
Travel Time Savings		
Automobile Cost Savings		
Accident Reductions		
Transportation User Benefits		

2. *Financial*

The Financial account measures the incremental costs and revenues associated with each project option over the assessment period, discounted to present values, as illustrated in Table 2. Costs include the incremental capital and operating costs incurred by each option compared to the Base Case. Incremental revenues, such as fare revenues, advertising, and proceeds from the disposal of assets, are also shown in this account, as are any savings that would result from the implementation of each option.

TABLE 2 SUMMARY OF FINANCIAL ACCOUNT

All Values in Net Present Value (\$M)	Option 1	Option 2
Capital Costs		
Operating Costs		
Bus Fleet Savings		
Total Incremental Costs		
Incremental Fare Revenues		

3. *Environmental*

The Environmental account captures a wide range of environmental impacts that could be relevant for a capital project (as shown in Table 3), including air quality, solid or hazardous waste, land and natural resources, and wildlife and habitat impacts, where relevant.

A key quantitative measure in this account is the potential impact on greenhouse gas emissions (GHG), which is calculated based on the following inputs:

- Reduction in automobile kilometres (generated through the Greater Golden Horseshoe Travel Demand Model);
- Average GHG reduction per kilometre; and
- Average social cost of GHG emissions.

The key summary output/measures for the Environmental Account are the present value of the reduction in GHG emissions and, where relevant, a qualitative assessment of the nature and magnitude of other environmental impacts for each option.

TABLE 3 SUMMARY OF ENVIRONMENTAL ACCOUNT

	Option 1	Option 2
2021 Reduction in CO ₂ tonnes		
2031 Reduction in CO ₂ tonnes		
Net Present Value (\$ m)		

4. Economic Development

The economic development account provides an estimate of the direct and indirect income and employment impacts for each project option, as shown in Table 4. The impacts are separated into short-term (during construction) and long-term (ongoing operations) impacts. This account also measures the change in land values as a result of the investment in the project.

The assessment of economic development benefits may be done in monetary or non-monetary terms. The summary output/measures for the Economic Development Account include:

- Incremental employment, income and GDP during construction;
- Incremental annual employment, income and GDP during the operational phase;
- Potential land value increase, including identification of value uplift at the station-area and corridor level and potential property tax increase; and
- Productivity by industry, including the impact of the amount of delay and trip diversion on shipping costs and logistics (qualitative).

TABLE 4 SUMMARY OF ECONOMIC DEVELOPMENT ACCOUNT

	Option 1	Option 2
Impacts During Construction Period:		
Employment (Person-years)		
GDP		
Income		
<hr/>		
Long-term Impacts:		
Employment		
GDP		
Income		
<hr/>		
Land value increase		

5. Social/Community Impacts

The Social/Community Impacts account documents the major community or distributional impacts and trade-offs that the project options may entail. Precisely what is documented in this account may vary depending on the nature of the project, but generally includes consideration of factors such as the ability to promote and strengthen the pedestrian realm, impacts on accessibility and low-income mobility, and other impacts on quality of life.

The account does not include any monetary or quantitative measures of social impacts. Rather, its purpose is to identify the nature of the effects and provide an assessment of their significance. The summary output is a discussion on key qualitative impacts (positive and negative) for each of the potential project alternatives.

It should be noted that the cost-benefit measure included in the BCA does not include the benefit value of environmental impacts (e.g., GHG reduction), as well as the estimated land value uplift estimate. These items are indicated ‘below-the-line’ and not factored into the more traditional transportation cost-benefit calculation.

Additional Potential Prioritization Criteria

In addition to the BCA measures, the Framework may incorporate other measures that address the goals and objectives of the Big Move in order to provide additional, mutually exclusive evaluation factors over and above those developed through the BCA process. The following table provides examples of potential additional criteria:

<p><i>Additional Social Impact Criteria</i></p>	<ul style="list-style-type: none"> ▪ Number of seniors living within 500 metres of new rapid transit stations ▪ Low income and elderly population within 500 meters of new rapid transit stations ▪ Ability to connect essential community services and destinations
<p><i>Additional Land Use Criteria</i></p>	<ul style="list-style-type: none"> ▪ Number of Mobility Hubs/Urban Growth Centres served ▪ Development risk measure, e.g. – <ul style="list-style-type: none"> – Variance between current and planned population and employment densities within 500 meters of new rapid transit stations – Transit-supportive local zoning/plans in place for station areas
<p><i>Other Potential Criteria</i></p>	<ul style="list-style-type: none"> ▪ Existing funding commitments in place ▪ Advanced state of implementation readiness ▪ Municipal commitment to building ridership and promoting transit-supportive intensification in the corridor ▪ Enhances established transit corridors ▪ Transportation system impacts of individual transit projects/connections with existing and planned transit lines ▪ Impacts on environmentally sensitive areas or prime agricultural land ▪ Use of renewable energy sources ▪ Customer service/convenience

Metrolinx staff are in the process of reviewing these and other potential additional measures, and will report back to the Board in spring 2009 with a more refined, fulsome list of potential criteria along with initial prioritization scenarios.

5.0 FINANCIAL MATTERS:

N/A

6.0 HUMAN RESOURCES MATTERS:

N/A

7.0 ENVIRONMENTAL MATTERS:

N/A

8.0 COMMUNICATION MATTERS:

N/A

9.0 LEGAL MATTERS:

N/A

10.0 CONCLUSION:

The development of the Project Prioritization Framework is a focussed, six-month collaborative and iterative exercise that will include multiple points of engagement with the Metrolinx Board, municipal and transit agency partners, and provincial government and other stakeholders. The exercise is focussed because it should expedite and strengthen, not create delays and uncertainty for the implementation-oriented Metrolinx capital program. But the Prioritization workplan should also be open and engaging, because in order to achieve critical success, it must earn the understanding and buy-in of the funders, implementers and proponents of rapid transit expansion across the GTHA.

The Prioritization Framework will ultimately become a decision-making support tool for one of the boldest, most ambitious rapid transit-building programs in the world.. The Government of Ontario has pledged \$11.5 billion as a major initial investment to implement the RTP – it will be crucial for the Board to assign project implementation priorities against the first \$11.5 billion with the knowledge and confidence that these expenditure decisions will create the optimal benefits for transportation users, taxpayers, the environment, economy and communities of the GTHA.

Respectfully submitted,

Approved for Submission to the Board



John Howe, General Manager,
Investment Strategy & Projects



Vince Mauceri, Acting CEO

Appendix:

Appendix A: Project Prioritization Experience in Other Jurisdictions
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**Staff & Others
Consulted:**

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Notifications:

N/A	
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Special Instructions:

N/A

APPENDIX A

PROJECT PRIORITIZATION EXPERIENCE IN OTHER JURISDICTIONS

As part of the development of the Metrolinx Project Prioritization Framework, staff are in the process of reviewing project prioritization and evaluation processes used in other leading jurisdictions both in North America and abroad. The following case studies provide a high level overview of relevant examples of project prioritization approaches in Portland, Oregon and the Northern Way initiative in the United Kingdom (UK), which includes the three regional development agencies and eight city-regions covering the northern region of England.

Portland, Oregon

The United States (US) Federal-Aid Highway Act of 1962 mandated the creation of Metropolitan Planning Organizations (MPO's) in all US metropolitan areas with populations of greater than 50,000. The primary role of MPO's is to oversee the planning, programming and coordination of federal highway and transit investments in urbanized areas at a regional scale. A key responsibility of MPO's is the development of long-range regional transportation plans (typically covering periods of 25 years or more), as well as shorter-term Transportation Investment Plans.

Metro is the regional government for the Portland, Oregon area, and has the distinction of being the only directly-elected MPO in the US. As part of the development of its multi-modal 2035 Regional Transportation Plan update, Metro is currently in the process of preparing a High Capacity Transit System Plan (HCTSP) to guide the region's high capacity transit investments over the next 30 years (potentially including light rail, commuter rail, streetcar and bus rapid transit components). The HCTSP, to be completed by spring 2009, will include a prioritized set of new high capacity transit corridors or improvements to the existing system. It should be noted that the project screening and evaluation process described below are still under development and could be revised prior to final approval by the Metro Council.

Based on feedback received from local jurisdictions, stakeholders and the public, Metro initially identified 55 potential new corridors and other high capacity transit improvements. The initial list of projects was put through a screening process based on the following seven initial criteria:

- Ridership potential based on existing and future conditions;
- Cost and availability of rights-of-way;
- Environmental constraints;
- Compatibility with regional land use goals;
- Service to low-income, minority, elderly and disabled residents;
- Ability to serve corridors with congested roadways; and
- Connectivity and benefits to the existing transit system.

Based on the results of the screening process, the 15 best performing corridors have been recommended by Metro staff to proceed through a more detailed project evaluation and prioritization process. Metro's proposed prioritization process is based on the outputs from corridor-level Multiple Account Evaluation (MAE) analyses. Consistent with over-riding goals of the 2035 Regional Transportation Plan, the proposed MAE framework will assess potential high capacity transit corridors and improvements based on four evaluation accounts, namely community, environment, economy and deliverability.

As with the Metrolinx Benefits Case Analysis (BCA) process, the outputs from the proposed Metro MAE framework will include both quantitative and qualitative measures. The results of this evaluation process will be encapsulated in a summary sheet for each corridor to assist decision makers with prioritization decisions. The summary sheets will present the results of each of the evaluation criteria under each account and the justification of the assessment score. Rather than presenting a quantitative ranking or numeric score for each project under the four accounts, the project scoring results are to be based on a seven-point, relative scale as follows:

- Significant Benefit
- Moderate Benefit
- Slight Benefit
- Neutral
- Slightly adverse
- Moderately adverse
- Significantly adverse

Northern Way, United Kingdom

The Northern Way is a partnership of three Regional Development Agencies and eight city-regions covering the northern region of England, including Liverpool, Manchester, Sheffield, Leeds, Central Lancashire, Hull and the Humber Ports, Tees Valley, and Tyne and Wear. The partnership was formed in 2004 primarily to address the approximately \$30 billion economic output gap between the North of England and the rest of the United Kingdom.

The first phase of the Northern Way's activities included the development of a pan-regional, twenty-five year Growth Strategy. A key recommendation in the Growth Strategy was the development of a prioritized plan to improve road, rail and public transport linkages within and between the northern city regions, and beyond to the rest of the UK.

In 2005, the Northern Way commissioned MRC Maclean Hazel to develop a multi-modal transportation project prioritization framework to identify projects of pan-regional significance. The approach is based on the Surface Infrastructure of National Economic Importance (SINEI2) methodology used by the UK Department for Transport, which attempts to link prioritization decisions with specific desired outcomes. The SINEI2 method involves four analysis components:

1. Objectives and Outcomes

- Outlines the problem or objective to be addressed, the consequences of not taking action, and the desired outcomes
- Description of potential alternatives and options for addressing the problem or objective

2. Primary Framework

- Evaluation of proposals based on economic, social and environmental criteria with a scoring system used to profile the strengths and weaknesses of the proposal

3. Secondary Framework

- Scoring system to evaluate proposals based on feasibility, effectiveness and acceptability criteria

4. Summary Table

- Summary table showing scores to highlight the comparative strengths and weaknesses of alternative proposals

The pool of 27 multi-modal projects assessed through the prioritization process included those identified in the Northern Way Growth Strategy, projects submitted for UK government funding consideration through the Regional Funding allocation process, and a number of other projects identified by Northern Way stakeholders. A series of stakeholder workshops were held during the fall of 2005 to reach a consensus on the key objectives and outcomes, the project list, and the appropriate criteria for use in the primary and secondary frameworks. A peer review group was also created, consisting of a mix of academics, economists and business leaders, to review the proposed prioritization framework.

Consistent with the over-arching objectives of the Northern Way initiative, the resulting prioritization framework placed a heavy emphasis on the potential economic impacts of each project. Projects were assessed against the primary and secondary framework criteria using a simple system of ticks and crosses as follows:

✓	Positive score – one to three ticks depending on degree of positive contribution
○	Neutral score
✘	Negative score - one to three ticks depending on degree of negative impact
◇	Unknown – unavailable information at time of scoring or missing information

The scoring methodology is intended to inform the decision-making processes by identifying the relative strengths and weaknesses of each project and providing an overall profile rather than a specific numeric score. The scoring process involved multiple reviewers independently scoring each project, followed by a review to identify any inconsistencies. The results of the scoring process were then presented to a stakeholder workshop for review and refinement.