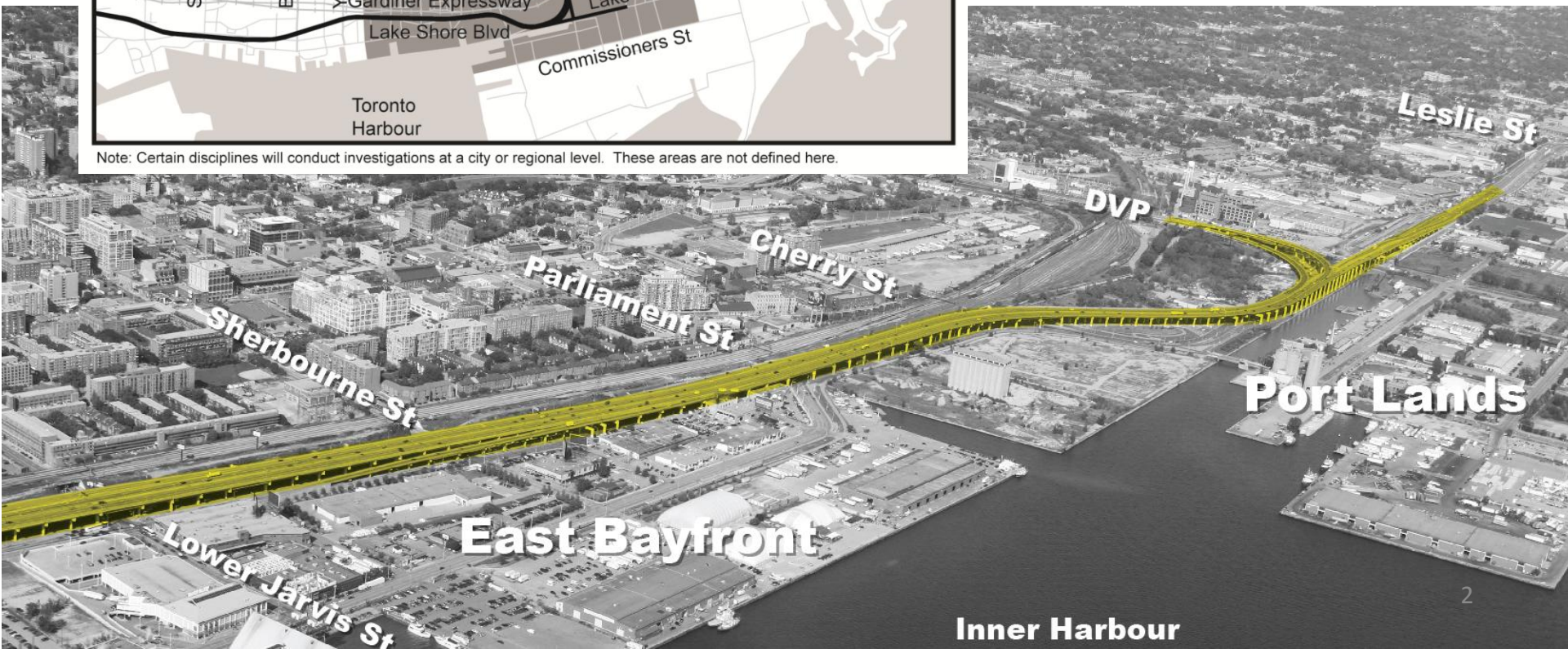
TORONTO

Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment and Integrated Urban Design Study

March 4, 2014 Public Works and Infrastructure

What are we studying?

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

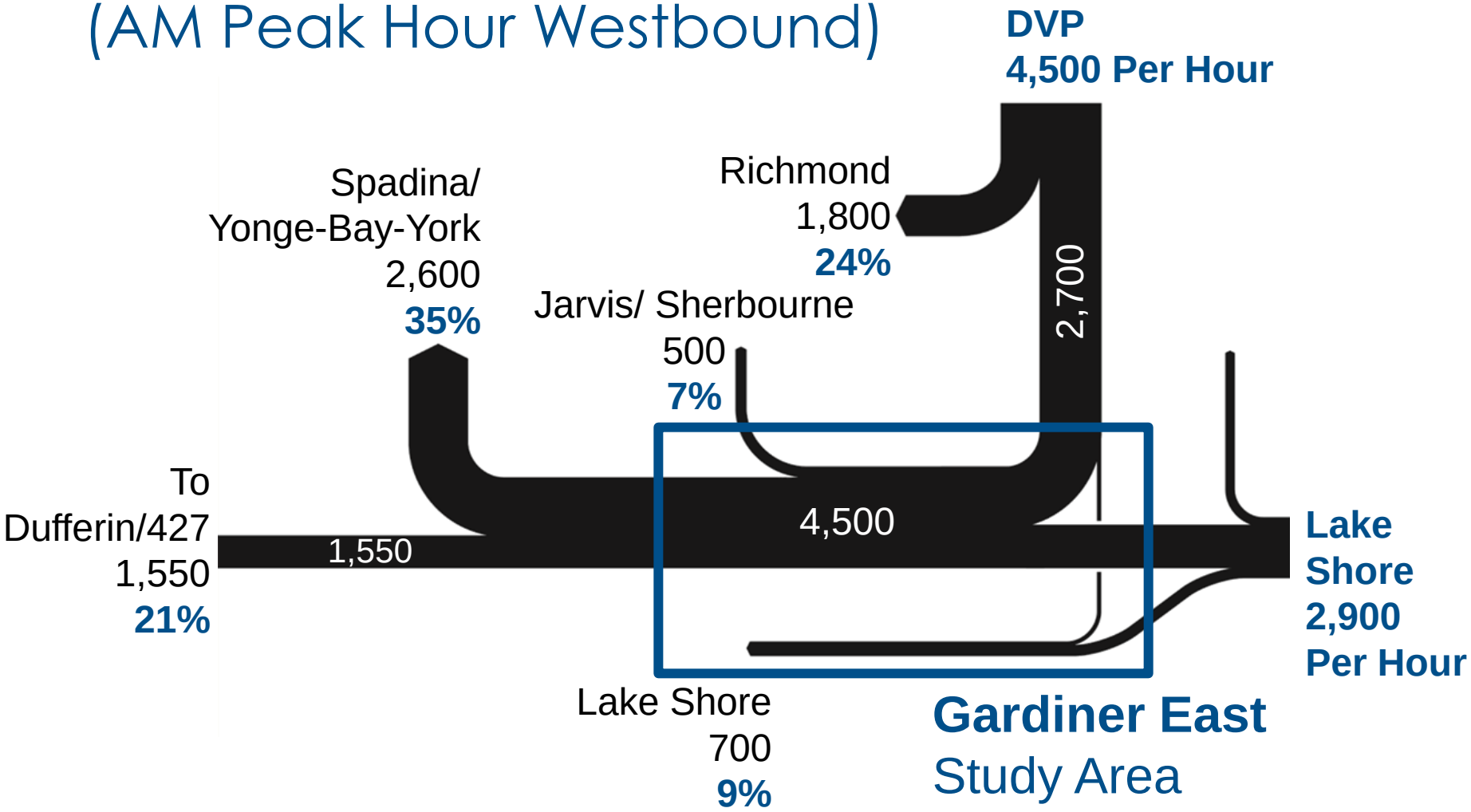


A Timely Decision is Needed

- Decision on future of Gardiner East is needed
- Gardiner East is more than 50 years old
- Requires significant public investment, regardless of option
- Interim repairs 2013 to 2014
- Full reconstruction of Gardiner East deferred to 2020, pending completion of EA

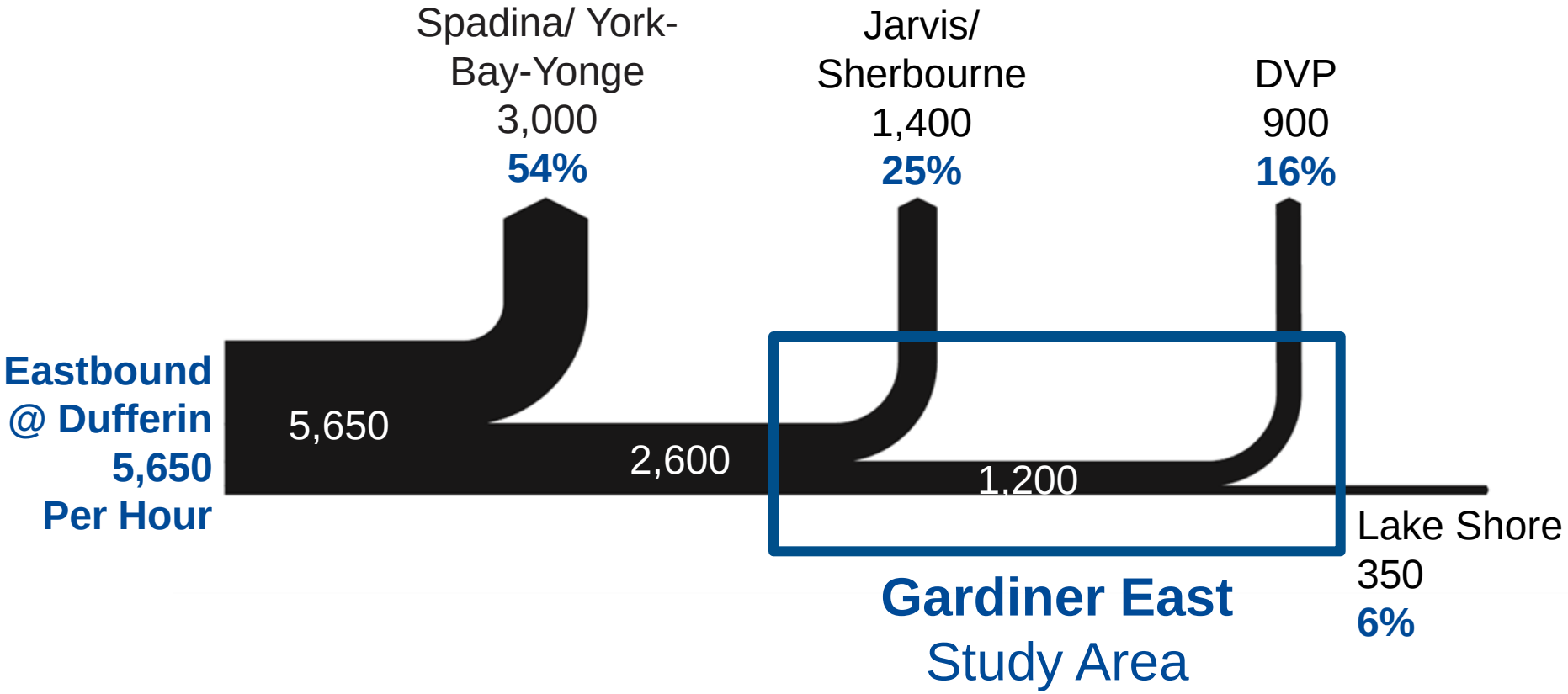
Downtown vs. Through Trips

(AM Peak Hour Westbound)

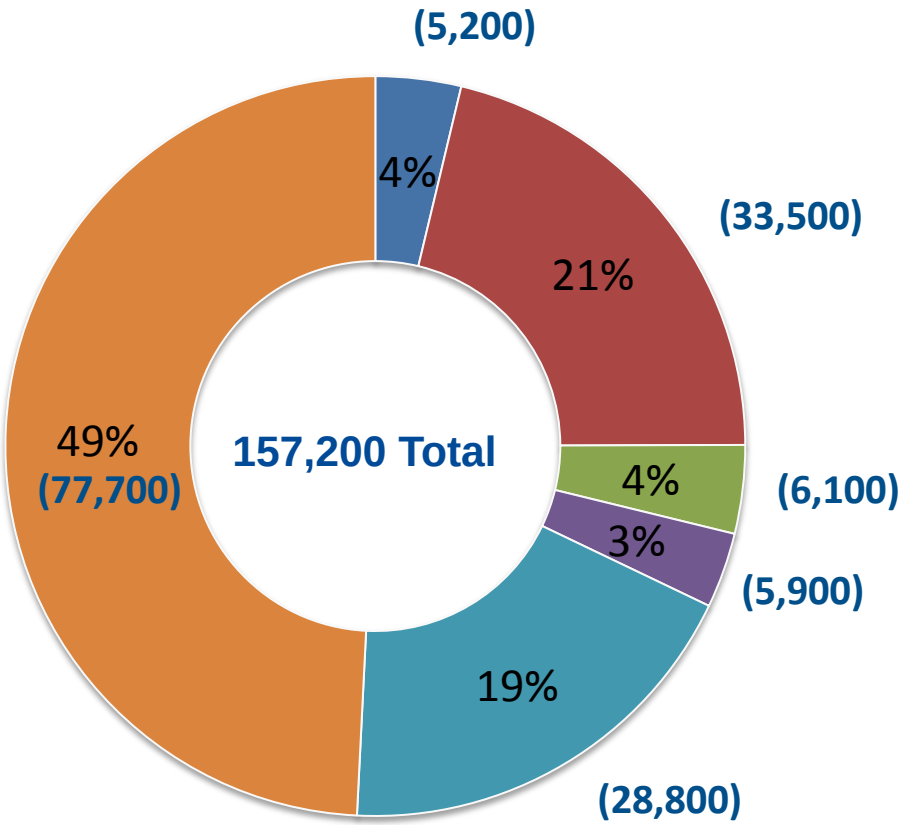


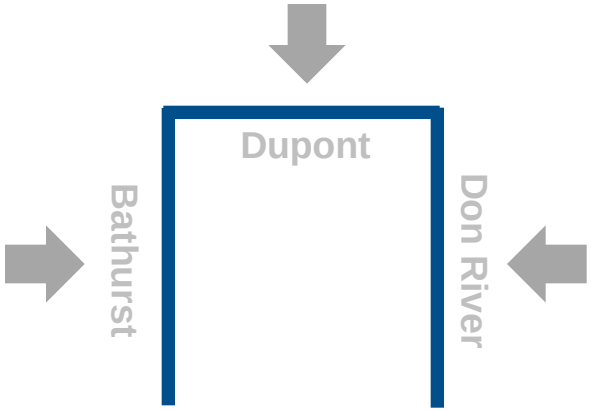
Downtown vs. Through Trips

(AM Peak Hour Eastbound)



Getting Downtown
(AM Peak Hour 2011)





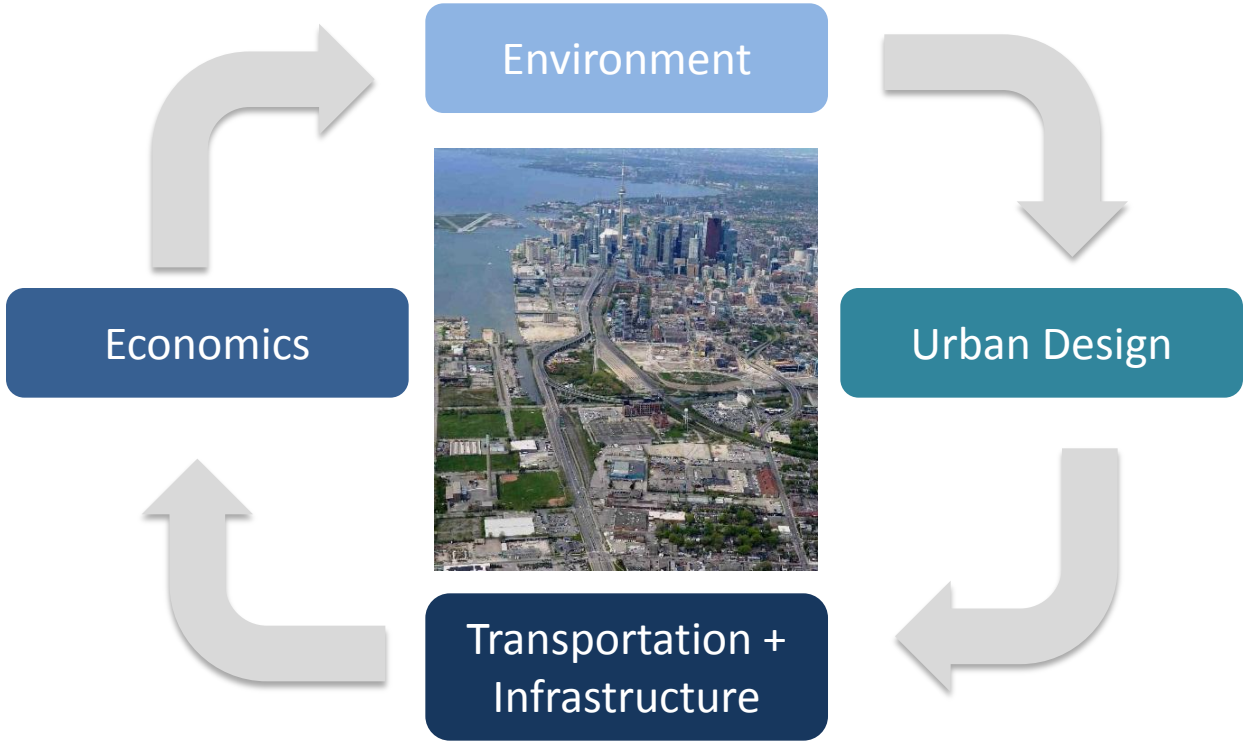
- Walk/ Cycle
- Auto (All Other Routes)
- Auto (Gardiner Eastbound @ Bathurst)
- Auto (Gardiner Westbound @ DVP)
- GO Transit
- TTC Transit

Note: Auto includes all vehicles (taxis, trucks, buses, cars, etc.)

Evaluation

Evaluation Approach

- 4 Study Lenses
  - 16 Criteria Groups (60 Measures)
- Comparison of relative advantages & disadvantages for each criteria group



Four Alternatives

Maintain $291M NPV

- Funding fully committed for first 10 years
- Maintain 6-lane Gardiner and rehabilitate deck
- Maintain auto capacity
- Limited public realm improvements & land creation opportunities
- Numerous turn restrictions on Lake Shore
- 6 years of construction impacts on travel lanes

Improve $354M NPV

- Maintain but reduce 6-lane Gardiner and Lake Shore to 4-lanes each
- Modified rehab program with reduced lanes / standard shoulders
- Public realm improvements on Lake Shore & new cycling trail
- Reduction of turning restrictions and conflicts among users
- Modest land development opportunities of $2M NPV
- 6 years of construction impact on travel lanes

Replace $692M NPV

- New elevated structure built to today's highway standards
- Public realm improvements on Lake Shore & new cycling trail
- $65-70M NPV revenue from land development opportunities
- 8 years of construction impact on travel lanes with full closure of the corridor for some periods

Remove $240M NPV

- Remove 6-lane Gardiner Expressway East
- Create expanded 8-lane, at-grade Lake Shore Blvd: landscaped, dedicated turning lanes, 2-sided street, sidewalks and cycling trails
- $80-90M NPV revenue from land development opportunities
- 3 years of construction impact on travel lanes

Preliminary Evaluation Results

	Study Lens/ Criteria Group Summary	MAINTAIN	IMPROVE	REPLACE	REMOVE
TRANSPORTATION & INFRASTRUCTURE	Automobiles				
	Transit				
	Pedestrians				
	Cycling				
	Movement of Goods				
	Safety				
	Constructability				
URBAN DESIGN	Planning				
	Public Realm				
	Built Form				
ENVIRON-MENT	Social & Health				
	Natural Environment				
	Cultural Resources				
ECONO-MICS	Regional Economics				
	Local Economics				
	Direct Cost and Benefit				

Transportation & Infrastructure

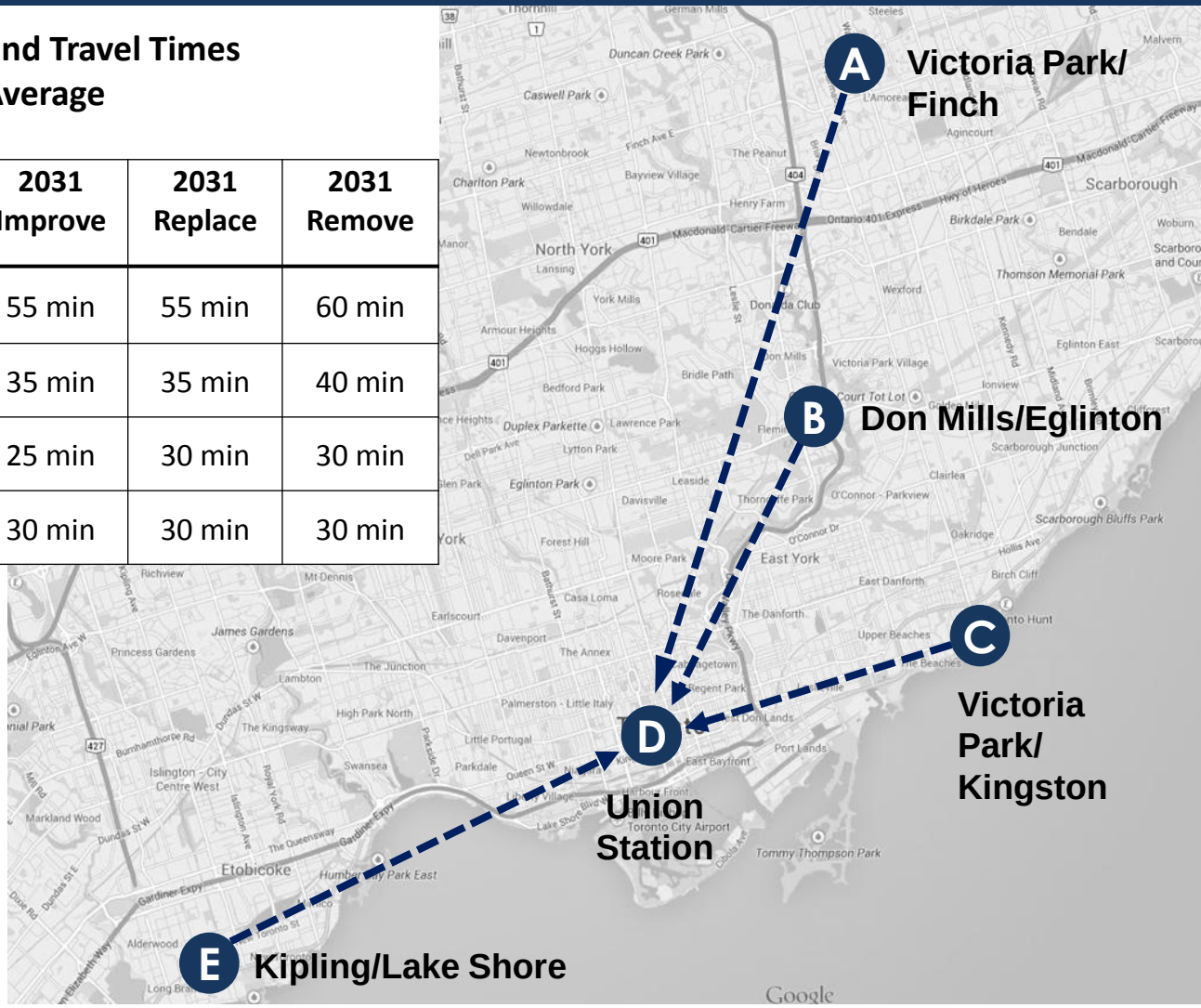
Transportation Assumptions

- Auto and transit modelling based on a 2031 scenario, including estimated growth:
  - Full build out of the waterfront including the Port Lands over the next 40-50 years
  - GTHA population growth of 31%; City growth of 17.6%
  - GTHA employment growth of 39%; City growth of 44%
  - Increase of inbound trips to central area of 50%; majority through transit
- Mode split among cars, transit, cycling and walking based on trends since 1985
- Planned transit lines included in the transportation model include:
  - Relief Line
  - East Bayfront LRT/ Broadview Streetcar Extension
  - GO Service improvements
  - Union Station Improvement Plan
- Modeling results show that transit needed to meet projected travel demands under any alternative (Maintain, Improve, Replace, Remove) to manage congestion, facilitate growth and support new jobs

Auto Travel Times

Actual & Projected Inbound Travel Times
AM Peak Hour Average

	2001	2012	2031 Maintain	2031 Improve	2031 Replace	2031 Remove
A to D	40 min	45 min	50 min	55 min	55 min	60 min
B to D	20 min	25 min	30 min	35 min	35 min	40 min
C to D	20 min	20 min	25 min	25 min	30 min	30 min
E to D	25 min	25 min	25 min	30 min	30 min	30 min



Construction

Maintain – *6 years travel lane impact*

- Close 2 Gardiner travel lanes
- Demolish and rebuild deck in segments
- Closure of Lake Shore travel lanes at times

Improve – *6 years travel lane impact*

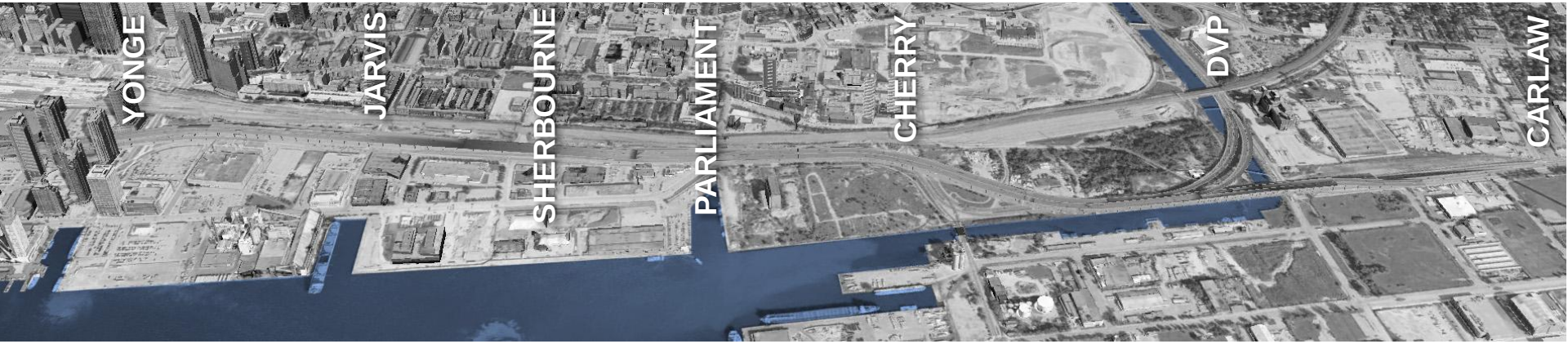
- Close 2 Gardiner travel lanes
- Demolish and rebuild deck in segments
- Closure of Lake Shore travel lanes at times

Replace – *8 years travel lane impact*

- Close Gardiner/ Lake Shore corridor for majority of construction
- Construct new structure

Remove – *3 years travel lane impact*

- Pre-build on/off ramps and re-align Lake Shore (Cherry and DVP)
- Close 3 Gardiner travel lanes in two stages and demolish
- Complete Lake Shore between Jarvis and Cherry



Urban Design

Compatibility with Neighbourhood Plans

Maintain & Improve

View Looking North Don River & Keating Channel (Don Mouth Naturalization)

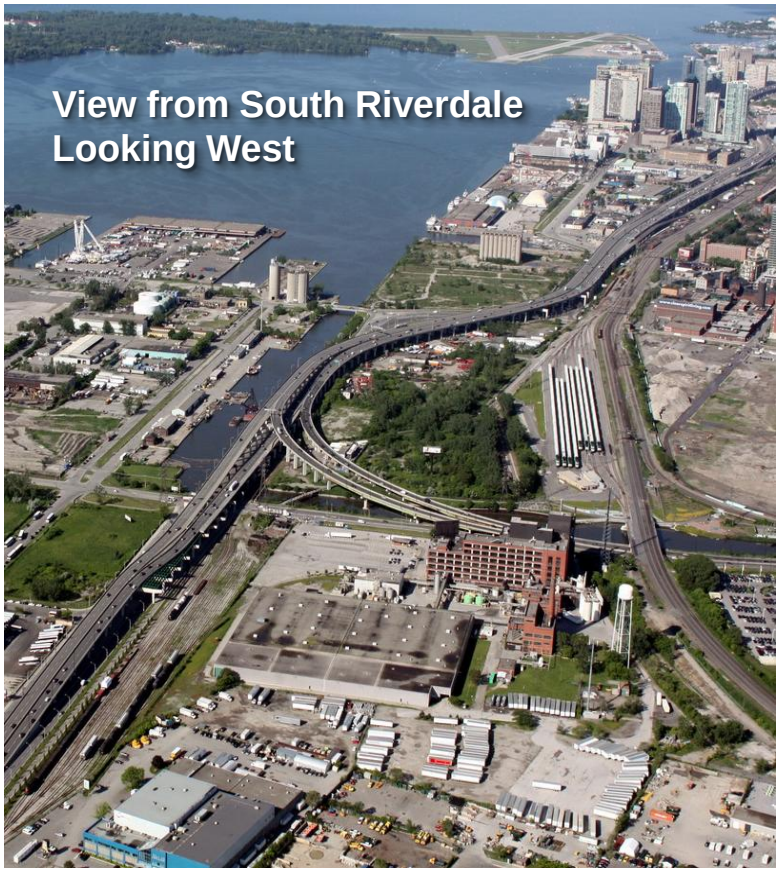
Remove

View Looking North Don River & Keating Channel (Don Mouth Naturalization)

Environment

Social & Health

	Maintain	Improve	Replace	Remove
Noise Level (Decibles dBA)	69-78	68-78	67-77	61-70
Local Air Quality (NOx emissions t/yr)	336	335	313	300
Local AQ (PM2.5 emissions t/yr)	32.5	30	29	27.4
Regional Air Quality Burden	0.25%	0.25%	0.25%	0.24%
Regional Greenhouse Gas (GHGs)	0.28% to 0.29%			0.24%



Note: Remove health benefits are due to reduced traffic volumes.

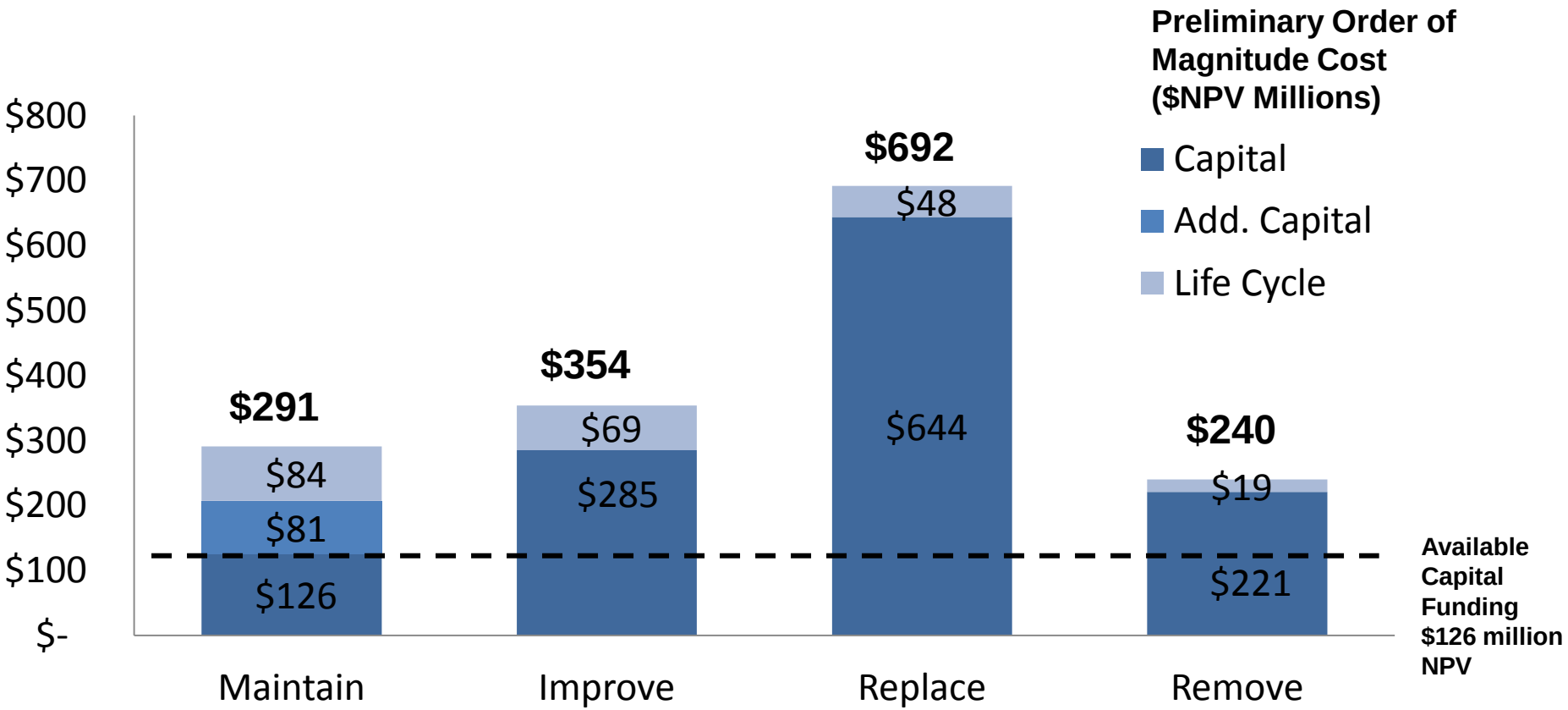
Economics

Revenues from Public Sales

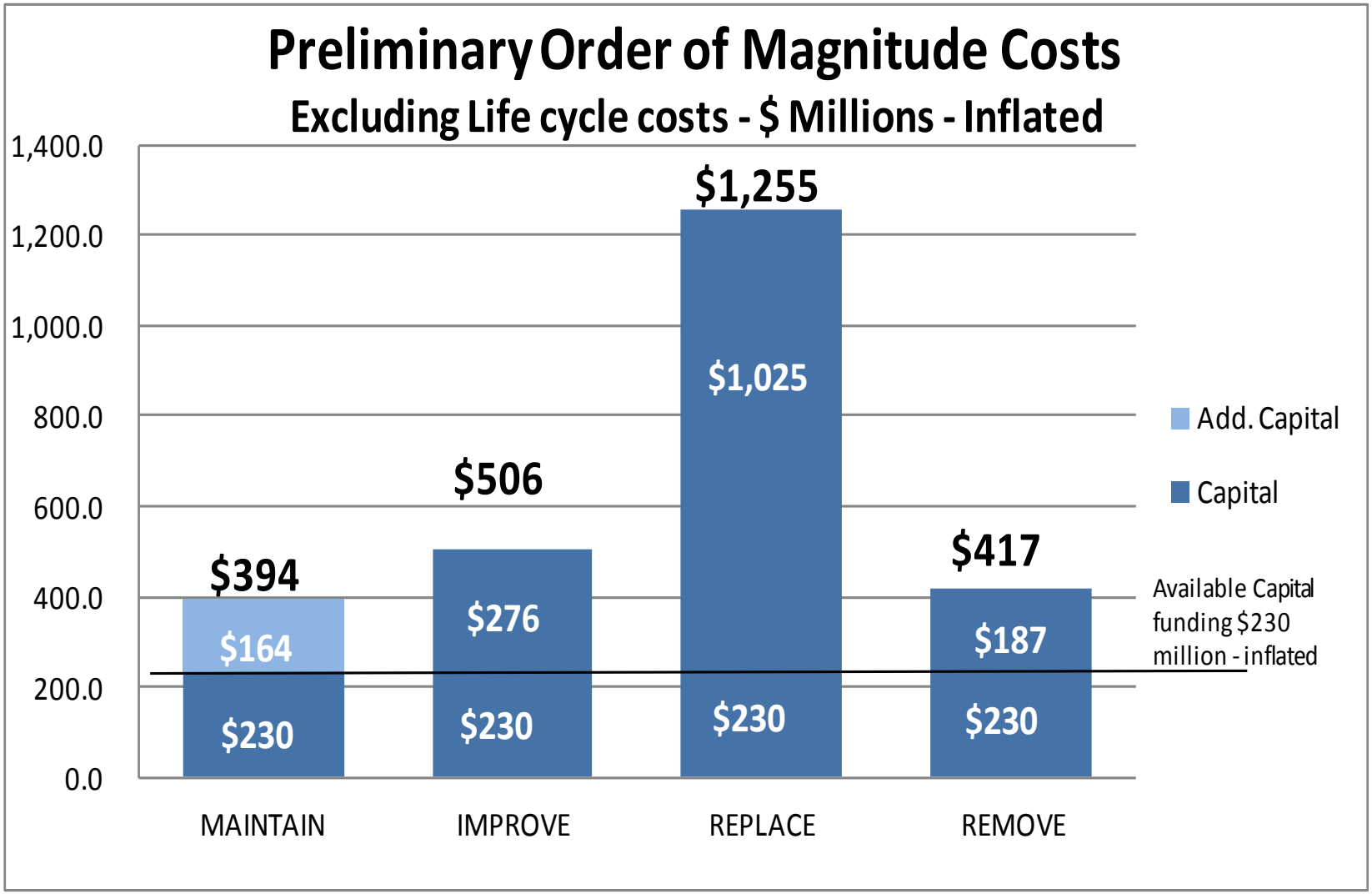
	Maintain	Improve	Replace	Remove
New Development Parcels (Acres)	0	0	5	10
New Development Area (Gross Square Feet)	0	0	1,900,000	2,800,000
New Revenue from Public Land Sales (NPV)	0	$2M	$65-70M	$80-90M
New Revenue from Public Land Sales (2013$)	0	$3M	$150-160M	$220-$240M

Note: Does not include private land value increases of 3% under Replace and 4% under Remove
Source: HR&A Gardiner Expressway Economic Evaluation of Proposed Alternatives, Dec. 12, 2013

Cost (100 Year Lifecycle)



Cost (Excluding Lifecycle)



Gardiner East EA Funding Strategy

- Base budget for four EA options = approved City budget allocation of about $126M NPV to rehabilitate Gardiner East (Jarvis to DVP)
- All four options reflect costs higher than the current budget for rehabilitating the easterly section of the Gardiner
- Under Maintain, the bulk of costs above the current approved 10-year budget for Gardiner East are for future needs as follows:
  - Future rehabilitation works in E/W transitional areas between Yonge and Jarvis, and at DVP and Logan ramps
  - Costs for realignment of Lake Shore Boulevard and replacement of Don River Bridge as per Council-approved Keating Channel and Lower Don Lands Plans

Funding Strategy

- Magnitude of variances from base budget assessed in report
- Initial capital cost differential between Remove and Maintain base budget is $23M
- However, Remove provides lifecycle cost savings in the order of $51M NPV over next century
- Report recommends detailed financing strategy for 2015 report back
- Non-debt funding sources to be examined include:
  - Building Canada Funding
  - P3 Procurement Process
  - Eligible DC funding
  - Proceeds from future land sales
  - Lifecycle cost savings

Conclusion

- Remove identified as the preferred EA option
- Provides longterm cost savings to City – $51M NPV
- Creates a great street that anchors new waterfront neighbourhoods
- Enhances public realm
- Opens up Keating Channel and Don Mouth
- Adds value to lands in the corridor
- Reduces air and noise pollution

Next Steps

Next Step: Alternative Designs Stage

- Develop design options for preferred alternative:
  - Right-of-Way, road, ramp, intersection design including public realm & transportation design
  - Construction staging and mitigation, including accelerated construction to reduce impact on drivers
  - Mitigation and impact management
  - Optimize traffic flow by using Intelligent Transportation Systems (ITS) such as signal synchronization for peak and non-peak service
- Detailed financing strategy
- Report back in 2015, prior to submission of EA to Ministry of Environment

Next Steps

Approved EA Terms of Reference	2009
Public and Design Ideas, Alternative Solutions	Public Meetings: June 13/13, Oct 16/13, Feb 6/14
Committee & Council Consideration	**PWI Committee March 2014**
Develop and Assess Alternative Designs	Spring – Fall 2014
City Council & Submission to MOE	Winter 2015
MOE Review & Decision	Late 2015/early 2016 onwards
Detailed Design	One Year
Tender Award & Pre-Construction	One Year
Demolition & Construction	Six Years

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