

# Gardiner East EA & Integrated Urban Design Study

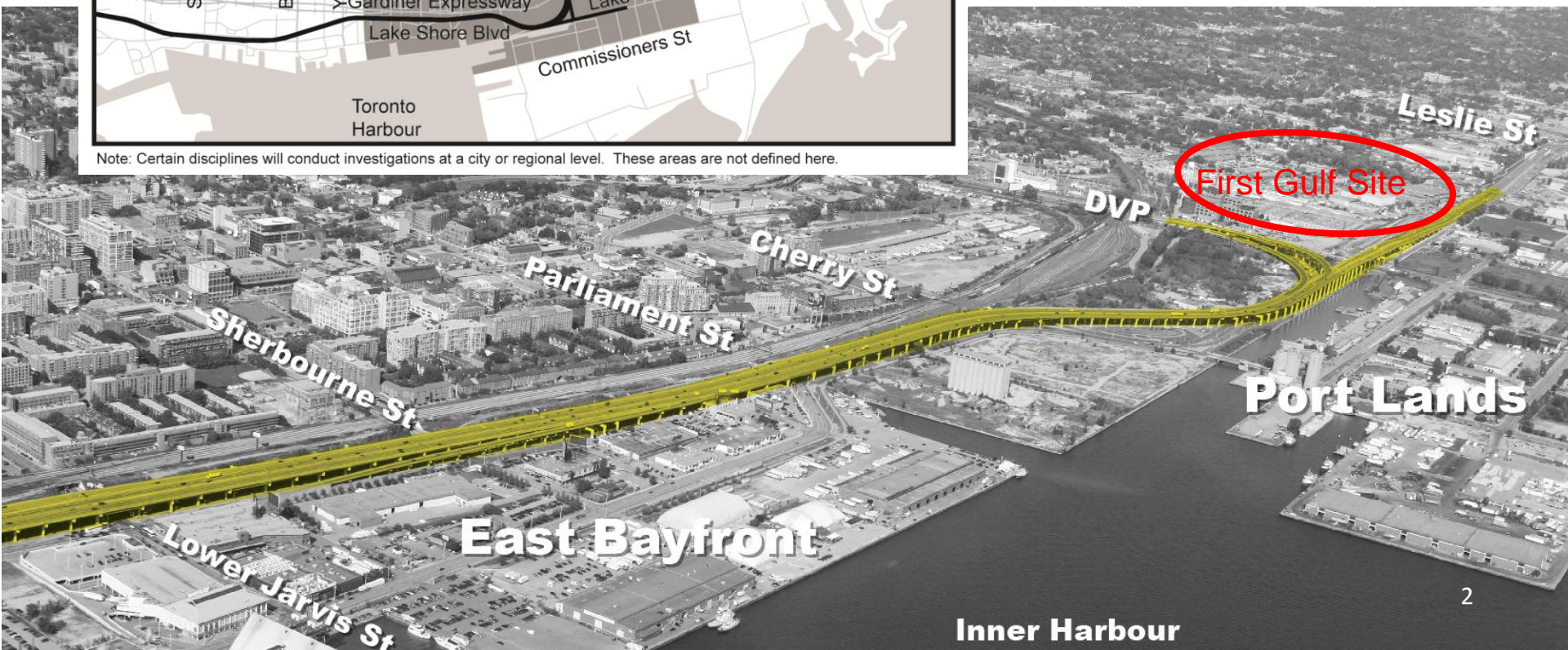
June 10-11, 2015 City Council



# What Are We Studying?



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



# Timely Decision Needed

Deck shoring with timber bracing

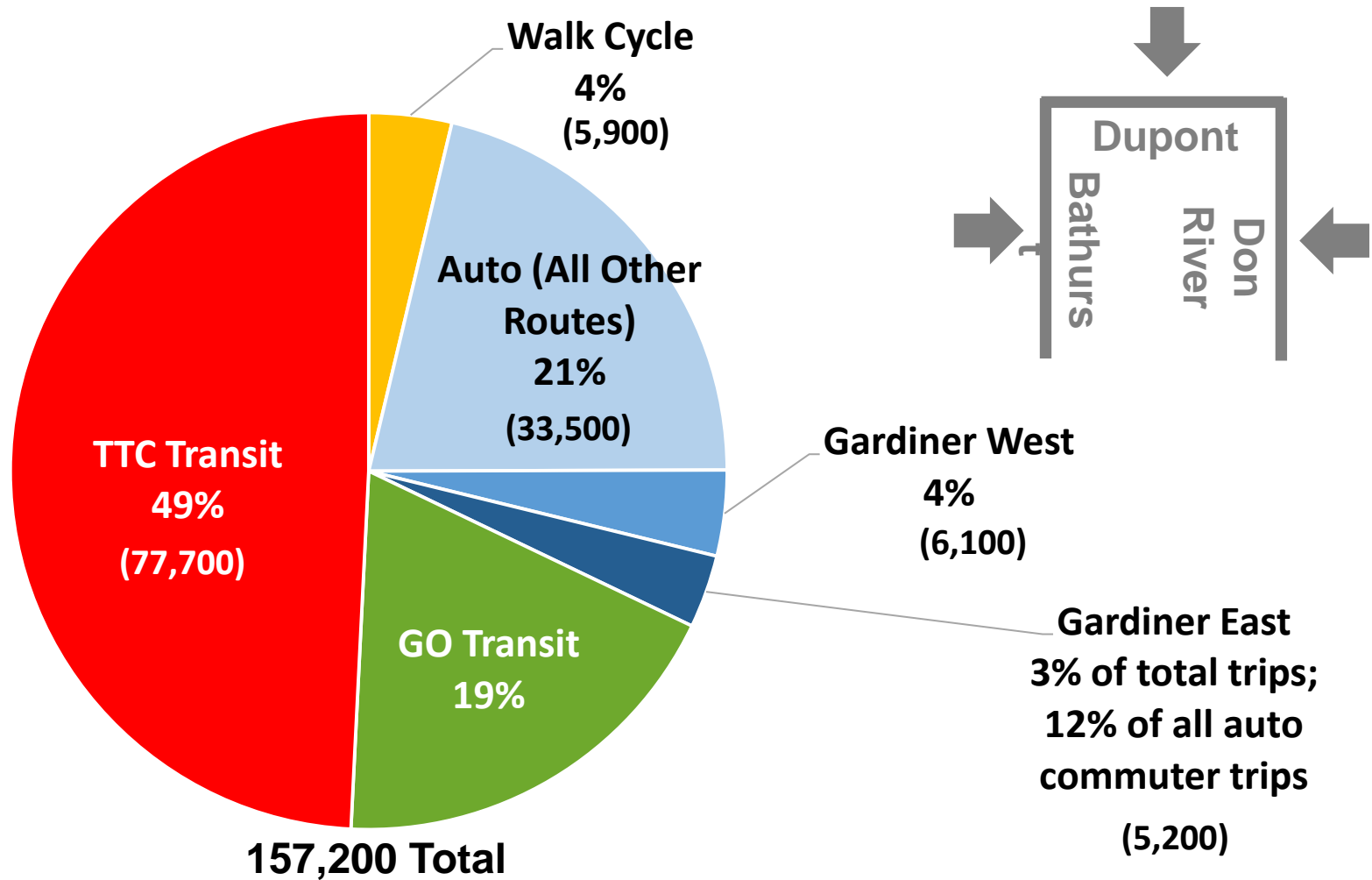


Controlled chipping work



# How Commuters Get Downtown

(AM Peak Hour 2011)



Source: AM Peak Hour Inbound to Downtown: Transportation City Cordon Count (2011)  
 Downtown: Defined as Bathurst to Don River and Waterfront to the rail corridor north of Bloor

## 2014

- Work with WT and community stakeholders to mitigate congestion concerns of Remove
- Prepare an additional Hybrid EA option that preserves Gardiner-DVP expressway linkage, and evaluate it against EA criteria and:
  - Transportation functionality
  - Impacts on key economic sector
  - Cost benefit
  - Future land use considerations
  - Public transit components
  - Environmental impacts
  - Neighbourhood growth and compatibility

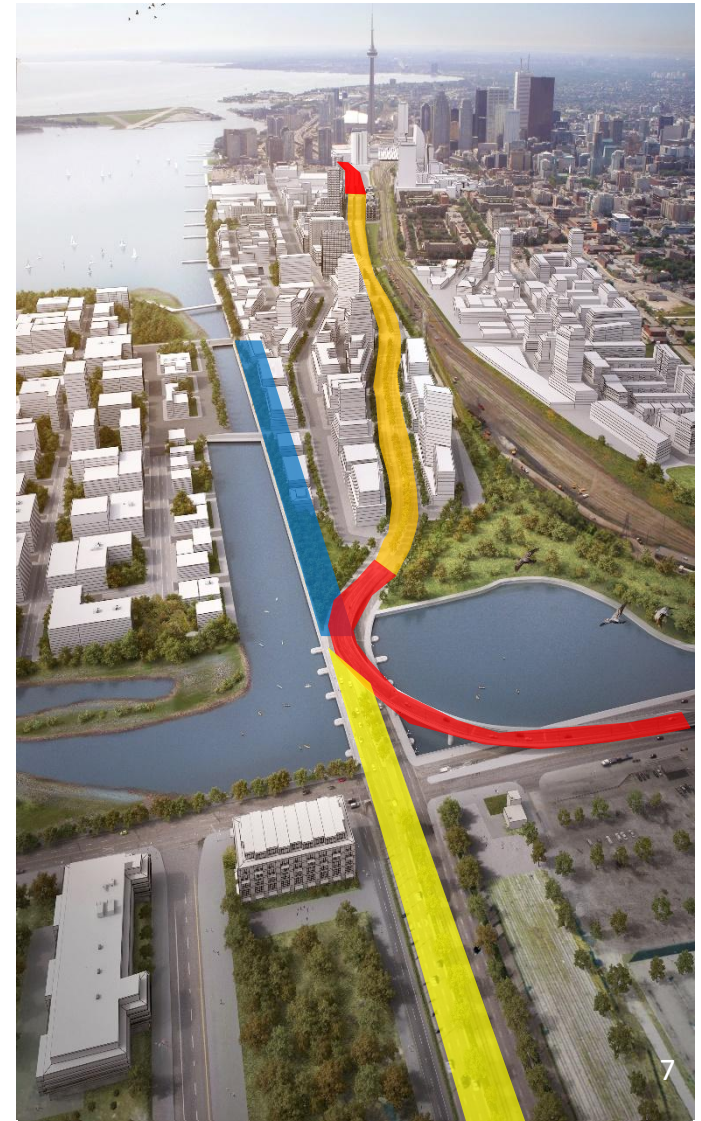
## 2015

- Enhance Hybrid by examining location and need for on/off ramps at Cherry Street, as well as pedestrian safety and public realm enhancements beneath expressway and on Lake Shore Boulevard
- Explore opportunities to reduce Remove travel times, including adding additional lanes to Lake Shore Boulevard and the use of pedestrian overpasses

# Remove (Boulevard)



- Removes 1.7 kilometres of elevated expressway and replace with an at-grade, 8-lane tree lined Lake Shore Boulevard
- Removal of about 750 metres (EB lanes) and 850 metres (WB lanes) of the existing Logan on/off ramps
- Removal of all road infrastructure along Keating Channel
- New DVP ramp connection
- New ramps at Jarvis Street



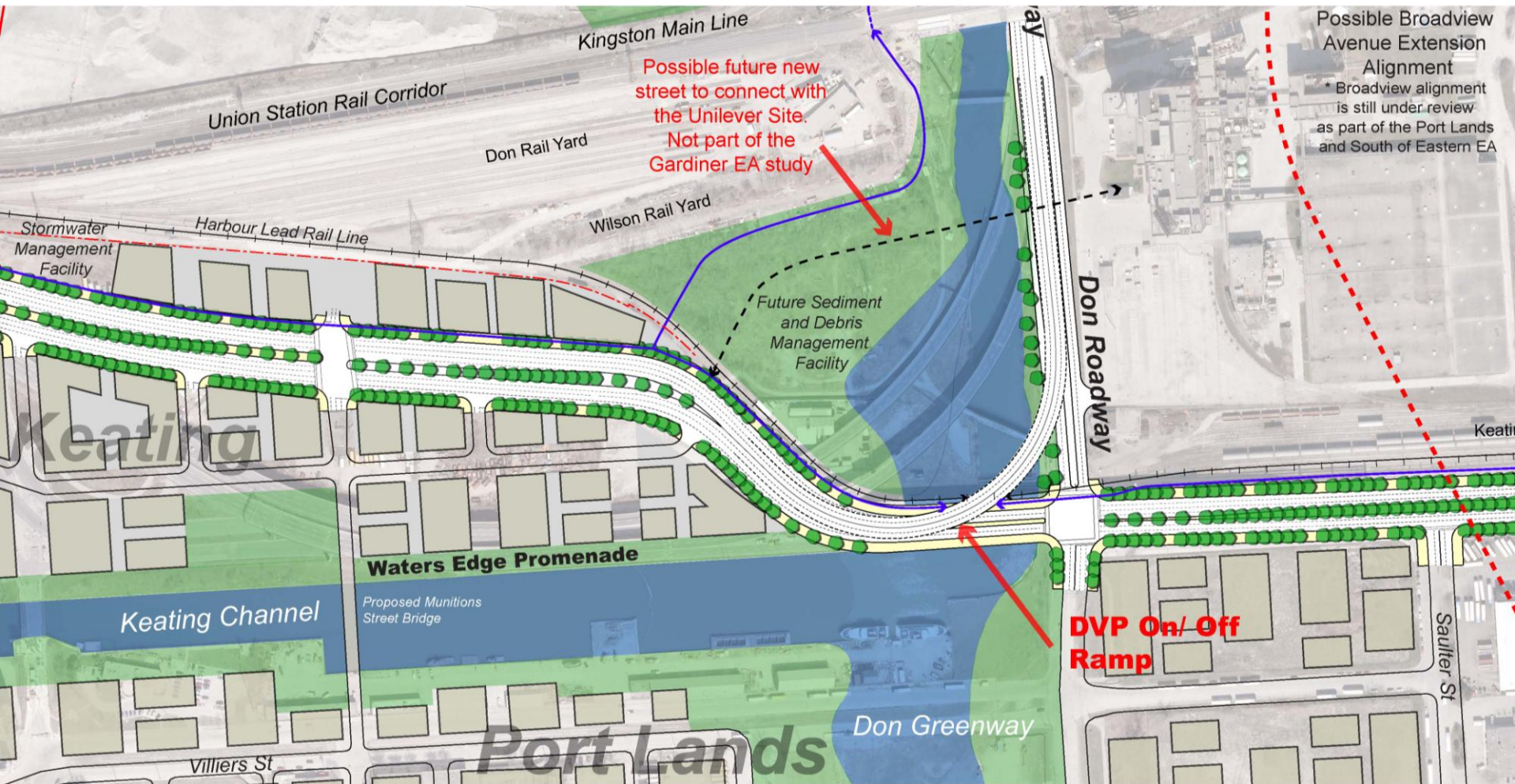
# Remove: Reducing Travel Time

- Remove optimization involved:
  - Adjustments to traffic signal operations/phasing
  - Modifications to Lake Shore Boulevard intersection configurations (e.g., Jarvis SB lane under rail pass becomes a right-turn lane; LSB WB right-turn lane added)
- The optimized Remove alternative reduces the additional travel time to 3-5 minutes from the previously presented 5-10 minutes (AM peak hour)



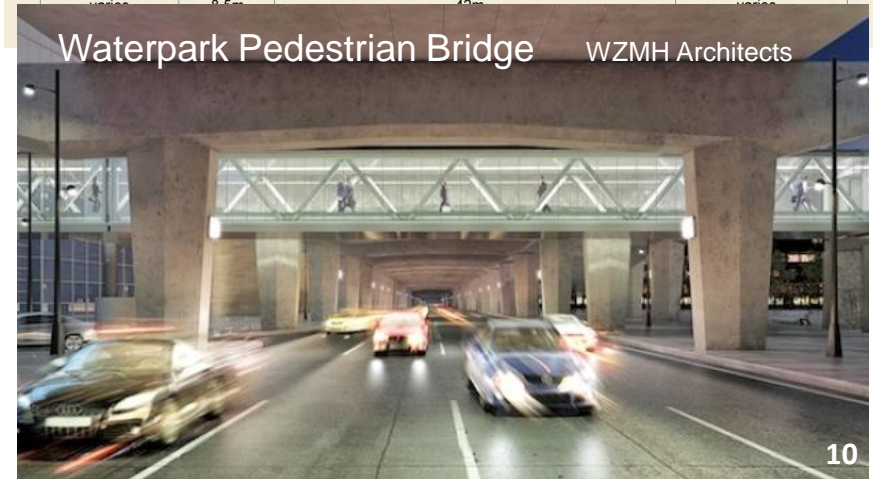
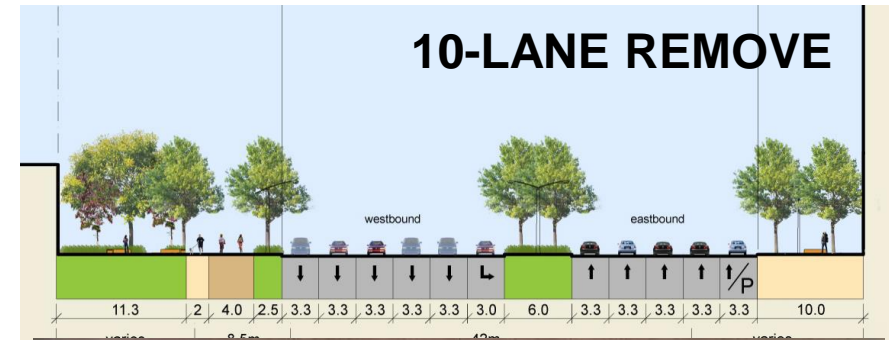
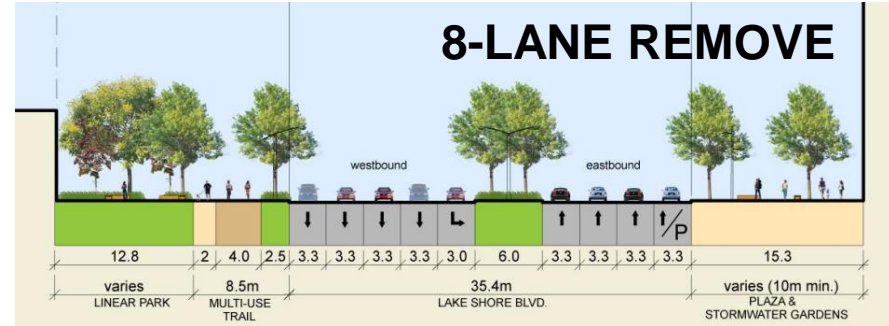


# Remove: New LSB – DVP Link

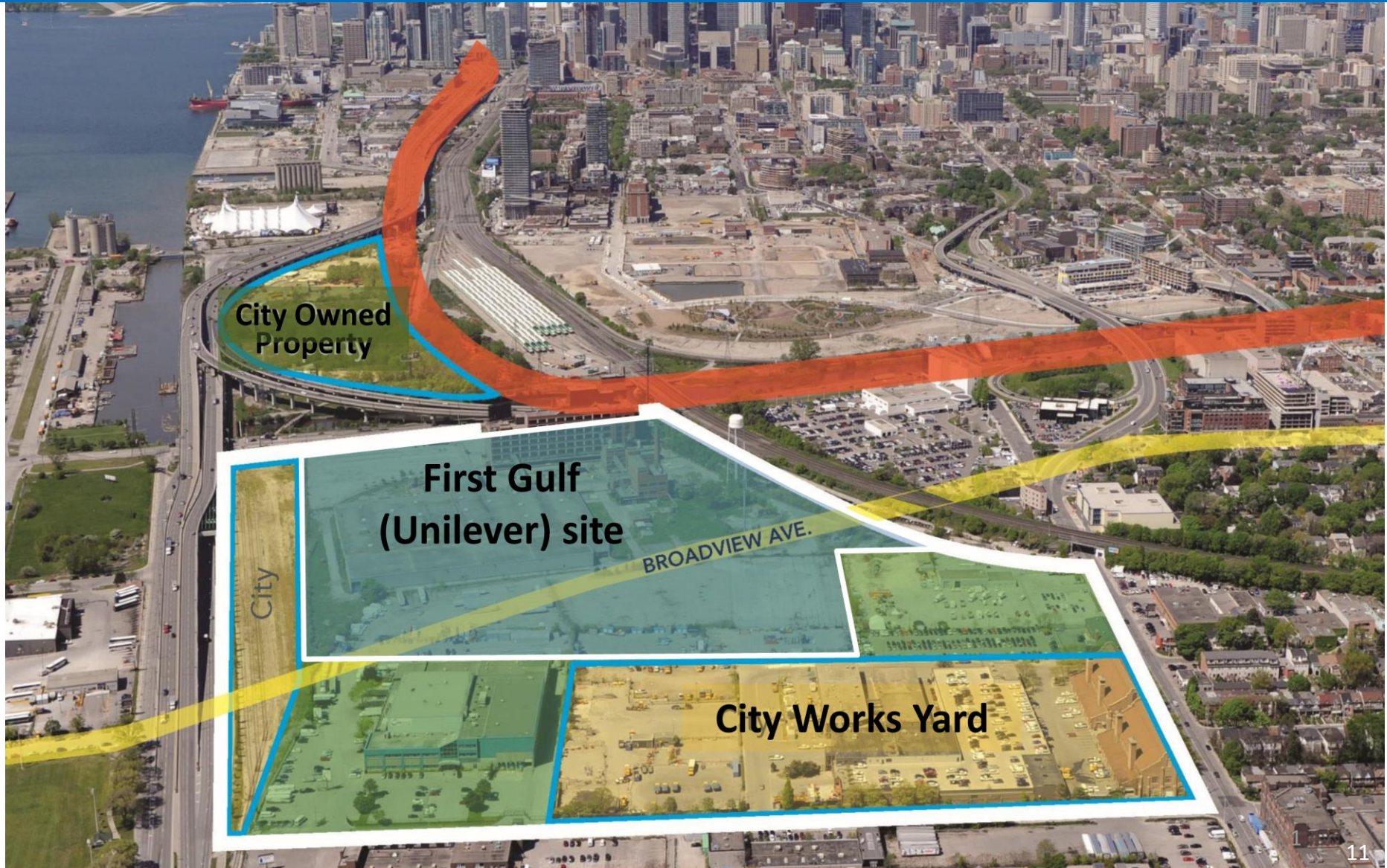


# Remove: Design Options

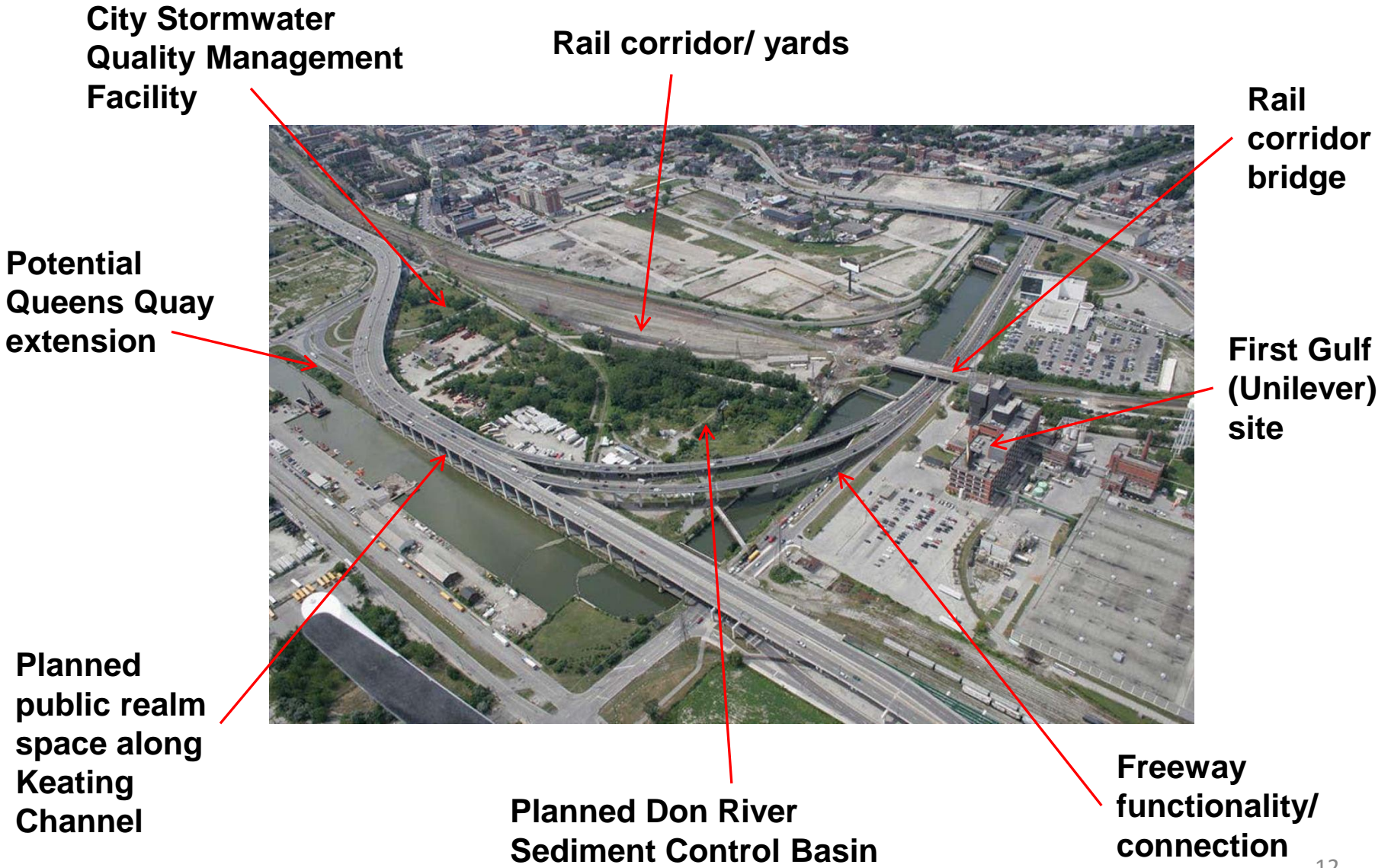
- 10-Lane Lake Shore Boulevard
  - Modest vehicular travel time reduction
  - Increased pedestrian crossing times
  - Would require some additional private property
  - Can study at Alternative Designs stage
- Pedestrian Overpasses
  - Many design constraints including clearances, views and safety
  - May not decrease pedestrian crossing times
  - Underpasses an additional possibility
  - Can study both at Alternative Designs stage
- Other Opportunities
  - Remove travel times already optimized
  - Closed circuit cameras on arterial roads underway
  - Could apply measures beyond study area to improve alternate route travel time



# First Gulf Hybrid Alternative



# Study Area Considerations



# Hybrid

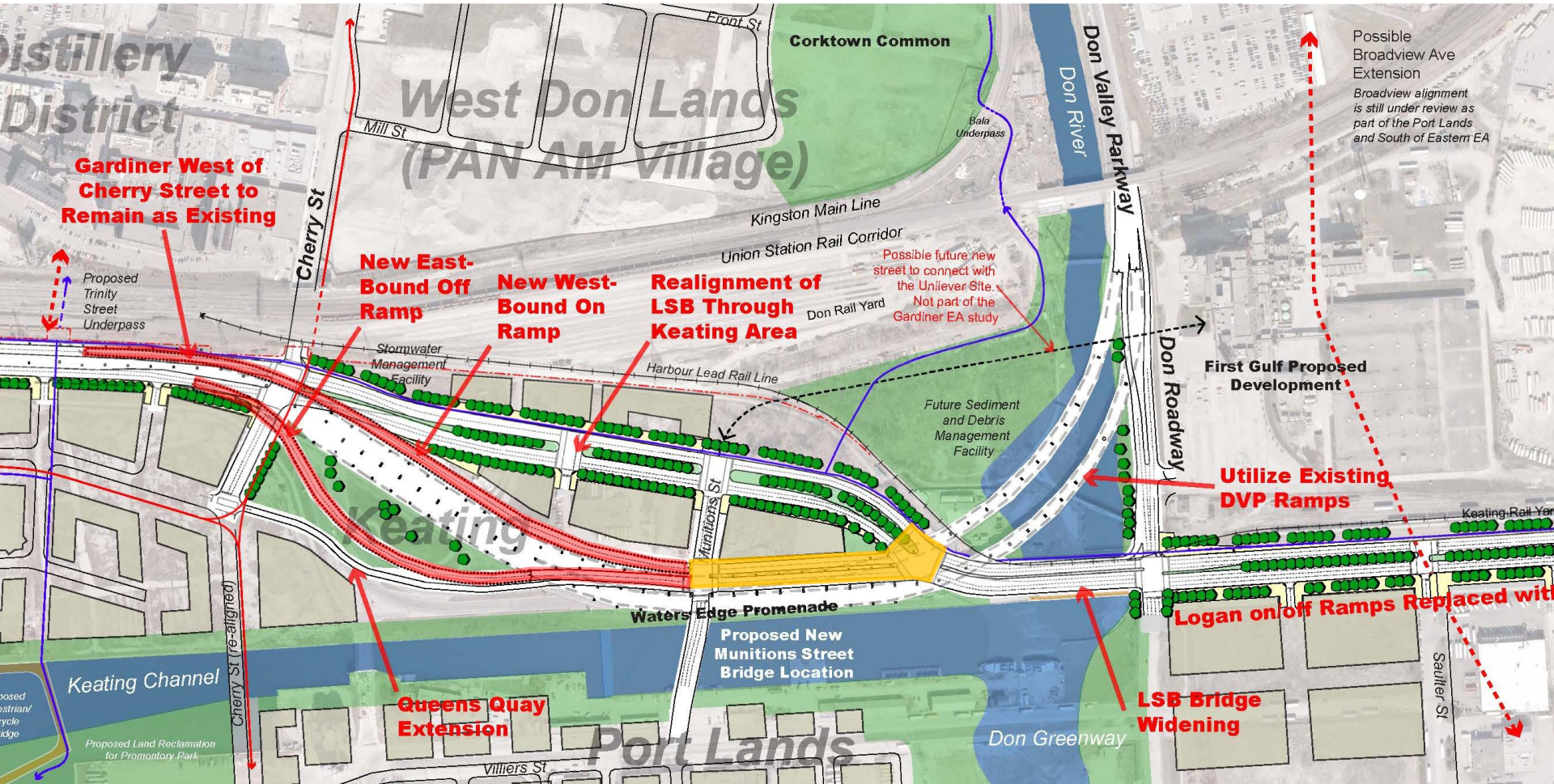


# Hybrid Description

- Re-decks existing Gardiner structure and retains DVP ramps
- Removes about 750 metres (EB lanes) and 850 metres (WB lanes) of the existing Logan on/off ramps
- Adds 2 new ramps (2 lanes each) in the Keating Precinct:
  - about 470 metres new WB on-ramp and
  - about 425 metres new EB off-ramp
- Includes new multi-use pathway & some intersection improvements

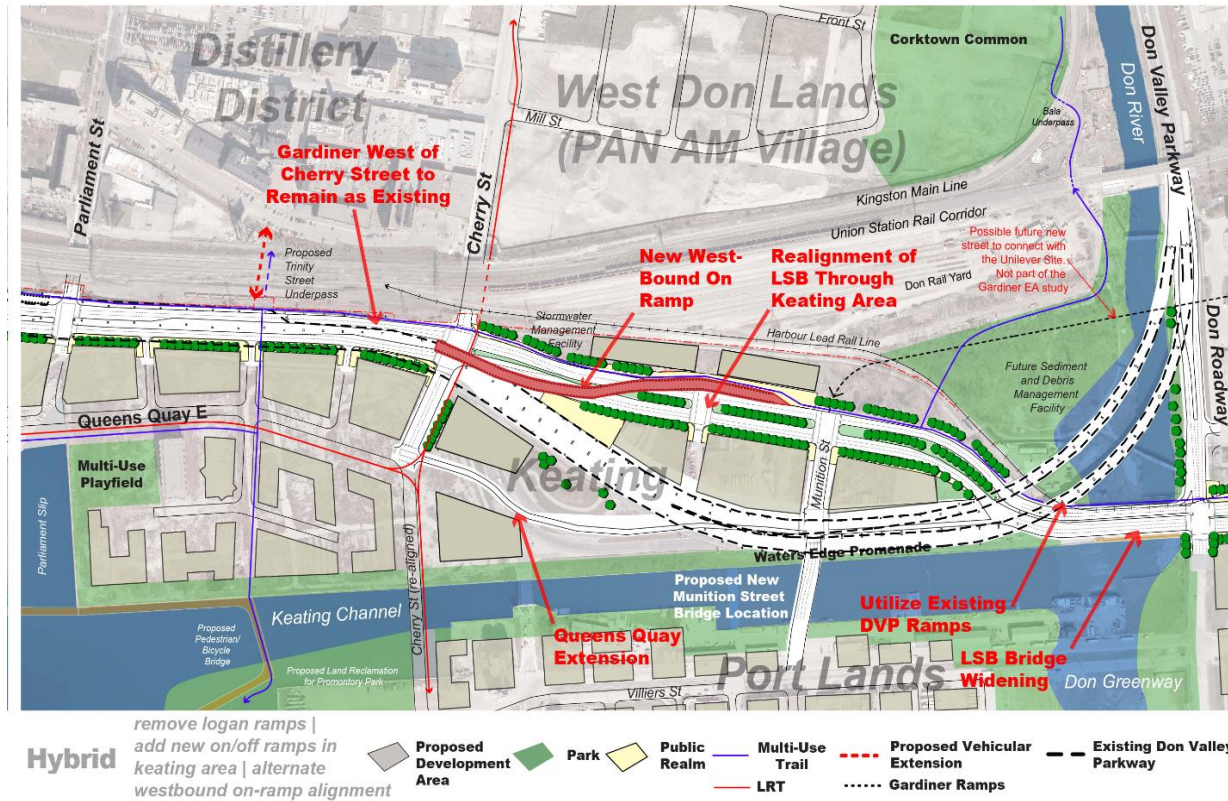


# Hybrid: New On/Off Ramps in Keating



# Hybrid: Design Options

## Hybrid With New Westbound On-Ramp Only



### Location and need for new on/off ramps at Cherry Street:

- Explored “no new ramps” and “on-ramp only” options to reduce impact on Keating Precinct
- Travel times increase under both scenarios

- Westbound “on-ramp only” mitigates westbound travel impacts, which are greatest
- Would be associated cost savings
- Can study at Alternative Designs stage



# Hybrid: Design Options



## Enhance areas beneath Gardiner and improve Lake Shore Boulevard streetscape & safety:

- Wide range of enhancements possible
- Local and international precedents
- Streetscape, lighting, public art, public realm, active uses and programming
- Would improve downtown/waterfront connections
- Safety enhancements with intersection improvements
- Can study at Alternative Designs phase



# Alternatives Evaluation

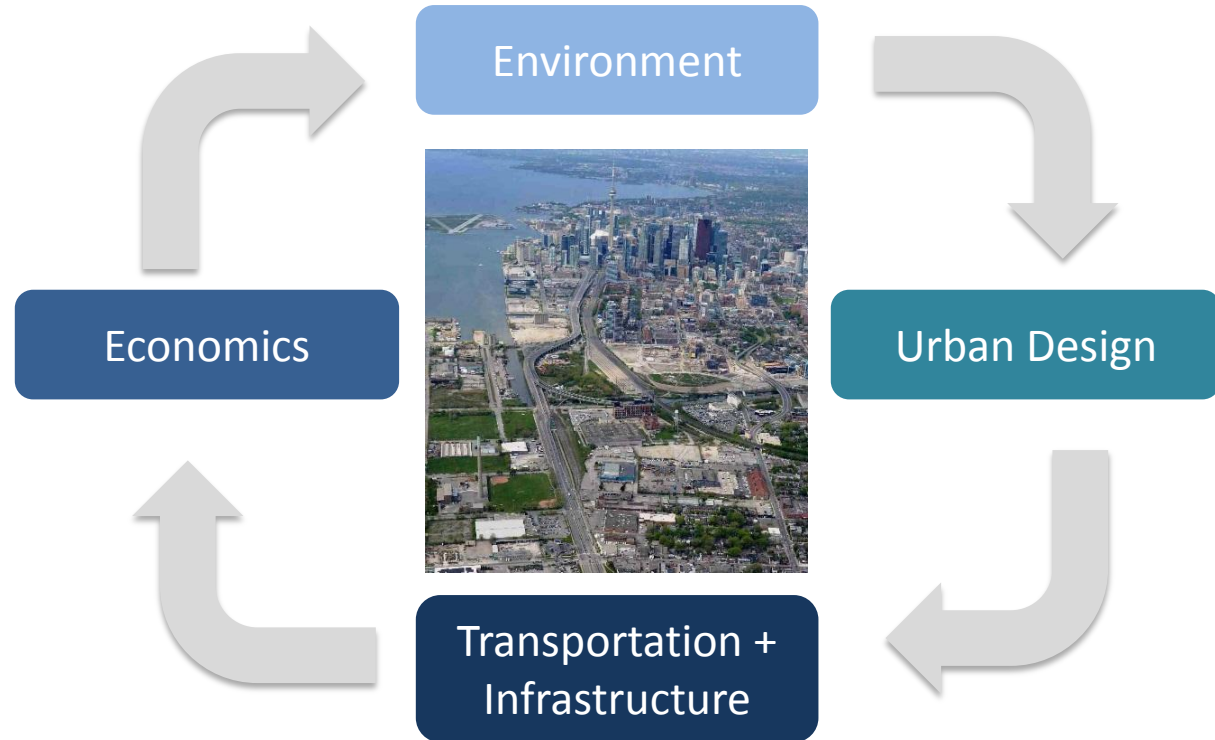
**Existing**



**Hybrid**

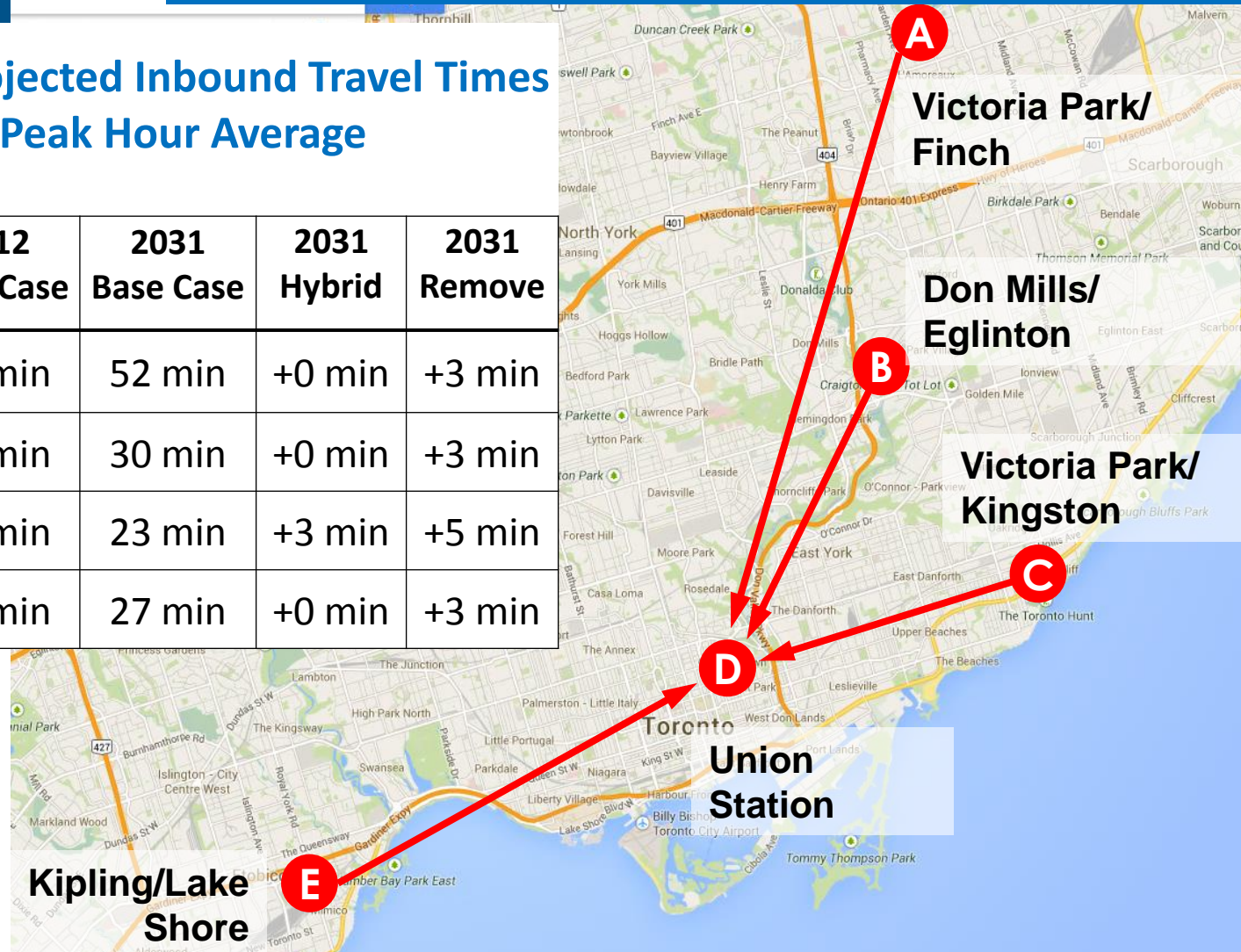


**Remove**



## Current & Projected Inbound Travel Times AM Peak Hour Average

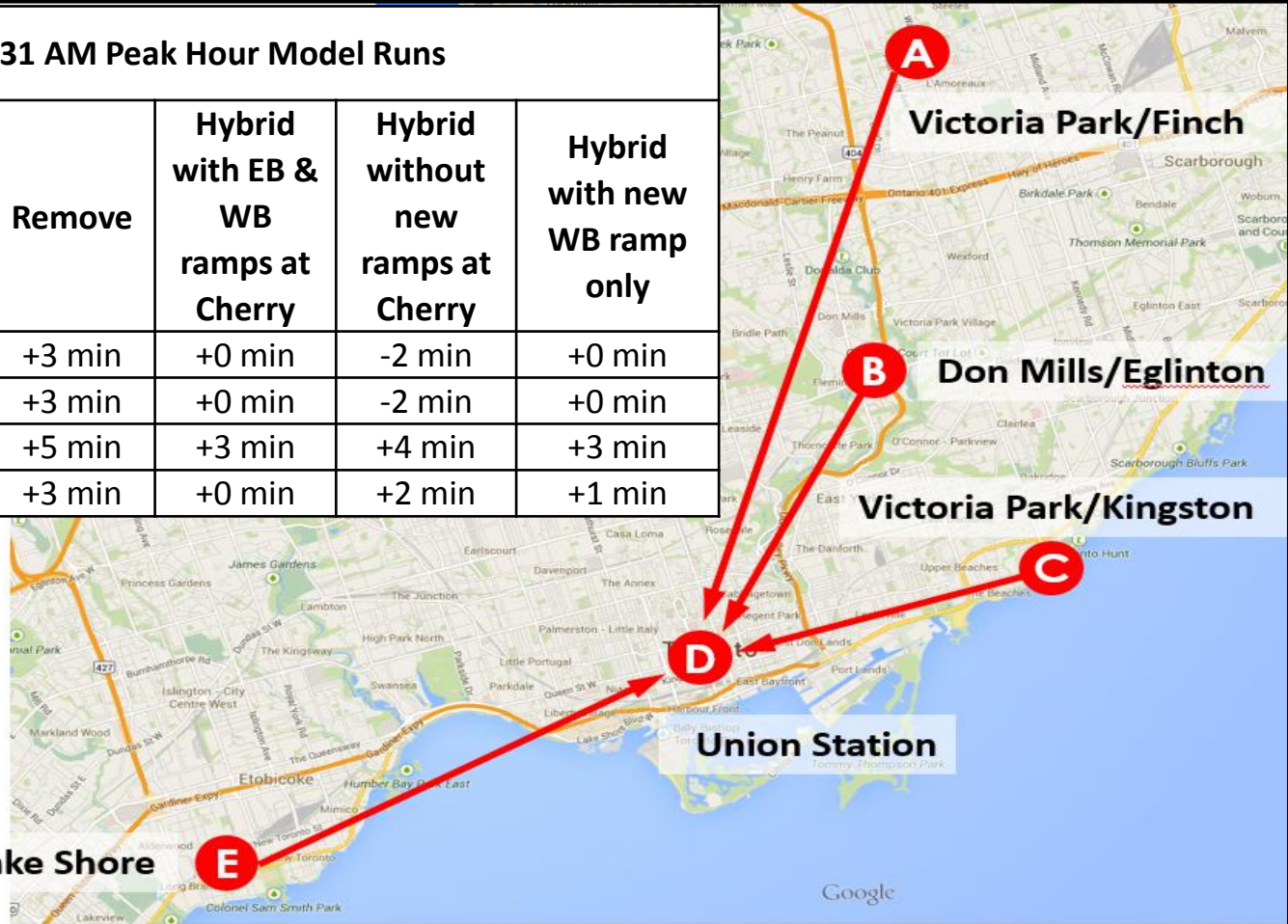
	2012 Base Case	2031 Base Case	2031 Hybrid	2031 Remove
<b>A to D</b>	44 min	52 min	+0 min	+3 min
<b>B to D</b>	24 min	30 min	+0 min	+3 min
<b>C to D</b>	20 min	23 min	+3 min	+5 min
<b>E to D</b>	27 min	27 min	+0 min	+3 min



All alternatives require new transit to support planned development in study area  
 2031 base case includes an average travel time increase of about five minutes for all alternatives  
 due to growth in traffic volumes

2031 AM Peak Hour Model Runs

OD Trips	Base case	Remove	Hybrid with EB & WB ramps at Cherry	Hybrid without new ramps at Cherry	Hybrid with new WB ramp only
A to D	52 min	+3 min	+0 min	-2 min	+0 min
B to D	30 min	+3 min	+0 min	-2 min	+0 min
C to D	23 min	+5 min	+3 min	+4 min	+3 min
E to D	27 min	+3 min	+0 min	+2 min	+1 min



Kipling/Lake Shore

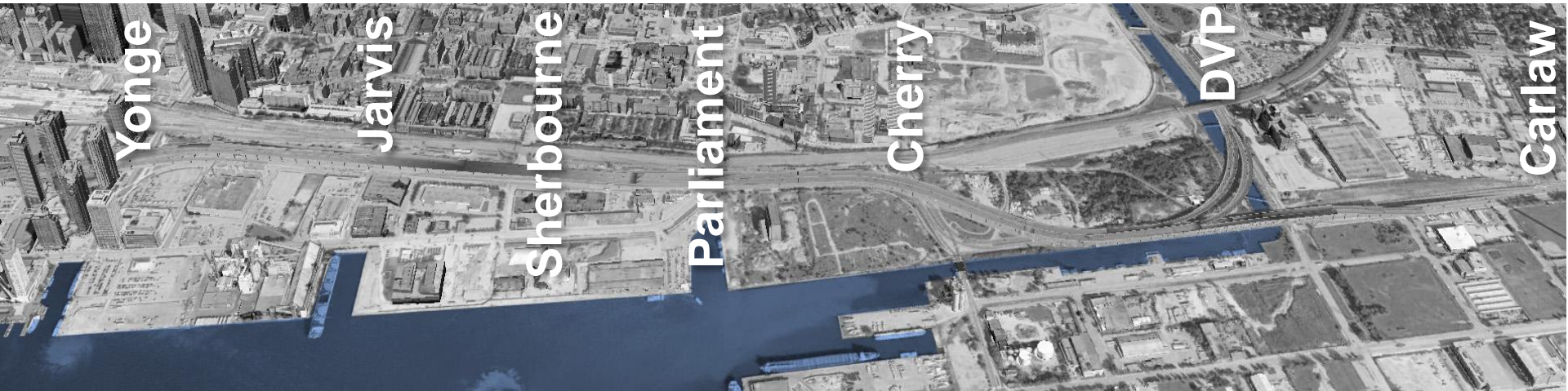
# Six-Year Construction Period

## Remove: up to 4 years of road detours

- Pre-build on/off ramps and realign Lake Shore (Cherry and DVP)
- Close and demolish eastbound then westbound Gardiner travel lanes in 2 stages, detour traffic, demolish DVP ramps and Logan ramps
- Pre-build new eastbound/westbound Boulevard lanes and DVP off-ramp
- Reroute traffic and complete Boulevard

## Hybrid: up to 1.5 years of road detours

- Realign Lake Shore as per Keating
- Close 2 Gardiner travel lanes at a time for re-decking activities and LSB at times
- Build new Keating on/off ramps
- Detour LSB traffic east of Don and demolish Logan ramps
- Reroute traffic back
- Complete new Boulevard east of Cherry



## Remove (Boulevard)

- The entire corridor is opened up creating a new attractive streetscape with new public realm
- Significant public realm added
- Consistent corridor character frees up space for ground-floor retail
- Visual barriers largely removed



## Hybrid

- East of Don River, creates new open Boulevard with new public realm
- West of Cherry Street opportunities for improvement explored in supplementary report



# Compatibility with Neighbourhood Plans

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





## Environment

### Remove (Boulevard)

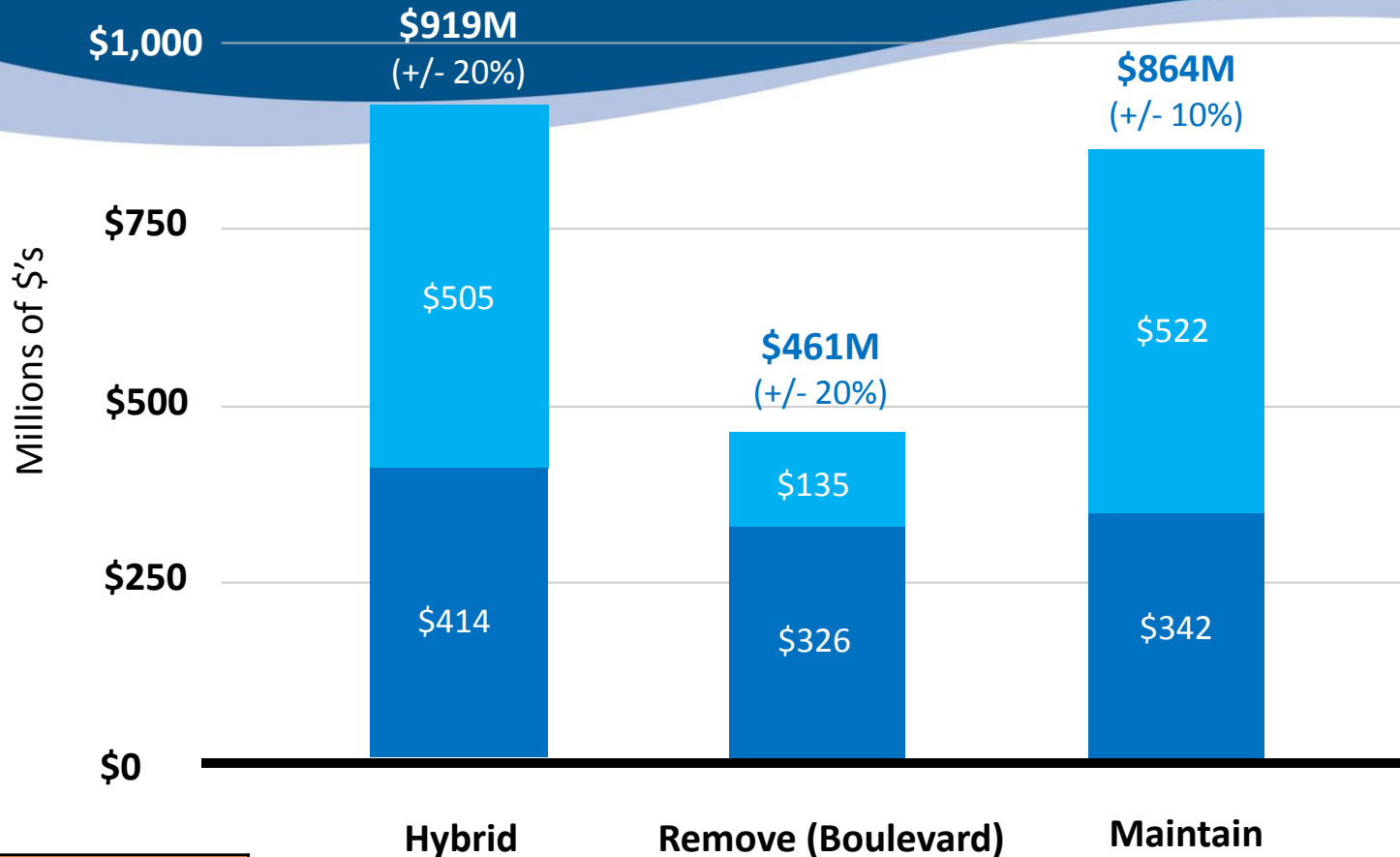
- Complements Don Mouth Naturalization
- Greater opportunity for aquatic habitat enhancement in Keating Channel
- Similar noise and regional air emissions
- 12% less greenhouse gas emissions
- Lower traffic volume expected to result in better local air quality
- Higher impact on known archaeological features

### Hybrid

- Complements Don Mouth Naturalization
- Similar noise and regional air emissions
- Higher greenhouse gas emissions
- Slightly higher concentration of local air emissions expected
- Less impact on known archaeological features



# Costs<sup>1</sup> (100 Year Lifecycle)



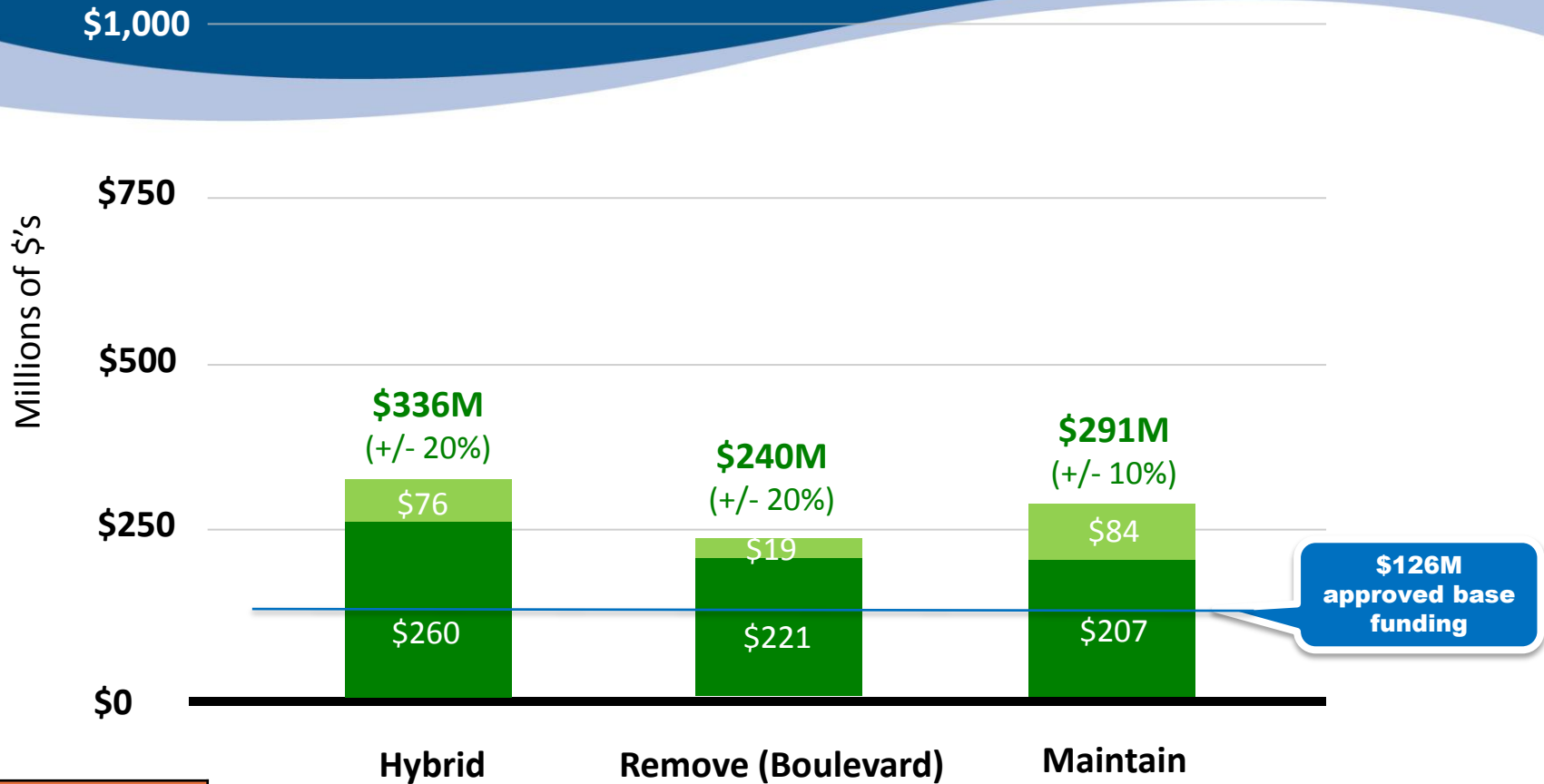
Hybrid Costs Above Remove (2013\$)	
Capital	+ \$88M
Total	+ \$458M

2013\$'s (un-inflated)

Capital Estimate  
 Operations & Maintenance Estimate

<sup>1</sup> All costs are high level order of magnitude prepared for comparative purposes only.

# Costs<sup>1</sup> (100 Year Lifecycle)



Hybrid Costs Above Remove (npv)	
Capital	+ \$39M
Total	+ \$96M

Capital Estimate  
 Operations & Maintenance Estimate

<sup>1</sup> All costs are high level order of magnitude prepared for comparative purposes only.




- Remove would make 12 more acres than Hybrid available for development and job creation west of the Don River – which could generate a potential for \$39M (Hybrid) to \$176M (Remove) of additional public land sales revenue (\$2013)
- Hybrid without ramps would provide +3 acres; +1.2 acres with westbound on-ramp
- East of Don River, additional value uplift for City holdings of an estimated \$100 to \$200M (2013\$), including:
  - First Gulf site (20 acres)
  - Southeast corner of Don Roadway/Lake Shore Boulevard (14 acres)

- Remove and Hybrid options have higher costs than current approved budget of \$232M (inflated) or \$126M (npv) for rehabilitating Gardiner East
- Under Maintain, the bulk of \$164M (inflated) costs above approved 10-year budget would be:
  - Future rehabilitation works in east-west 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 and Lower Don Lands plans
- Additional upfront capital cost differential from Maintain base case is \$21M for Remove and \$128M for Hybrid (inflated \$)
- Net impact substantially less once public land value revenue factored in
- Remove would provide 100-year lifecycle cost savings of \$51M NPV over Maintain and \$96M NPV over Hybrid
- Non-debt funding sources to be examined and reported through 2016 Budget process include:
  - Proceeds from future land sales
  - Proceeds from potential development agreements from benefitting lands
  - Eligible DC funding for growth components included in current background study
  - Potential increased taxable assessment revenue
  - Lifecycle cost savings

# Summary of Key Differences

Study Lens	Hybrid	Remove (Boulevard)
Transportation & Infrastructure	<ul style="list-style-type: none"> <li>• Shorter auto/goods movement travel time in peak hour</li> <li>• Maintains DVP-Gardiner continuous expressway connection</li> <li>• Less construction impact on traffic (approximately 1.5 years of detours)</li> </ul>	<ul style="list-style-type: none"> <li>• Longer auto/goods movement travel time in peak hour</li> <li>• Creates new LSB-DVP ramp connection</li> <li>• Greater construction impact on traffic (approximately 3-4 yrs of detours)</li> </ul>
Urban Design	<ul style="list-style-type: none"> <li>• Complements Port Lands &amp; South of Eastern development plans (First Gulf)</li> <li>• Consumes land for Keating Precinct Plan</li> <li>• Less public realm space created and less quality of place along Lake Shore Blvd.</li> <li>• West of Cherry Street, active street frontage along the corridor is unlikely</li> </ul>	<ul style="list-style-type: none"> <li>• Complements Port Lands &amp; South of Eastern development plans (First Gulf)</li> <li>• More public realm space created and more quality of place along Lake Shore Boulevard</li> <li>• More opportunity for new development in corridor – more development in Keating</li> <li>• Allows for the creation of more active street frontage along the corridor</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Complements Don Mouth Naturalization</li> <li>• Similar noise and regional air emissions</li> <li>• Slightly higher concentration of local air emissions expected</li> <li>• Higher greenhouse gas emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Complements Don Mouth Naturalization</li> <li>• Similar noise and regional air emissions</li> <li>• 12% less greenhouse gas emissions</li> <li>• Lower traffic volume expected to result in better local air quality</li> </ul>
Economics	<ul style="list-style-type: none"> <li>• No impacts on City global or regional economic competitiveness</li> <li>• Less opportunity for economic development in corridor</li> <li>• \$336 M (2013 NPV)</li> </ul>	<ul style="list-style-type: none"> <li>• No impact on City global competitiveness but could result in regional impacts</li> <li>• More opportunity for economic development in corridor</li> <li>• \$240 M (2013 NPV)</li> </ul>

# Next Steps



**You are  
here**

- City staff report & Consultant's EA Evaluation Addendum
- May 13 PWIC and June 10 City Council
- Design options for preferred alternative by 2015 year-end:
  - Public realm and functional aspects
  - Detailed construction implementation
- Mitigation opportunities for preferred alternative:
  - Intelligent Transportation Systems (ITS)
  - Corridor design improvements
  - Off-site improvements
  - Opportunities to accelerate construction and reduce user impacts
- Submit EA report to MOECC by winter 2016
- EA approval decision by MOECC by year-end 2016
- Detailed design early 2018; tendering end of 2018
- Earliest start of implementation 2019

# Report Recommendations

1. Select a Gardiner East EA preferred EA alternative:
  - Remove on basis of greater emphasis on urban design, environment and economics
  - Hybrid on basis of greater emphasis on transportation & infrastructure
2. Report to TEY Community Council on Keating Precinct Plan
3. Report to Executive Committee on incorporating preferred EA alternative into Strategic Rehabilitation Plan
4. Evaluate alternative designs for preferred EA solution, including further mitigation opportunities and consultation
5. Complete Gardiner East EA and submit to MOECC
6. Report through 2016 Budget on implementation funding for preferred EA solution, with preferred design and refined costs
7. Adjust Waterfront Revitalization Initiative budget (Transportation Initiatives sub-project) in 2015 to increase EA budget for design by \$780,000, with \$0 net change to 2015 Capital Budget