



Hamilton

Conventional, Rapid and Inter-Regional Transit: Technical, Financial and Land Use Considerations

October 13, 2011

Presentation Overview

- Opening Remarks – **Chris Murray**
- Background – **Don Hull**
- PDE/Project Benefits Presentation – **Alan Jones, Steer Davies Gleave**
- Staff Presentation – **Don Hull & Rob Rossini**
- Summary – **Don Hull**

Report Contributors

- Don Hull
- Justin Readman
- Carla Ippolito
- Mary Devorski
- Bill Janssen
- Christine Lee-Morrison
- Chris Phillips
- Al Kirkpatrick



Hamilton

Conventional, Rapid and Inter-Regional
Transit: Technical, Financial and Land Use
Considerations

October 13, 2011

Executive Summary

The purpose of this presentation is to:

- Update Council on the status of the Rapid Transit initiative
- Seek Council direction to complete necessary works with Metrolinx
- Consider acceleration of HSR service development plans
- Express support of the integration of regional public transportation throughout the Golden Horseshoe.

Executive Summary (Recommendations)

- **Recommendation A** - is intended to allow Staff the opportunity to finish the work currently underway and the associated works required by Metrolinx.
- **Recommendation B** - is requesting that \$950,000 from the Quick Wins Reserve #108047 be used to complete the works referred to in Recommendation A.
- **Recommendation C** - addresses the financial impacts associated with LRT and that once an LRT funding announcement is made by senior levels of government, that it be brought before Council for further consideration and a final decision.
- **Recommendation D** - addresses part of our interim plan to address current capacity shortfalls and is requesting that we pursue funding from Metrolinx to purchase additional buses.

Executive Summary (Recommendations)

- **Recommendation E** is looking at the necessary land use planning that must be undertaken both in terms of future transit initiatives as well as in relation to the recent GO announcement
- **Recommendation F** addresses the need for a holistic approach to public transportation within our community - this includes provincial, inter-regional, inter-city, rapid transit, public transit, cycling and other forms of active transportation.
- **Recommendation G** is meant to reaffirm the City's commitment to modernizing public transit including both Light Rail Transit and GO Transit.



Executive Summary

Report recommendations ensure the continuation of the long term practice of integrated planning as the Rapid Transit initiative moves forward.

- The City's public transportation network is comprised of five major components:
 - Inter-regional integration (GO, Burlington Transit, Niagara Region)
 - Conventional HSR transit
 - Specialized transit ATS/DARTS
 - Rapid Transit
 - Alternative Transportation (Walking, Cycling, Ride Share)

Rapid Transit Vision

In Report PW09007, Council adopted the following vision statement for Rapid Transit:

Rapid Transit is more than just moving people from place to place. It is about providing a catalyst for the development of high quality, safe, sustainable and affordable transportation options for our citizens, connecting key destination points, stimulating economic development and revitalizing Hamilton. Rapid transit planning strives to improve the quality of life for our community and the surrounding environment as we move Hamilton forward.



Hamilton

Steer Davies Gleave – Project Update
Presented by Alan Jones, Project Director

October 13, 2011

Metrolinx

- **2007** – MoveOntario 2020 Plan identifies Hamilton as short term candidate for Rapid Transit funding.
- **September 22, 2011** – Metrolinx asks Hamilton to complete PDE study and project benefit & cost report and requests additional 2012 work plan to be completed
- **Metrolinx** – Investment Strategy due in 2013 now expected in 2012. Hamilton's benefit & cost report will factor heavily in the Investment Strategy.

HSR

HSR enhancement plan included in 2011 budget to address insufficient service capacity. Five-year implementation plan includes:

- Integrated public transportation planning
- Achieving LRT Operational Readiness
- Increasing the frequency and duration of services operating in the B-Line corridor
- Further increase corridor capacity with additional replacement of 12.2 meter (40-foot) conventional buses with 18.2 meter (60-foot) articulated buses
- Introducing Transit Priority measures
- Expanding Rapid Transit re-branding
- Expanding Technology applications
- Enhancing Route #20 A-Line service level

Integrated Land Use Planning

Land Use and Transit planning are strengthened by strategic policies:

- GRIDS – establishes nodes and corridors urban structure as basis for change and growth in the City; confirms B-line and A-line as major corridors
- Transportation Master Plan – aggressive transit improvements
- Urban Official Plan – identifies corridors as significant opportunity for intensification and investment
- Transit Oriented Development (TOD) Guidelines – fosters transit supportive development
- Hamilton Downtown Mobility Street Project
- Cycling Master Plan (Shifting Gears)
- Recreational Trails Master Plan

Integrated Land Use Planning

Summer 2010 – B-Line Nodes and Corridors Land Use Planning Study

- Coordinated with the Rapid Transit initiative, specifically the B-Line PDE work
- Study required to implement Official Plan
- Completion target – early 2012

GO Transit

- Hamilton will benefit from supporting the Province's goal of greater integration of all modes of public transportation across the Golden Horseshoe.

GO Transit

- **September 23, 2011** – Premier makes campaign announcement indicating Liberal Party commitment to implementing two-way, full-day GO train service to Hamilton.
- **September 28, 2011** – Mayor receives confirmation and clarification from the Liberal Party indicating the Province will be responsible for implementation costs for two-way, full-day GO train service to Hamilton in time for the 2015 Pan Am Games. The City would be required to continue making regular contributions towards GO Transit's expansion capital budget.



Financial/Staffing/Legal Implications

Immediate

- Funding for the City's portion of Staff Recommendation (a) is provided through the Quick Wins Reserve (Metrolinx funded) and/or funded by Metrolinx. The cost of Recommendation (a) is expected to be \$950,000.

Financial/Staffing/Legal Implications

- **Staffing:** Requirements for Rapid Transit office staffing are included in recommendation (b).
- **Legal:** Should Hamilton default Contribution Agreement with Metrolinx, City may be required to repay all or part of the \$3 million grant.

Analysis/Rationale for Recommendation

- Metrolinx requires completion of 2012 Staff work plan in order to make a Hamilton funding recommendation to Board of Directors.
- Recommendations included in this report ensure the continuation of long term practice of integrated transportation and land use planning.
- There will be a future need for higher order transit/rapid transit to ensure efficient and effective connectivity for citizens who want to move throughout the city and connect to inter-regional travel modes.

Alternatives for Consideration

- **Alternative 1** – Complete only the work required under the \$3M Contribution Agreement with Metrolinx
- **Alternative 2** – Complete only the work funded by Metrolinx
- **Alternative 3** – Complete work as outlined in Contribution agreement and Nodes and Corridors



Hamilton

Financial Impacts of Rapid Transit

Presented by **Rob Rossini, General Manager,**
Finance & Corporate Services

October 13, 2011

Financial Status Update

1. City Contributions to Rapid Transit Initiative
2. Other Rapid Transit Projects
3. LRT & BRT - Updated Capital and Operating cost estimates
4. City – Capital and Operating cost estimates due to LRT implementation
5. LRT Tax Implications for the City of Hamilton
6. City of Hamilton Financial Capacity

City Contributions to Rapid Transit Initiative

Operating Costs projected to December 31, 2011

	Costs (\$000s)
Salary & Benefits – Core Team	\$2,300
Salary & Benefits – Other Departments	\$620
Advertising, Promotion & Printing	\$200
Other	\$110
Total Projected Operating Costs as at Dec.31, 2011	\$3,230

Note: Rapid Transit Office Initiated in 2008

City Contributions to Rapid Transit Initiative

Capital Costs Projected to December 31, 2011

Studies	Costs(\$000s)
2008 : Rapid Transit Feasibility studies for A & B-Line	\$200
2009: Preliminary Assessment of LRT Operations, Preliminary Design Drawings at 15%, Functional planning analysis, Economic Potential study	\$450
2010: Identify development opportunities related to City Lands, Preliminary Maintenance Storage Facility, Implementation & staging strategies, model development	\$650
2011: 3D Simulation and Photo Montage, LRT Detailed Design at 70% for specific sections of the B-Line	\$600
Total Projected Capital Costs as at Dec 31, 2011	\$1,900

City Contributions to Rapid Transit Initiative

Projected costs as at December 31, 2011

Operating	\$3.2 million
Capital	<u>\$1.9 million</u>
Total projected costs	\$5.1 million

Note: Carrying \$200,000 Contingency

Funding sources

2008/2009 Road Block Funding	\$0.8 million
2010 Capital Budget	\$1.8 million
2011 Capital Budget	<u>\$2.5 million</u>
Total funding sources	\$5.1 million

2010 Capital Budget - Report FCS09114, Appendix A (Page 12)

2011 Capital Budget - Report FCS11011, Appendix A (Page 9)

Note: Of the \$5.1 million Total - \$1.6 million is actually funded

Metrolinx Quick Wins Reserve

Received from Metrolinx..... \$29.8 mil

Remaining Balance as at

December 31, 2011..... \$14.5 mil

Committed projects..... \$(12.8) mil

Interest revenue..... \$ 1.7 mil

Other Rapid Transit Projects

Metrolinx Regional Transportation Plan,

The Big Move – Original Plan

Metrolinx Funded
(BILLIONS)

York: VIVA BRT (100%)	\$ 1.40
Toronto: Sheppard East LRT (67%)	\$ 0.67
Toronto: Finch West LRT (100%)	\$ 1.20
Toronto: Scarborough RT (100%)	\$ 1.40
Toronto: Eglinton Crosstown LRT (100%)	<u>\$ 4.60</u>
TOTAL TOP 5 PROJECTS	<u>\$ 9.27</u>
Other (Includes Hamilton \$3mil PDE):	<u>\$ 2.23</u>
TOTAL	\$11.50 billion

Other Rapid Transit Projects

Metrolinx Regional Transportation Plan

The Big Move – as at March 31, 2011

	Metrolinx Funded (BILLIONS)
York: VIVA BRT (100%)	\$1.40
Toronto Revised Plan:	
Eglinton Scarborough Crosstown LRT	<u>\$8.40</u>
	\$9.80 billion

The Big Move \$11.5 billion
\$(9.8) billion
\$ 1.7 billion



- In competition with unfunded projects (Appendix L)
- Funding announcement anticipated in 2013

Other Rapid Transit Projects

YORK VIVA BRT - \$1.4 BILLION

York Region Responsibilities

- Provide Easement for Rapid way to Metrolinx
- Responsible for day-to-day operations
- Ongoing maintenance of dedicated lanes & bus terminals

Metrolinx Responsibilities

- Long term asset preservation and replacement including: pavement preservation, crack sealing, station refurbishment/replacement, software or Infrastructure upgrades to fare collection equipment, on-board ITS equipment and security
- Will own and maintain the rapid way Signal Priority system

B-Line LRT & BRT – Updated Capital Costs estimates

(2011- \$000s)	LRT Design Work at 30%	BRT
Preparatory Work	\$86,700	\$22,600
Guideway	\$132,600	\$77,200
Completion Work	\$10,400	\$10,300
Track work	\$51,700	\$0
Stations/Systems	\$93,000	\$14,200
Maintenance Facility	\$73,200	\$8,300
Vehicles	\$119,900	\$33,000
Total Estimated Construction Cost	\$567,500	\$165,600
Design & Management	\$136,100	\$43,900
Property	\$35,400	\$13,000
Total Estimate Before Contingency	\$739,000	\$222,500
Contingency (18%)	\$136,500	\$42,200
Total Estimate	\$875,500	\$264,700

B-Line LRT & BRT – Updated Operating Cost Estimates

(2011- \$000s)	LRT	BRT
Based on 22 LRT Vehicles	\$13,500	\$0
Based on 36 Buses	\$0	\$16,100
Assumes 18 buses off the network	\$(5,700)	\$0
TOTAL OPERATING ESTIMATE	\$7,800	\$16,100

Assumption: LRT will be operated & maintained by the City of Hamilton

Other City – Capital & Operating Cost estimates due to LRT (2011 - \$000s)

Other City Capital cost estimate = \$1,875

- Articulated Aerial Device

Other City Operating cost estimate = \$ 8,700

- Winter Control
- Street Tree Trimming/Decorative Street lights
- Traffic Engineering & Street Lighting
- Parking & By-Law Services
- Water & Sewer mains
- Rapid Transit Office & Staff

Note: Preliminary FTE impact = 12



Eligible Capital & Operating Costs

CAPITAL & OPERATING - LOW VS. HIGH Cost Estimates (\$000s)			
(2011 prices)			
	ELIGIBILITY Based on MTO Guidelines	COST ESTIMATES	
		LOW	HIGH
LRT - Capital	Eligible	\$875,000	\$1,018,000
LRT - Operating *	Not Eligible	\$7,800	\$13,500
Other City Services – Capital	Not Eligible	\$1,875	\$2,400
Other City Services- Operating	Not Eligible	\$8,700	\$12,020

* Assumption: LRT will be operated and maintained by the City of Hamilton

LRT Tax Implications

Assumptions

- City of Hamilton will operate & maintain the LRT system - based on funding and grant scenarios (see next page)
- New tax revenues due to Uplift are not included
- Both direct and indirect capital and operating costs are included
- Debt Financing at 4% / 30 years
- Development charge revenues are not included
- CONSERVATIVE

LRT Capital & Operating Tax Implications - Low

Potential Municipal Tax Impacts under Various Subsidy Assumptions – Low Estimates

City Contribution towards LRT Capital	FUNDING SCENARIOS			
	0% CITY FUNDING	25% CITY FUNDING	33% CITY FUNDING	50% CITY FUNDING
LOW : LRT Capital Costs \$000s)	\$875,000	\$875,000	\$875,000	\$875,000
LOW: City Capital Contribution - To be Debt Financed	\$0	\$218,750	\$288,750	\$437,500
LOW: City's Own Capital Costs - To be Debt Financed	\$1,875	\$1,875	\$1,875	\$1,875
LOW : Annual \$000s Required	\$8,800	\$23,400	\$28,000	\$38,000
Municipal Tax Implication (%)	1.4 %	3.8 %	4.6 %	6.2 %
\$ annual impact on homeowner	\$42	\$111	\$133	\$180

Assumption: Based on Transit Urban Boundary

1% = \$6.1million = \$29/year for average homeowner using
an Average CVA of \$245,100.

LRT Capital & Operating Tax Implications - Low

Municipal Tax Implication (%)	1.40%
\$ annual impact on homeowner	\$42

This reflects :

- Metrolinx funding Capital Construction Costs at 100%
- Metrolinx would own & operate the system 100%
- City Debt Financing required for \$1.8million for other City Capital
- Other City Operating costs at \$8.7 million



Hamilton

LRT Capital & Operating Tax Implications - High

Potential Municipal Tax Impacts Under Various Subsidy Assumptions – High Estimates

City Contribution towards LRT Capital	FUNDING SCENARIOS			
	0% CITY FUNDING	25% CITY FUNDING	33% CITY FUNDING	50% CITY FUNDING
HIGH: LRT Capital Costs (\$000s)	\$1,018,000	\$1,018,000	\$1,018,000	\$1,018,000
HIGH: City Capital Contribution - To be Debt Financed	\$0	\$254,500	\$335,940	\$509,000
HIGH: City's Own Capital Costs - To be Debt Financed	\$2,400	\$2,400	\$2,400	\$2,400
HIGH: - Annual \$000s Required	\$12,200	\$30,200	\$36,100	\$48,300
Municipal Tax Implication (%)	2.0 %	5.0 %	5.9 %	7.9 %
\$ annual impact on homeowner	\$58	\$144	\$171	\$230

Assumption: Based on Transit Urban Boundary

1% = \$6.1million = \$29/year for average homeowner using

Average CVA of \$245,100

LRT Tax Implications - High

Municipal Tax Implication (%)	7.9%
\$ annual impact on homeowner	\$230

Phased over 7- years:

Municipal Tax Implication (%)	1.13%	per year
\$ annual impact on homeowner	\$33	per year

This reflects :

- Metrolinx funding Capital Construction Costs and Operating Costs at 50%
- Metrolinx would own the system
- City of Hamilton would operate the system and pay 50% of the costs
- City Debt Financing required for \$511 million
- Other City Operating costs of \$12 million

City of Hamilton

Financial Capacity

Debt Forecast - Tax, Rate & DC Supported

(Excluding funding for LRT)

\$ millions

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Debt	355	745	910	931	913	922	1003	1096	1122	1042

- LRT would add between \$1.8million (0% City funded) and \$511million (50% City funded) to the City's debt

City of Hamilton

Financial Capacity

The City's most recent credit rating report from Standard and Poor's states the following:

“ In our view, **constraining the ratings are significant capital expenditures that are required to address the infrastructure deficit backlog** of about C\$2billion...We expect that the large deficits budgeted for senior levels of government will force the City to rely more on own source capital funding and that this will likely limit its financial flexibility during the next several years. As such, we expect that Hamilton's debt levels will rise significantly in the next 3 years as the City undertakes its capital plan. **We expect that debt could peak at about 55% - 65% of operating revenues by 2014, which would push the debt burden close to the upper limit of what we would view as appropriate for the ratings.**”

Conclusions

- There is insufficient information for Council to make a final decision on LRT at this time. Therefore, Recommendation (a) is being brought forward to ensure the necessary work for 2012 can proceed.
- As outlined in Recommendation (c), staff would report back to Council with impacts and a funding strategy once a funding commitment from the Provincial (Metrolinx) or Federal governments is provided.
- Given the existing capital budget funding needs/constraints, **the City could not afford an LRT System without most (if not all) of the project being funded by senior levels of government.**
- **“Stay in the Game !!”**

Thank You



Hamilton

Conventional, Rapid and Inter-Regional Transit: Technical, Financial and Land Use Considerations

October 13, 2011

Recommendations Summary

- **Recommendation A** - is intended to allow Staff the opportunity to finish the work currently underway and the associated works required by Metrolinx.
- **Recommendation B** - is requesting that \$950,000 from the Quick Wins Reserve #108047 be used to complete the works referred to in Recommendation A.
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Recommendations Summary

- **Recommendation E** is looking at the necessary land use planning that must be undertaken both in terms of future transit initiatives as well as in relation to the recent GO announcement
- **Recommendation F** addresses the need for a holistic approach to public transportation within our community - this includes provincial, inter-regional, inter-city, rapid transit, public transit, cycling and other forms of active transportation.
- **Recommendation G** is meant to reaffirm the City's commitment to modernizing public transit including both Light Rail Transit and GO Transit.



Conclusions

Where are we?

- Hamilton has almost completed the PDE for Rapid Transit development in the B-Line corridor in partnership with Metrolinx, coordinated with City's nodes & corridors planning – LRT identified as preferred mode of Transit. The initiative is now at an advanced stage.

Where do we want to be?

- City/Metrolinx decision on strategic importance and funding of Rapid Transit/LRT for Hamilton
- LRT construction-ready when Provincial funding becomes available

Conclusion

How will we get there?

- Complete Contribution Agreement commitments (legal requirement)
- Complete Supplemental *Making the Case* report through Quick Wins (Metrolinx funded)
- Complete additional 2012 work plan with an upset limit of \$950K funded by Metrolinx Quick Wins Reserve/new Metrolinx funding
- Complete submission to Metrolinx to allow Metrolinx to initiate *Value for Money* assessment (to be completed for Metrolinx by Infrastructure Ontario)

Thank You
Questions?



Hamilton

Other Rapid Transit Projects

WATERLOO REGION

- 19km of LRT - from Conestoga Mall to Fairview Park Mall
- 17 km of BRT – From Fairview Park Mall to Ainslie Street Terminal
- Total Cost Estimate = \$818 million (\$2014)

Funding Arrangements:

- \$ 300 million – PROVINCE
- \$ 265 million - FEDERAL
- \$ 253 million – WATERLOO REGION

Funding for the Region's Portion:

- 1.5% tax increase per year for 7 years
 - (2012 to 2018 -10.5% non-compounded)
- However, due to retirement of debt on regional buildings and uploading of social assistance costs (reduced by 0.5%)
- Resulting in 1% tax increase per year for 7 years (2012 to 2018)
- Area rated to their Urban Transit Service Area



City of Hamilton Rapid Transit

Planning, Design & Engineering (PDE) and Making the Case

Thursday, 13 October 2011

Steer Davies Gleave
2500 - 120 Adelaide Street West
Toronto, M5H 1T1, Canada
+1 647 280 4861

www.steerdaviesgleave.com

Introduction and Overview

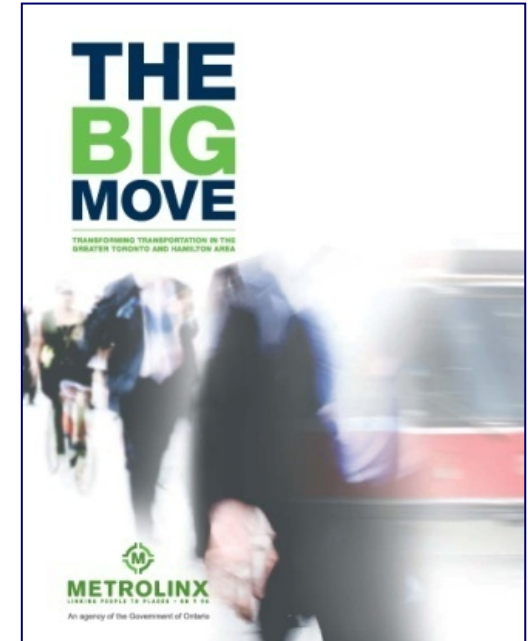
Rapid Transit Delivery Timeline (outline only)



Strategy & Concept (10%)	Planning, Design & Engineering (30%)	Detailed Design (60%), Funding & Procurement	Tenders, Final Design (100%) Construction	Test Commission PROJECT OPENING
4 years	2 years	1-2 years	4 years	2 years
Places to Grow	PDE project	MAE to Metrolinx	RFQ	LRV delivery
The Big Move	Making the Case	Infrastructure Ontario- AFP/P3	Tender long list	Staff recruitment
Official Plan	Engagement	MSF	Evaluation	Training
GRIDS- Nodes & Corridors	B-Line Nodes & Corridors	Procurement Options	Tender Documentation	"Shadow timetable"
B-Line BCA	Secondary Plan	Funding Decision	Shortlist & Appoint Partners	Advanced publicity
Contribution Agreement	A-Line Pre-Feasibility	Design work	Final Designs	SYSTEM OPENS
PDE scope		A-Line PDE work	Advanced Works	
			Construction	

Background- How we got to the PDE stage -Metrolinx Transit Planning Process

- | Review & prioritisation of transit projects
- | Benefit case assessment of projects
- | “Multiple Account Evaluation” approach
 - Transportation
 - Financial
 - Environment
 - Economic development
 - Socio-community
- | The B-L-A-S-T network
- | Hamilton B-Line in initial project review list
- | B-Line BCA examined BRT & LRT options
- | B-Line LRT option selected for further study
- | Metrolinx / City of Hamilton contribution agreement - \$3M development budget
- | Planning, Design and Engineering (PDE), and Making the Case





The Rapid Transit Vision

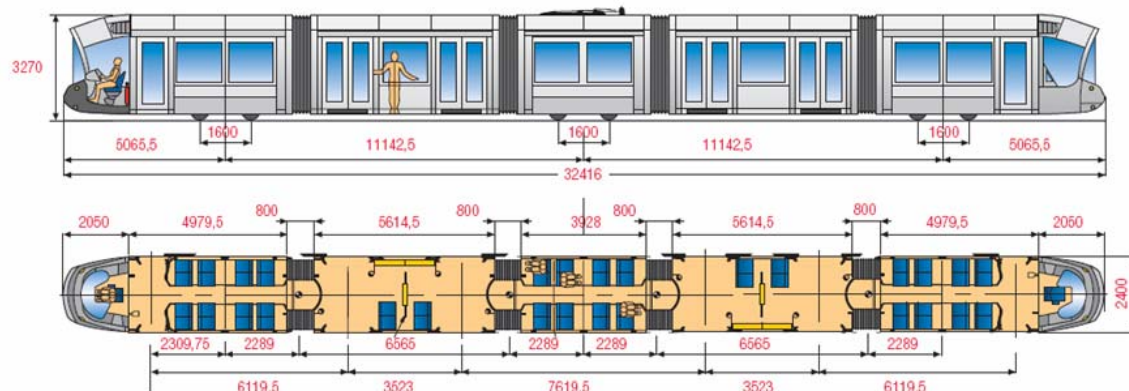
“Rapid Transit is more than just moving people from place to place. It is about providing a catalyst for the development of high quality, safe, environmentally sustainable and affordable transportation options for our citizens, connecting key destination points, stimulating economic development and revitalizing Hamilton”.



Urban Style LRT- the key components

Modern “European style” LRT

- | Vehicles 30m long
- | 200 passengers
- | Low floor level boarding
- | Driver controlled
- | Electrically powered



Urban Style LRT

- | LRT
separate
from traffic
- | Rails level
with road
surface
- | Stops part of
sidewalk



LRT & Transit Oriented Development

























Project Overview - Preferred B-Line LRT Option Alignment



B-Line LRT Operations

Parameter	
Opening Year	Assumed Mid 2018
Route Length	13.7 km
Number of stops	18
Headway	4 minutes
Travel time (end-to-end)	31 minutes
LRT Vehicles for service	19
LRT Vehicles	22
Capacity per LRT Vehicle	200
System Passenger Carrying Capacity (phpd)	3,000 (maximum) 1,950 (planned)
Average stop spacing	760m

Planning Design & Engineering: Scope of Work

“Taking the project to a state of maximum implementation readiness”

B-Line

Completed:

- | Developing the B-Line route - design workbooks
- | Ridership forecasting
- | Traffic modelling
- | Initial Costs - capital and operating
- | BLAST System Operations Plan
- | Stakeholder Engagement / Public Consultation
- | Benefits Case Tracker



Planning Design & Engineering: Scope of Work

B-Line

Underway:

- | Functional planning analysis – light rail vehicles, light rail stops and other system components
- | 30% design outputs – scheme design
- | B-Line Operating plan
- | System Design Guide
- | Implementation Plan
- | More detailed costs
- | Environmental Project Report

A-Line

Underway:

- | Pre-feasibility study of route and mode (BRT or LRT) and land use work

PDE: Design & Engineering

PDE: Engineering & Design

Our Approach

I Network-wide approach

- Demand-led
- Putting the Passenger First
- An Integrated Transit Solution
- Wider corridor designs for traffic/buses

I Transit as a “City Shaping Tool”

- Linear Urban Development, featuring LRT
- Complete Streets, including pedestrians and cyclists

I Best Practice Design Principles

- Design Work Books



Best Practice Design Principles

- | Competitive journey times (100% segregated)
- | Journey time reliability
- | Maximising ridership
- | Affordable capital and operating cost
- | Create opportunities to enhance urban realm and add TOD
- | Minimise adverse impacts on:
 - environment
 - frontage property owners & occupiers including servicing
 - Property take
 - other traffic



B-Line Approach

- I Centre running with two way traffic lanes
 - McMaster to 403
 - Queenston Traffic Circle to Eastgate Square
 - No vehicular movements across except at signalled intersections
 - Private accesses right in, right out



I Side running LRT with 2 one way traffic lanes

- 403 to Downtown
- Wellington to Queenston Traffic Circle
- Fits within existing 4 lane roads
- Allows parking, deliveries etc in nearside lane
- Left turns at signalised intersections only
- Allows access to property on traffic side
- Private accesses on LRT side forward in, forward out



PDE: LRT Operations, Bus Network, Traffic Network

Transit Network Changes - Principles

- | Grow total ridership
 - LRT and bus
- | An Integrated Transit Solution-network wide
- | Provide links to jobs, homes, leisure and key services



Transit Network Changes - Principles

- | Through services from beyond ends of corridors retained, at reduced frequency linking with stopping transit services rather than B-Line Express
- | Through bus transit services in the B-Line corridor retained but at lower frequency, to retain some flexibility for people of reduced mobility (in terms of stop spacing and need for transfer)
- | Some increases in the frequency of transit routes acting as feeders to LRT



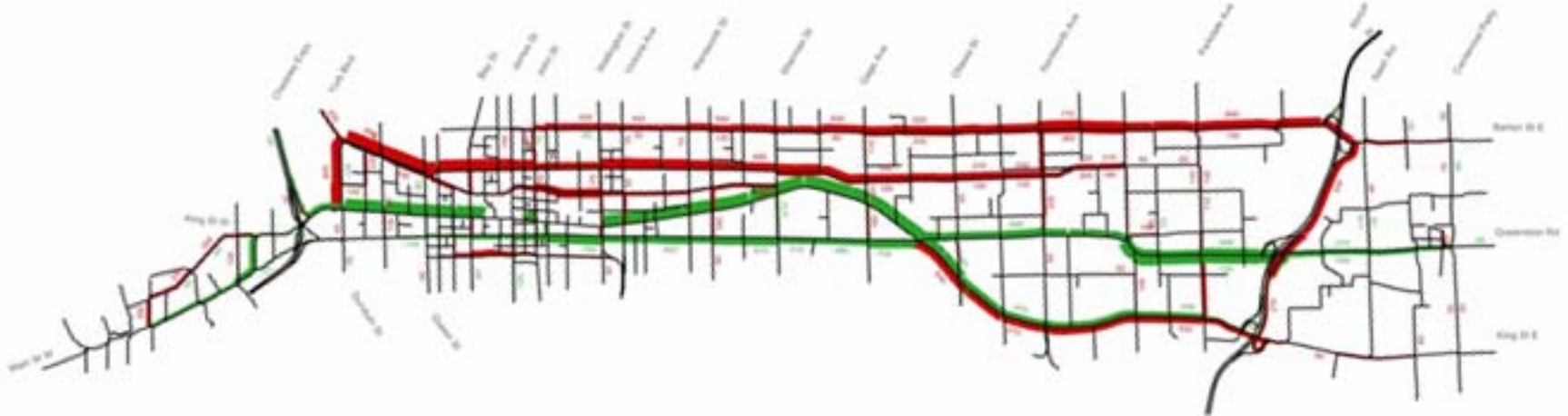
B-Line - Traffic Circulation

- | Through westbound traffic diverted away from B-Line
- | No designated alternative routes for traffic displaced from B-Line route (particularly between Queenston Traffic Circle and Downtown)
- | King Street East at International Village limited to frontage access traffic only (shared running)

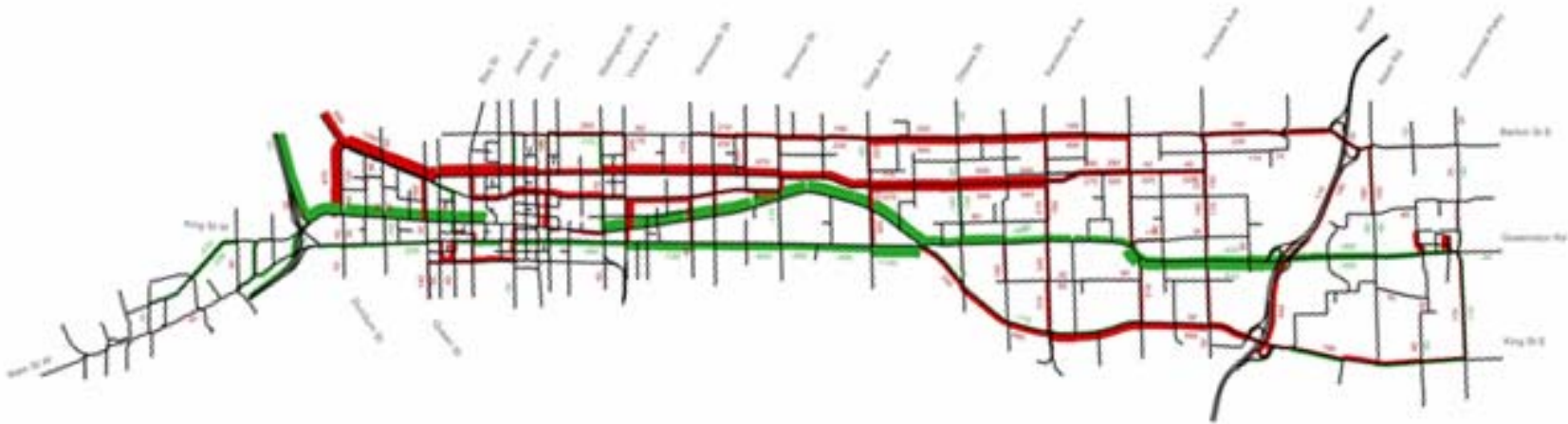


Change in Traffic Flows (2021)

Morning (8.00-9.00)



Evening (16.30-17.30)



Public Engagement

Engagement

- | Council
- | SMT
- | Rapid Transit Team
- | Technical Team
- | Corporate Working Team
- | Rapid Transit Citizen Advisory Committee (RTCAC)
- | Public & extensive number of Stakeholders including:
 - BIA's
 - Chamber of Commerce

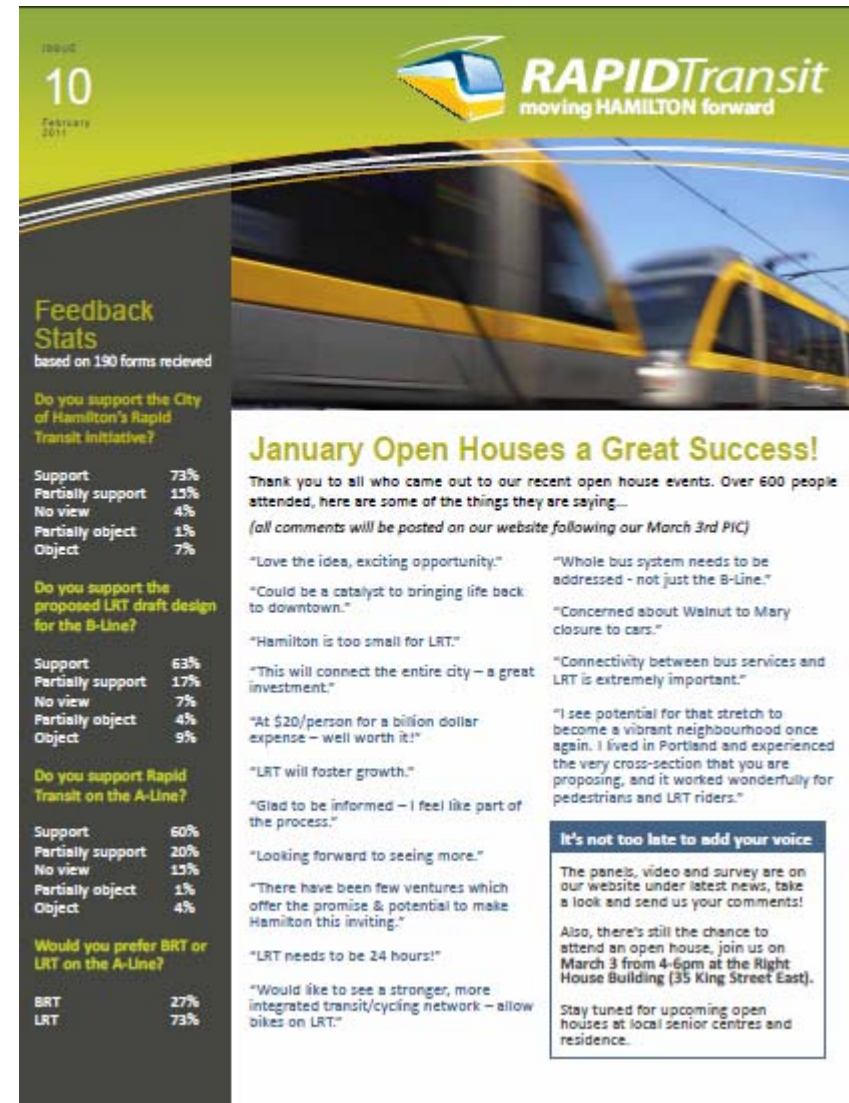
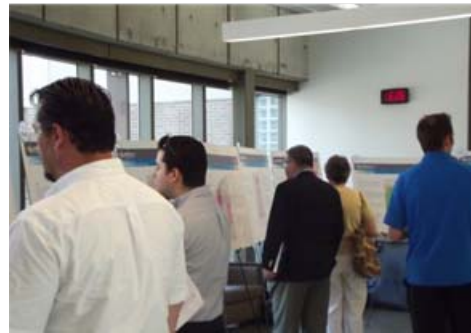


Engagement

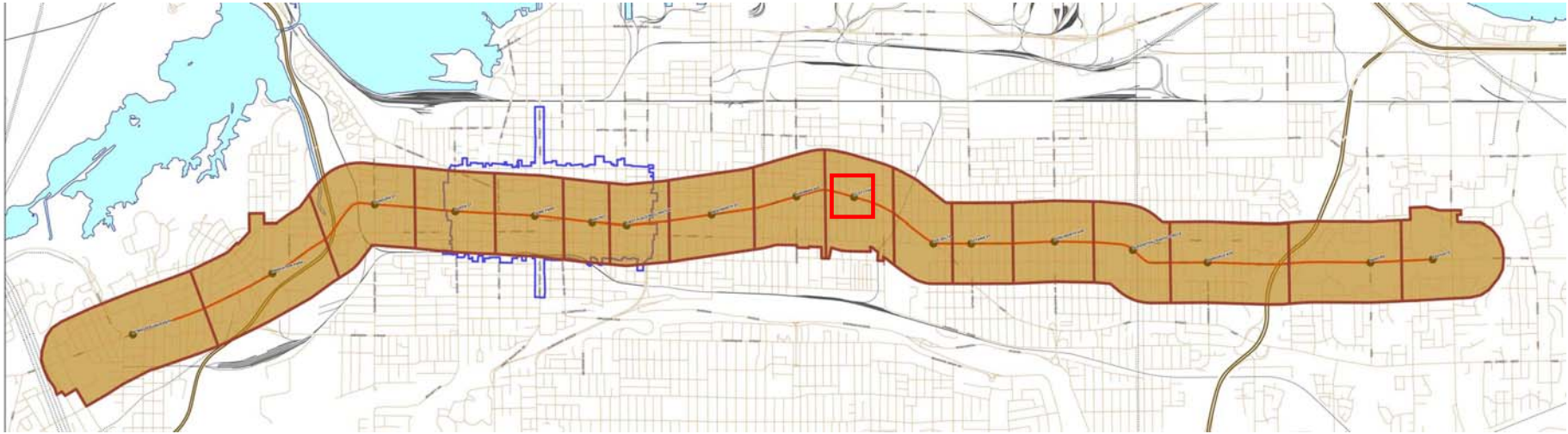
I Engagement has been extensive

- Newsletters
- Website, Facebook, Twitter
- Open Houses - Jan/Feb and August 2011
- meetings with stakeholders
- community events

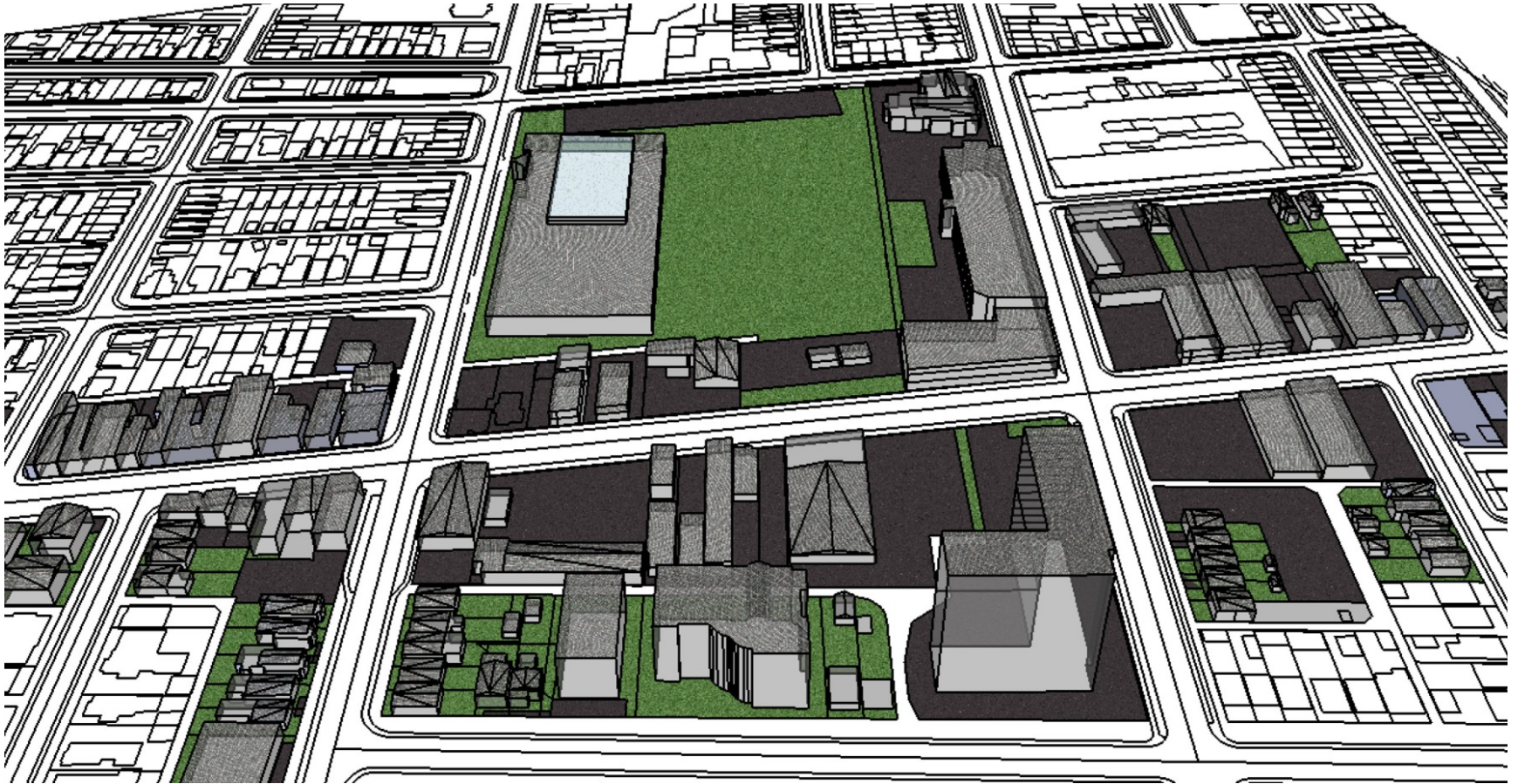
I Wide-scale interest amongst public and stakeholders



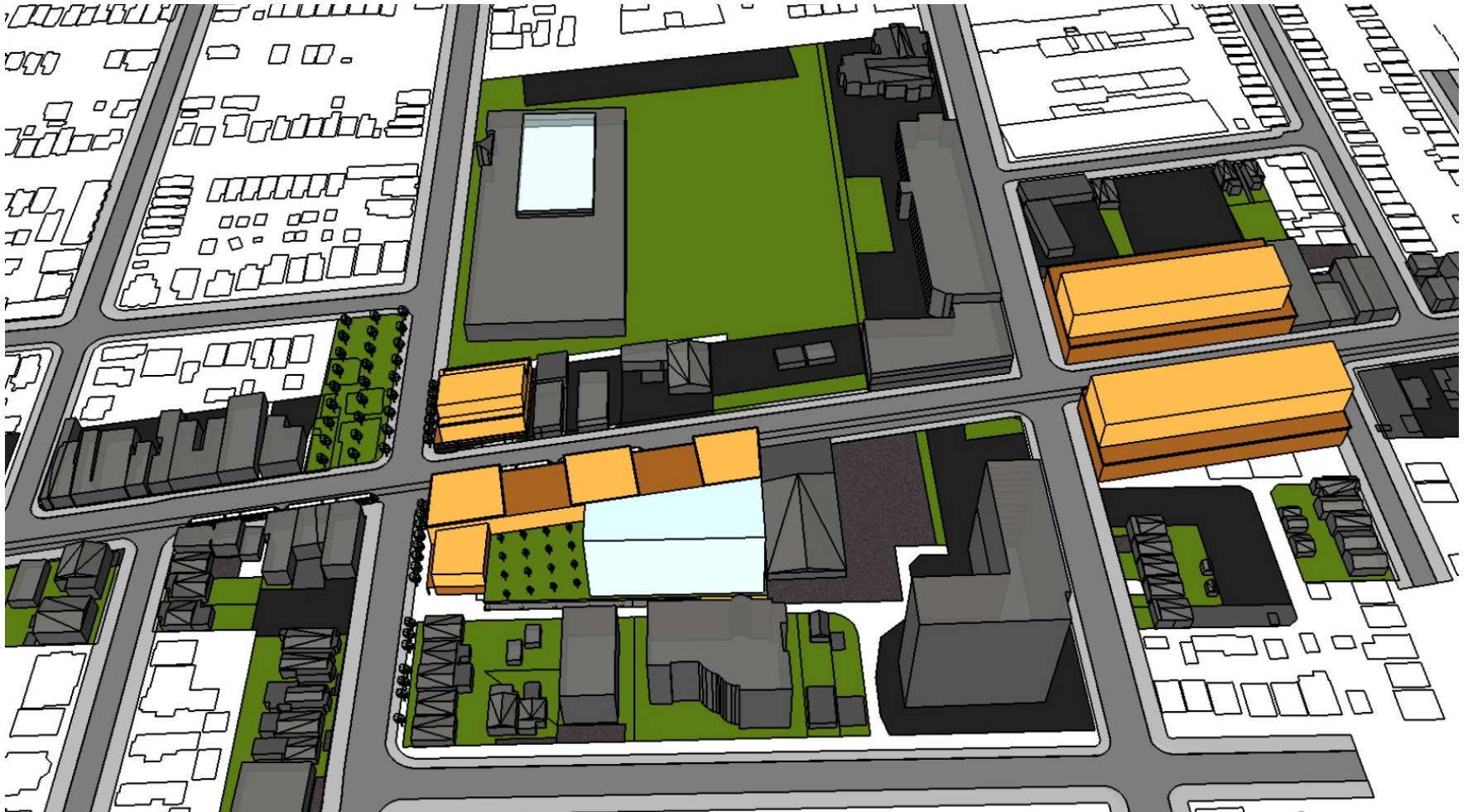
Engagement: Design Charrette - King and Wentworth



Engagement: Design Charrette - King and Wentworth



Engagement: Design Charrette - King and Wentworth



David Premi Architect

Engagement: Design Charrette - King and Wentworth



David Premi Architect



PDE: A-Line Pre-Feasibility Study

A-Line: Scope of Work

PDE:

- | City pushed for A-Line to be part of PDE commission
- | Pre-feasibility study:
 - | Technology Opportunities
 - | Route & mode (BRT or LRT)
 - | Wider transit system integration
- | Land use planning study - opportunities & challenges
- | Economic Potential Uplift
- | Consultation

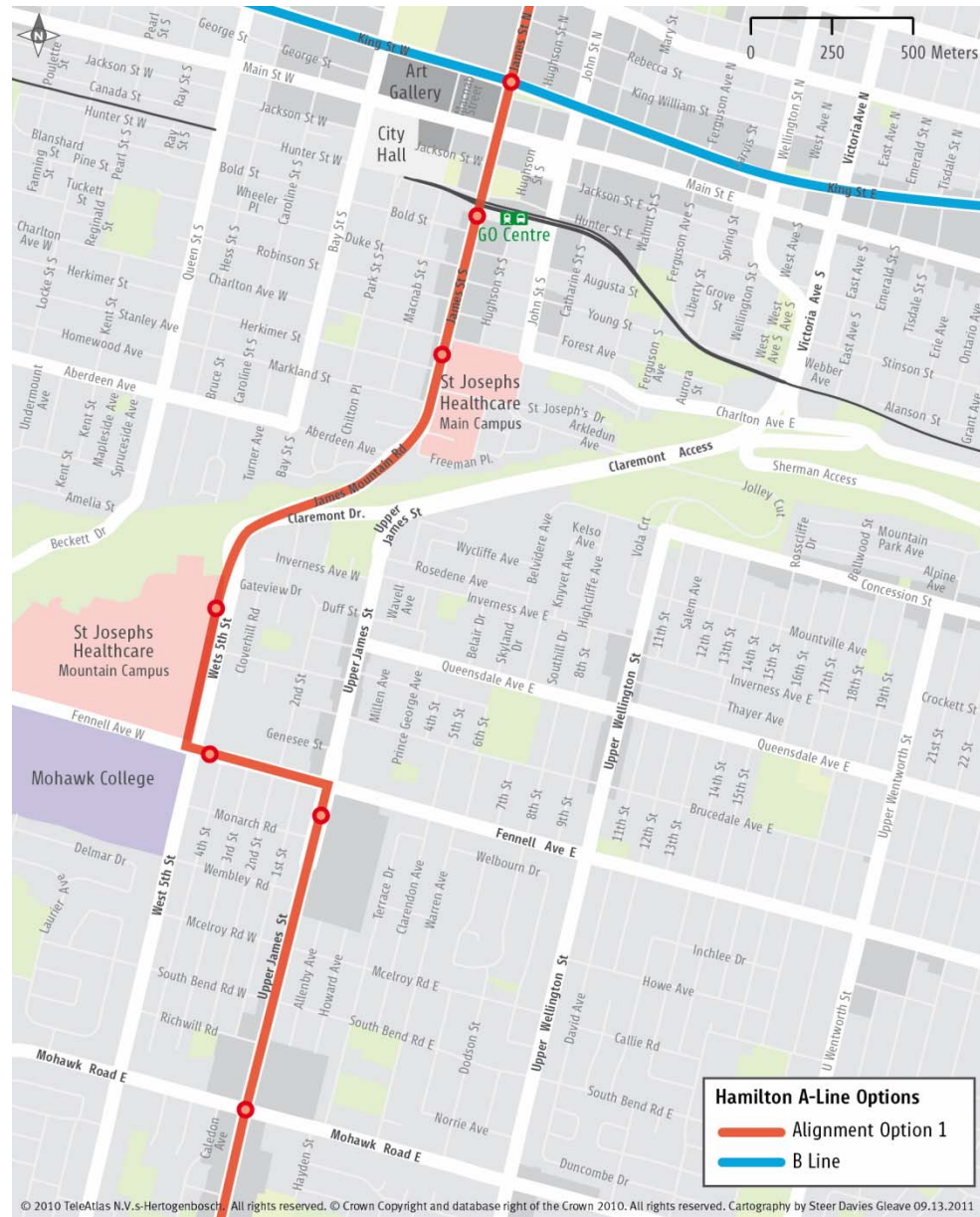
Make the Case:

- | Benefits Case Analysis - BRT & LRT



Interim results

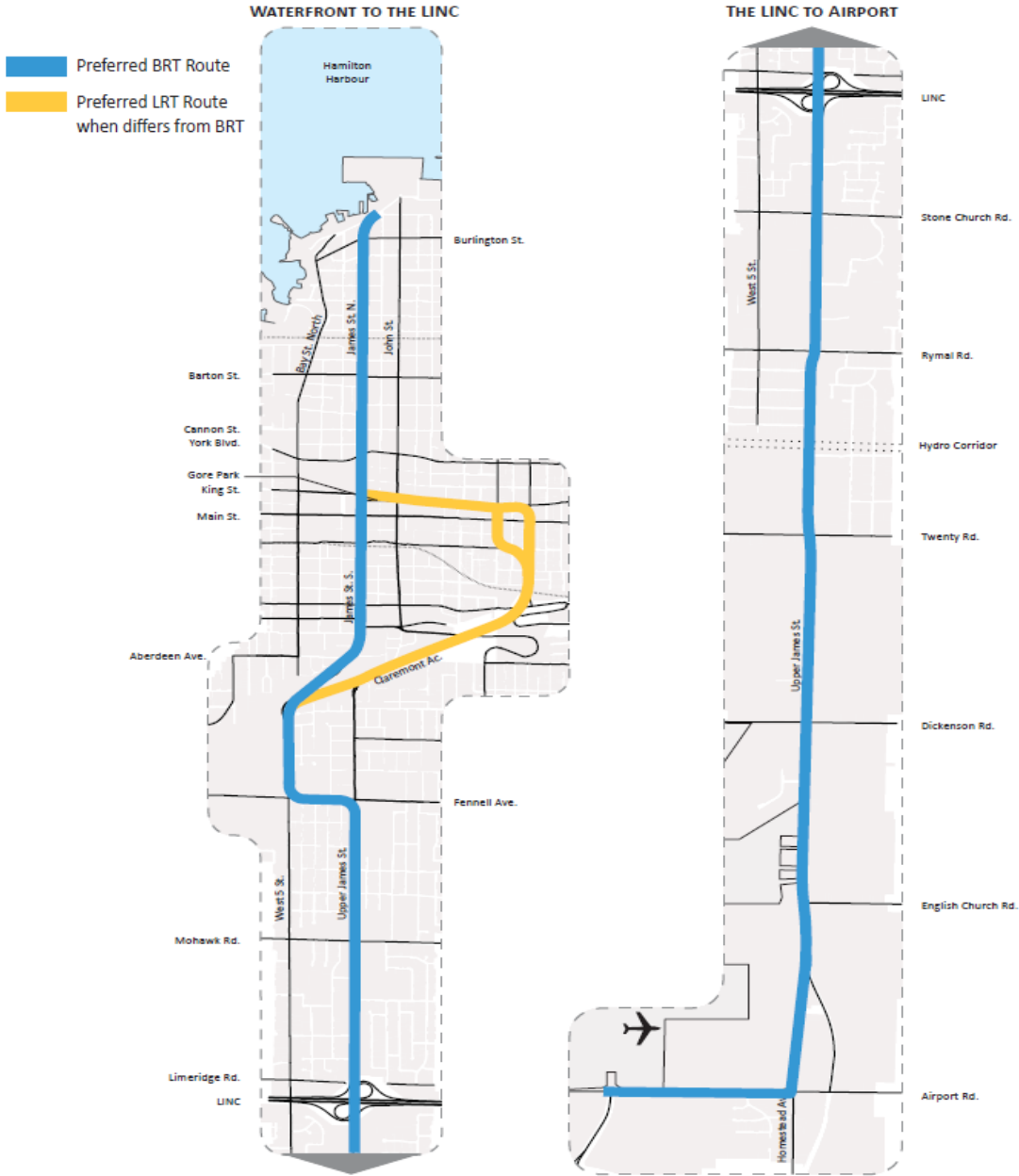
- | No single best route for LRT and BRT
- | 'Best' BRT route is via James Mountain Road (11% gradient)



'Best' LRT route is Claremont Access via Wellington/Victoria (6% gradient), but misses some key attractors



A-line Route



Current Position

- | Consultation in February & July 2011 – good level of interest
- | Land Use work coming to conclusion
- | Economic Uplift work coming to conclusion
- | BCA underway (as part of Making the Case)
- | Will be ready to move to next stage (PDE)



PDE: Ridership & Benefits Case Tracker

PDE: Ridership & Benefits Case Tracker

|The alignment design, LRT operations and wider traffic and bus network are key to producing:

|Capital Costs

|Operating Costs

|Demand Forecasts to provide Ridership estimates

|All this work was progressed and carried forward into the “Making the Case” stage of the project

|Comprehensive Transportation Case developed, including Multiple Account Evaluation

| Making the Case

Making the Case

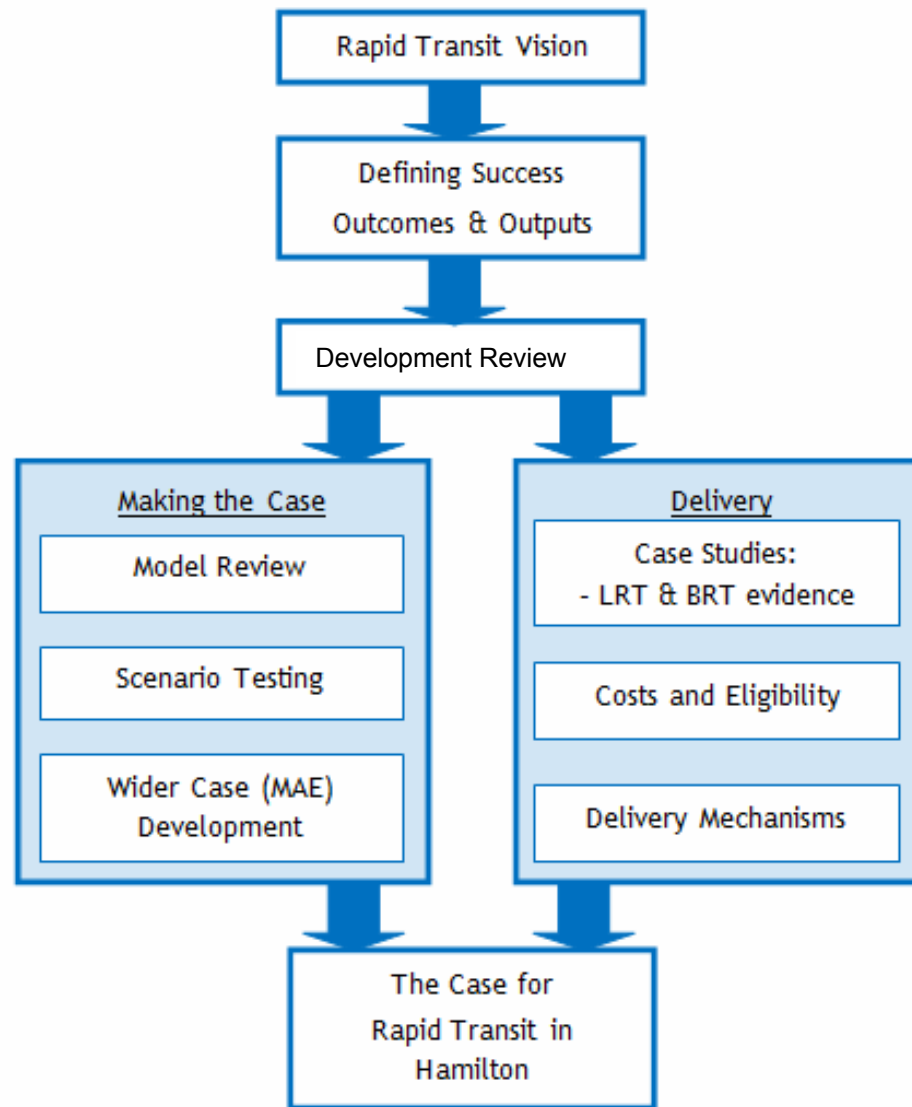
I SMT & Council briefing in Jan 2011 raised five questions:

- What LRT on the B-Line would cost?
- How would it be paid for and what would the cost be to Hamilton?
- What will we get if we implement LRT?
- How do we know we'll get what we say we'll get if we implement LRT?
- How would the answers to the first 4 questions change if we chose BRT?

I Make the Case work designed to answer these questions



Addressing the Questions - “Making the Case”



Making the Case: Development Scenario Testing

Development Scenario Testing - Places to Grow

- | Previous work assumed Places to Grow assumptions:

Forecast Year	Population	Change from 2011	Jobs	Change from 2011
2011	531,000	-	234,000	-
2021	595,000	12%	268,000	14%
2031	660,000	23%	301,000	28%

- | By 2031, an increase in population and employment by 129,000 (23%) and 67,000 (28%) over current levels respectively
- | Distribution of growth in Hamilton did not reflect rapid transit corridors

Developing the Scenarios

SDG worked with the City in a workshop to review assumptions:

- Reallocate growth in the rapid transit corridors
- Increase development density (TOD)
- Overall growth allocation to Hamilton remained unchanged

In consultation with the City a number of scenarios were developed for evaluating the case of the B-Line:

- No Growth Scenario - as per current/ 2011 levels
- Standard Growth Scenario - Based on GRIDS projection
- Alternative Development Scenarios
 - Dual Corridor Medium Intensification Scenario
 - B-Line Only High Intensification Scenario

Development Scenario Testing - In Scope Catchment

- | Summary of population and employment within 800m catchment of B-Line LRT stops

Indicator	Current/Low Growth	Standard Growth (GRIDS) 2031	Dual Corridor Medium Intensification 2031	B-Line Only High Intensification 2031
Population within 800m of LRT stops	99,800	110,400	114,000	173,400
Employment within 800m of LRT stops	42,700	57,900	54,800	86,300

- | Standard Growth only adds 10% more population on the B-Line by 2031
- | Dual corridor Medium Intensity does not assume significantly more development to the B-Line (primarily redistributed to A-Line)

Making the Case: Transportation Case

Project Overview

- | Original BCA high level assessment (regional scale)
- | Refinements to the design since the BCA include:
 - End to end run times increased from 26 minutes to 31 minutes (compared to 34 minutes for the B-Line bus service)
 - Change in traffic arrangements
 - Inclusion of 400m extension and additional stop at McMaster University

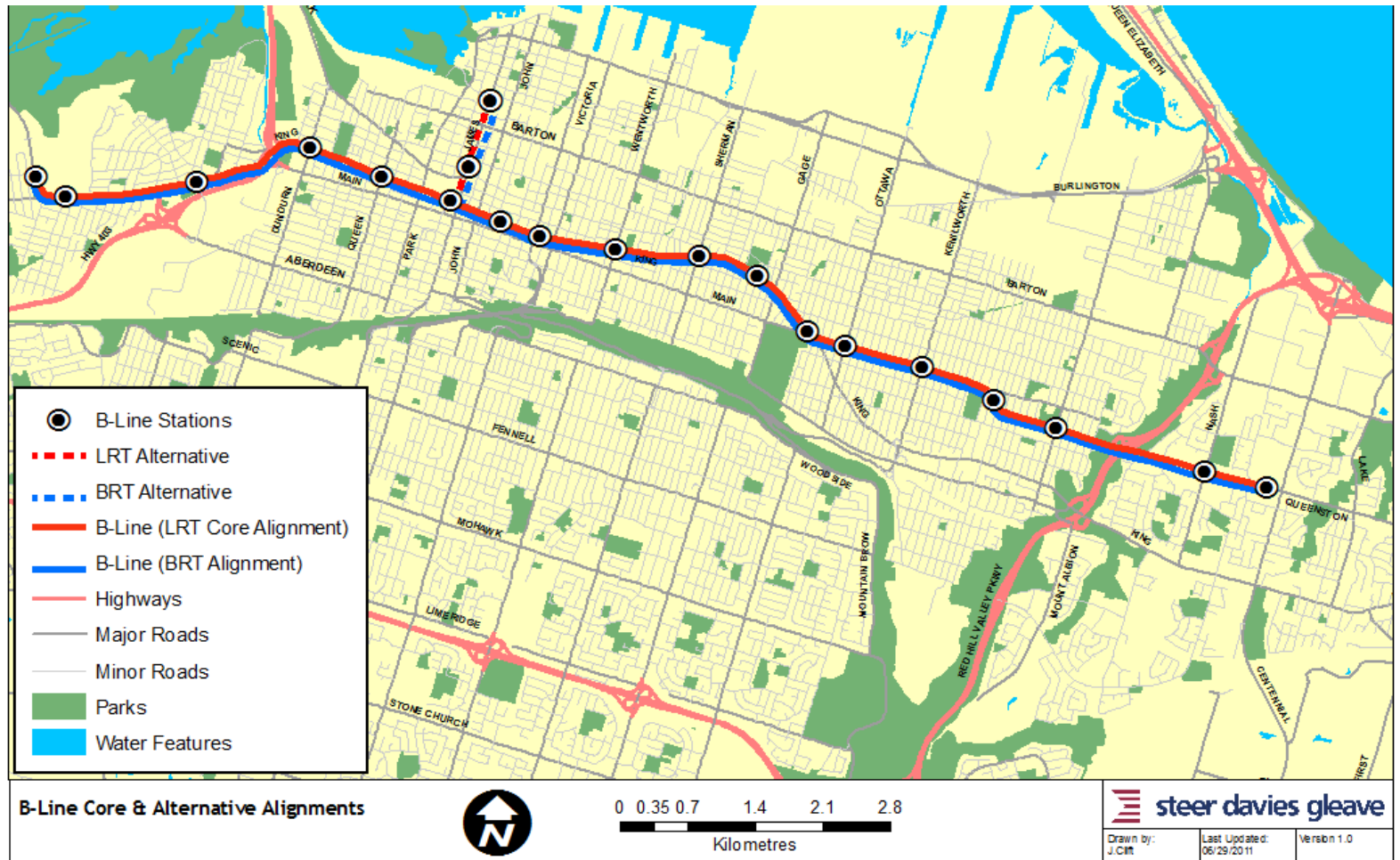


Updated Transportation Case - Development Scenario Testing

Indicator	Low Growth	Standard Growth (GRIDS)	Dual Corridor Medium Intensification	B-Line only High Intensification
Population within 800m of LRT stops	99,800	110,400	114,000	173,400
Employment within 800m of LRT stops	42,700	57,900	54,800	86,300
2031 LRT Ridership (m p.a.)	15.8m	18.9m	20.1m	38.6m
Benefit Cost Ratio	0.52:1	0.73:1	0.79:1	1.67:1

Making the Case: Comparing LRT and BRT

Review of Alternative Options - Alignments



Review of Alternative Options

- | Alternative options evaluated:
 - LRT1 - B-Line LRT option
 - BRT1 - BRT running the same alignment as LRT1
 - LRT2 - including spur to GO station at James Street
 - BRT2 - BRT running the same alignment as LRT2
- | Higher BRT headways -not possible to provide the same level of reliability and headway regulation - leading to lower operating efficiency/higher operating costs
- | Options were evaluated using the Dual Corridor Medium Intensification scenario
- | Run times and priority for BRT was assumed to be same LRT
- | The spur to GO James Station assumed to take 3 minutes

Review of Alternative Options - Evaluation Results

- | Preferred LRT alignment stronger than alternative alignment
- | Overall benefits of BRT are lower than LRT, but due to lower capital costs, the BRT has a higher BCR (consistent with Metrolinx BCA)
- | BRT operating costs are significantly higher (2x)
- | The level of new development from BRT expected to be lower
- | BRT will generate increased emissions (subject to fuel type)
- | LRT significantly reduces environmental impacts



Transportation Case: Summary and Conclusions

- | Transportation case for B-Line LRT remains sound
- | B-Line LRT will act as a catalyst in shaping the City's growth in a sustainable way
- | Including development effects of LRT, the BCR of the LRT option (medium intensification) is estimated to be in the range of 0.8:1 and 1.1:1
- | An additional growth in population by 52,900 and jobs by 30,700 within 800m of LRT between now and 2031 will deliver the BCR of 1.1:1 previously reported in the 2010 BCA. This is equivalent to allocating less than half of the future Places To Grow potential to the B-Line corridor
- | This compares to 1.0:1 for a BRT equivalent assuming a fixed Medium Intensification scenario
- | BRT would require significantly higher operating costs due to increased services to meet ridership demand
- | MAE assessment shows LRT will also bring about wider benefits - including land value uplifts, reducing emissions, generating jobs during construction and long-term GDP gains

Making the Case: The Developer Viewpoint

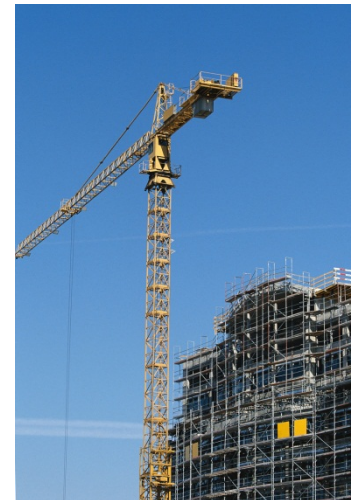
Delivering the Development

I 5 questions:

- What are the mechanisms that could encourage development ?
- What other initiatives or incentives could help ?
- What is the likely impact of LRT on the potential for new investment and development activity ?
- What strategies have the highest potential to deliver Hamilton's Vision ?
- What is the role of LRT in encouraging people and employers to return to the downtown ?

I Three methods:

- Case study analysis
- Development Industry web survey
- One-on-one Development Industry interviews



Delivering the Development: Case Studies

| Ten Cities examined:

Canada

Edmonton, AB

Toronto, ON

Waterloo, ON

USA

Portland, OR

Minneapolis, MN

Dallas, TX

Buffalo, NY

Phoenix, AZ

Europe

Sheffield, UK

Dublin, Ireland

| Focus on what made them successful and transferable lessons to Hamilton



Delivering the Development: Case Studies

I Successful mechanisms:

- Pre-implementation planning & zoning revisions
 - Good: Portland, Minneapolis, Phoenix
 - Poor: Buffalo, Sheffield, Dallas
- Land Assembly
 - Good: Portland, Dublin
- Infrastructure Improvements, especially public realm
 - Good: Minneapolis, Toronto
 - Poor: Edmonton
- Financial Incentives
 - Most offer them but based around economic development generally rather than encouraging investment in LRT corridors



Delivering Development: Web Survey

| Distributed to:

- 100 senior figures
- Industry groups who circulated to their membership:
 - Building Industry and land development Association (BILD), including Hamilton Halton Homebuilders Association (HHHBA) - 1000
 - Commercial Real Estate Development Association (NAIOP)
 - Hamilton Chamber of Commerce - 1500

| 45 responses - most from developers



Delivering Development: Web Survey Results

I Key Messages:

- 88% had heard of LRT proposals
- 87% think LRT is important for Hamilton and its attractiveness as a location to develop
- 6% think LRT is not important
- View is **LRT has modern, efficient image** that:
 - is proven to encourage development
 - Will increase property values
 - Will improve the image of Hamilton
 - Will provide accessibility to those who might want to live/work downtown
- Low level awareness for current incentives on offer by City
- The most important things Hamilton can do are:
 - improving the approvals process and
 - provision of public realm and other infrastructure

Delivering Development: Development Industry Interviews

- | 20 firms targeted, 10 arranged, 5 conducted
- | 3 developers (residential and commercial), 1 commercial real estate, 1 economic development advisory firm
- | None of the developers currently active in Hamilton

Findings:

- | Perceptions of City varied:
 - *"Building up the image of the City is probably the single most important thing Hamilton can do"*
- | Poor processes and understanding are barriers to Development:
 - *"if we have to fight to get what we need, to be able to do what we think is smart and appropriate development, why fight in Hamilton when you can develop in other places where they really want you"*

Delivering Development: Development Industry Interviews

- *"there has to be a willingness, more so than there is now, for anybody walking into City Hall to figure out how staff can make their proposals work - instead of throwing up road blocks. Here's why you can't do it - let's all sit down and figure out how we can"*

I All felt LRT was hugely important for the City:

- *"I don't think there's a developer out there who would say "Oh no we don't want LRT" there's an attraction for developers for sure"*
- *"We couldn't care less about bus. There's a sexiness about LRT, as in Portland, and there is a usability comfort to LRT"*
- *"LRT is very important. We like to build close to public transit.."*

I Infrastructure investment and process/mindset improvement was preferred to other City incentives:

- *"I don't think you have to buy people to come here. I think you just need to make it easy for them to do what they want to when they get here"*

Delivering Development: Development Industry Interviews

- *"why should I invest in the city if they don't invest in themselves"*
- *"Infrastructure is very important. Community facilities, civic buildings, public places, this is where the City should be spending their money"*
- *"Infrastructure is the number one priority. Its not about financial incentives. Its about having the right infrastructure, the right amenity space, the public realm"*
- *"The conditions of the neighbourhood and the investment the City can do are important. Once you step off LRT you have to have good public place, good public spaces, good places that have good urban scale. That can start to generate development"*



Delivering Development: Conclusions

| *What are the mechanisms that could encourage development?*

- Infrastructure improvements, incl. public realm
- Incentives to developers to also improve public realm
- Assistance with land assembly
- Pre-implementation planning - area planning & zoning

| *What other incentives or programs could the City use to attract development?*

- Improved application process
- Planning policy that supports desired development
- Municipal staff with priority to assist TOD delivery

Delivering Development: Conclusions

- | *What is the likely impact of LRT on the potential for development?*
 - Investment in LRT would help change image
 - Would improve accessibility
 - 87% of web respondents thought LRT would approve Hamilton's attractiveness as a location for development

- | *What strategies have the highest potential to deliver Hamilton's Vision?*
 - TOD policy & zoning in place before LRT
 - Invest in public realm in targeted locations aligned with TOD policies
 - Overhaul approvals process - to ensure efficient & predictable for the right sort of development
 - Consider creating a body/department that can purchase/assemble land to support development objectives
 - Re-focus incentives to support station area planning and economic development objectives

Delivering Development: Conclusions

- | *What is the role of LRT in encouraging people and employers to return to the downtown?*
 - Connectivity/accessibility
 - Development industry sees LRT as key as a high quality, long term infrastructure investment
 - LRT will improve image of downtown
 - Can act as a catalyst to attract residential and employment development



Making the Case: Delivery

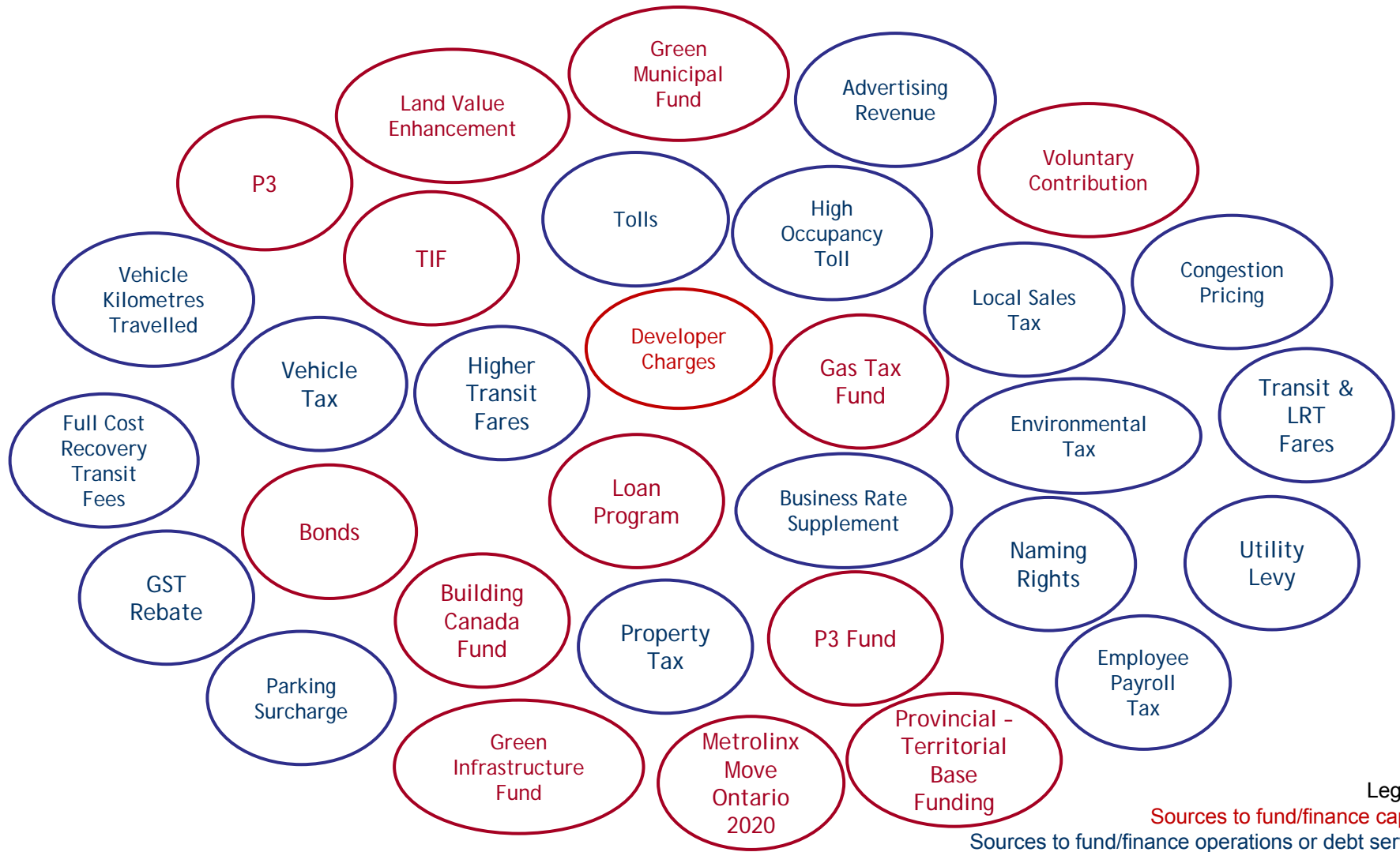
- Funding, Finance, Procurement

Funding, Finance & Procurement Options

- | *“Taking the project to a maximum state of implementation readiness”*
- | Not just technical components and a transportation case
- | Key issue: Finding the Funding
- | Key issue: Defining a Delivery Mechanism
- | Key issue: Positioning the City of Hamilton for the next stages of the LRT



Potential Funding & Financing Sources

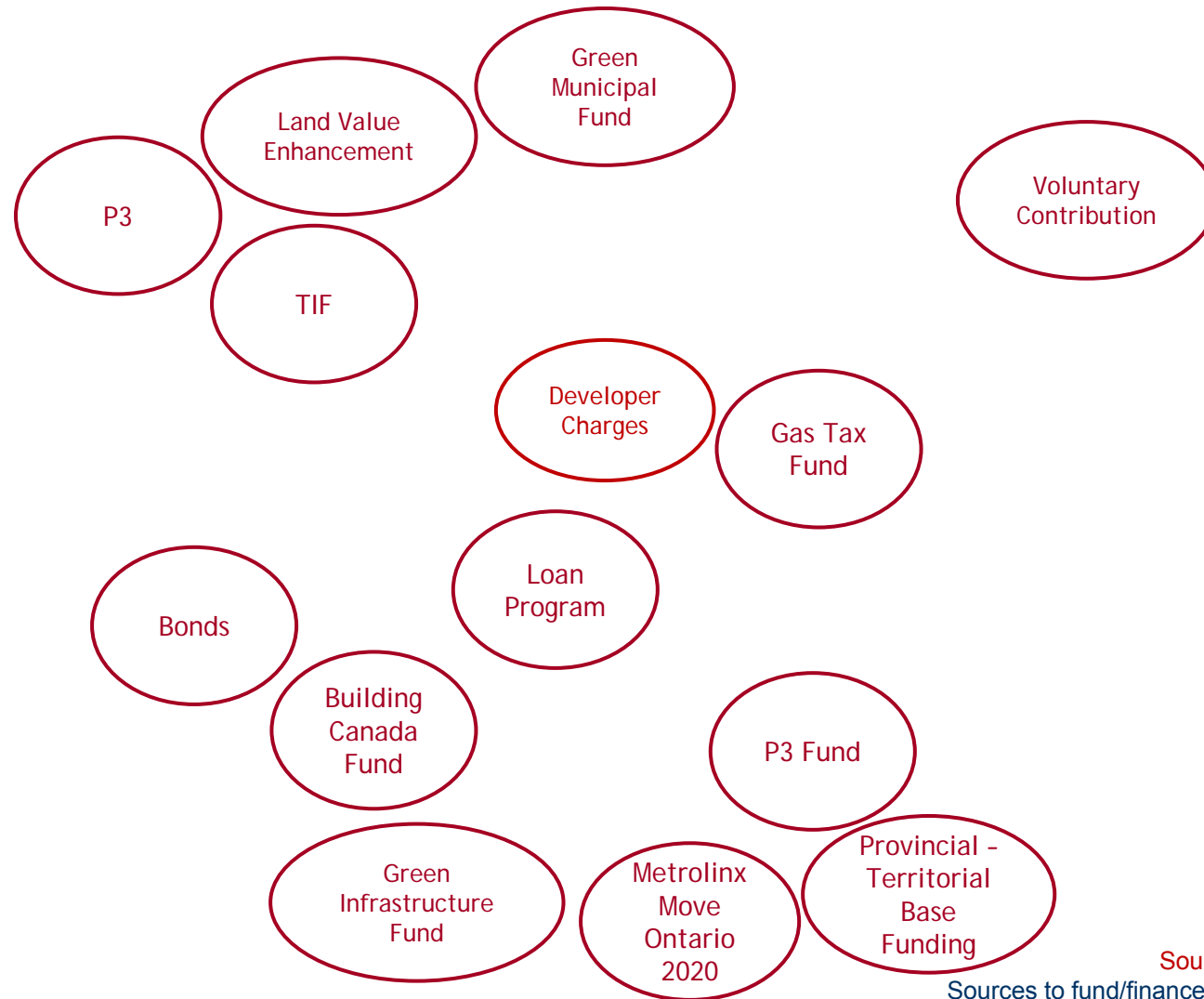


Legend

Sources to fund/finance capital

Sources to fund/finance operations or debt service

Potential Funding & Financing Sources - for capital



Legend
Sources to fund/finance capital
Sources to fund/finance operations or debt service

Potential Funding & Financing Sources - for operations



Legend

Sources to fund/finance capital

Sources to fund/finance operations or debt service

B-Line Delivery Model - Responsibility Matrix

Option	1	2	3	4
Type	DBB	DBT + MO	DBT + C + O	DBFMO
Design	Private Engineer	Private Eng / Constructor	Private Eng / Constructor	Private Consortium
Build	Private Constructor			
Equip	Rolling stock supplier	Rolling stock supplier	Rolling stock supplier	
Operation	Public	Private Operator	Private Operator	
Maintenance	Public		Private Eng & Investor (Initially Public)	
Finance	Public	Public		
Long Term Ownership	Public	Public	Public	Public

B-Line Delivery Model - Key Findings

- | B-Line LRT can be delivered through a range of procurement methods
- | Roles and responsibilities of City of Hamilton, Metrolinx and Provincial/Federal partners need to be defined
- | Contributions and risk allocation between City/Metrolinx to be determined
- | Infrastructure Ontario and Metrolinx discussions on “P3 test” will need to focus on “B-Line/BLAST network-specific” solution
- | Risk transfer and role(s) for Private Sector can then be defined (P3 and variants)
- | The aim: identify the best value approach for project delivery

Conclusions

Conclusions

- | Comprehensive development of project has been undertaken - integrated approach- moved from regional option to 30% project design
- | Wide-scale engagement & interest
- | Good understanding of capital and operating costs and the recast bus network
- | Statutory processes well underway - EPR submitted
- | Robust transportation case with development opportunities captured - integrated policy and delivery approach
- | Development industry view: LRT can help make Hamilton more attractive
- | The B-Line is a robust project which can deliver the Rapid Transit Vision Statement

Rapid Transit Delivery Timeline (outline only)



Strategy & Concept (10%)	Planning, Design & Engineering (30%)	Detailed Design (60%), Funding & Procurement	Tenders, Final Design (100%) Construction	Test Commission PROJECT OPENING
4 years	2 years	1-2 years	4 years	2 years
Places to Grow	PDE project	MAE to Metrolinx	RFQ	LRV delivery
The Big Move	Making the Case	Infrastructure Ontario- AFP/P3	Tender long list	Staff recruitment
Official Plan	Engagement	MSF	Evaluation	Training
GRIDS- Nodes & Corridors	B-Line Nodes & Corridors	Procurement Options	Tender Documentation	"Shadow timetable"
B-Line BCA	Secondary Plan	Funding Decision	Shortlist & Appoint Partners	Advanced publicity
Contribution Agreement	A-Line Pre-Feasibility	Design work	Final Designs	SYSTEM OPENS
PDE scope		A-Line PDE work	Advanced Works	
			Construction	



 Thank You