

Technical Summary for Phase 2 Consultation

April 2, 2014





About this Technical Summary

This Technical Summary has been prepared to provide background context and complete information about the network design concepts being presented in Phase 2 consultation on the Downtown Bus Service Review. It serves as a technical reference document to support highly informed participation in this phase of consultation. Public feedback is being collected through an online questionnaire and at in-person consultation events. A set of display boards has also been prepared, providing a more concise overview of this material.

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1 About the Downtown Bus Service Review

Overview

TransLink and the City of Vancouver (the City) have partnered to review local bus services within downtown Vancouver and develop a shared vision for the future. The results of this review will help guide decision-making at the City and TransLink and ensure that efforts are coordinated to achieve our common goals. The Downtown Bus Service Review (DBSR) will supplement the <u>Vancouver/UBC Area Transit Plan</u> (2005) and build upon the goals and policies of the City of Vancouver's recently adopted <u>Transportation 2040 Plan</u> (2012).

Context

Downtown Vancouver is a dynamic and evolving area that people from all over the region travel to, from and within every day. Over the past twenty years the downtown population has more than doubled, with most of this growth occurring in neighbourhoods east of Granville Street, such as Yaletown, Downtown South and along False Creek. The Canada Line was also built in 2009, introducing new rapid transit stations downtown. Changes in land use and population continue to occur downtown, guided by the City's planning, zoning and development plans and policies.

The outcomes of this review will help inform decisions surrounding a number of City-led initiatives, including:

- Seasonal closures of the 800-block of Robson Street (between Hornby and Howe), and consideration of a permanent closure
- Relocation of the Vancouver Art Gallery and introduction of a public plaza on the 600-block of Cambie Street (between Georgia and Dunsmuir)
- Changes to the Georgia and Dunsmuir
 Viaducts and surrounding Northeast False
 Creek Area

Study Process Early 2014 June 2013 Summer 2014 Phase Issues and Alternative network Recommended network vision opportunities designs and evaluation Recommend preferred · Understand current issues Present alternative alternatives and gaps in the downtown network design concepts bus network of the downtown local Articulate a common bus network for public Identify opportunities to near-term vision for the discussion downtown local bus inform the development of alternative network designs Use feedback to evaluate network alternatives



2 What We Heard in Phase 1

From June 21 to July 15 2013, TransLink and the City consulted with stakeholders and the public to identify issues and opportunities with respect to the current downtown local bus network. Input was gathered to gain a better understanding of: how the network is used and by whom; strengths and weaknesses of the existing network; and where new services or changes to existing services may improve connections with important downtown destinations. The full *Phase 1 Consultation Summary* is available online at: translink.ca/downtownbusreview.

The following table highlights the top ten themes that were raised during Phase 1 consultation and how TransLink and the City are responding:

Legend:



Themes addressed in Phase 2



Themes addressed through ongoing work



Themes to be addressed in future work

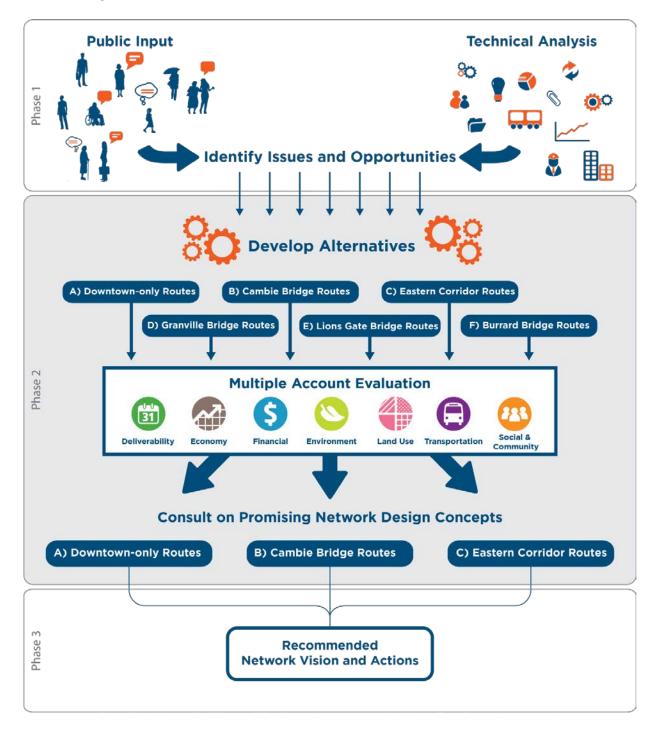
What we heard: What we're doing:

1	Update downtown bus service to better reflect customer travel patterns.	8	See promising network design concepts.
2	Increase service levels, particularly during peak hours, evenings and weekends.	*	TransLink anticipates future service increases as demand increases and resources become available.
3	Design routes to be direct and easy to understand.	9	See promising network design concepts.
4	Design routes to be consistent and dependable.	8	See promising network design concepts.
5	Improve communication of closures and reroutes.	0	We'll continue to communicate road closures and service changes with signage, notices in local papers, and online. Subscribe for alerts at www.translink.ca/alerts.
6	Improve reliability of bus service (reduce bunching).	*	We'll pursue additional transit priority measures on key transit corridors downtown following completion of this review.
7	Improve connections between downtown neighbourhoods.	9	See promising network design concepts.
8	Integrate bus services with the rapid transit network.	9	See promising network design concepts.
9	Improve bus stop amenities and accessibility features.	*	We'll work to optimize bus stop locations and amenities through corridor reviews following completion of this review.
10	Introduce a downtown circulator or loop service.	9	See promising network design concepts.



3 Phase 2 Approach

Following Phase 1, alternative network concepts were designed to respond to these key themes. Proposed concepts were evaluated using an industry standard process called a Multiple Account Evaluation. This process considers a wide range of factors to identify the potential benefits and impacts for each alternative design concept. Each of the proposed concepts was put through the process illustrated below and some promising alternatives emerged.





Phase 2 Consultation

The purpose of Phase 2 consultation is to gather public feedback on the most promising network design concepts emerging from this review, which are discussed under the following three focus areas:

- A) Redesigning Downtown-only Routes (5, 6, C21, C23)
- B) Redesigning Cambie Bridge Routes (17)
- C) Redesigning Eastern Corridor Routes (3, 4, 7, 8, 19, 200s*) *200s services include 209, 210, 211 and 214

Input from this phase of consultation will help refine and inform the final evaluation of the proposed network design concepts and development of recommendations within each of these priorities.

4 Promising Network Design Concepts

The following section describes only the most promising alternative network design concepts and their preliminary evaluation results. All concepts were evaluated against the Business as Usual (BAU) scenario, where the bus network remains the same as it is today.

The Multiple Account Evaluation framework is summarized in the table below, including the qualitative scale used to illustrate results. Within the financial account, capital and incremental operating costs are also shown for each concept. Capital costs include installation costs of trolley overhead infrastructure only. Costs associated with bus stop changes and transit priority measures are not included.

Multiple Account Evaluation					
	Account	Criteria			
	Economy	☐ Access to Local Businesses and Institutions☐ Goods Movement			
	Environment	☐ Emissions Reduction			
6	Financial	□ Capital Costs □ Incremental Operating Costs □ Asset Optimization □ Cost-effectiveness			
223	Social and Community	□ Transit Access □ Safety & Security □ Neighbourhood Impacts □ Urban Design & Public Realm			
	Transportation	□ Transit Network Design □ Transit Customer Experience □ Active Transportation Modes □ Motorized Transportation Modes □ Transit Travel Times			
	Land use	☐ Local Municipal Land Use Objectives☐ Regional Land Use Objectives			
31	Deliverability	□ Ease of Implementation □ Funding and Affordability □ Acceptability			

Qualitative Scale				
×××	Significant negative impact / Significantly adverse			
××	Moderate negative impact / Moderately adverse			
×	Slight negative impact / Slightly adverse			
-	Neutral / No impact (BAU)			
✓	Slight positive impact / Slight benefit			
√ √	Moderate positive impact / Moderate benefit			
///	Significant positive impact / Significant benefit			





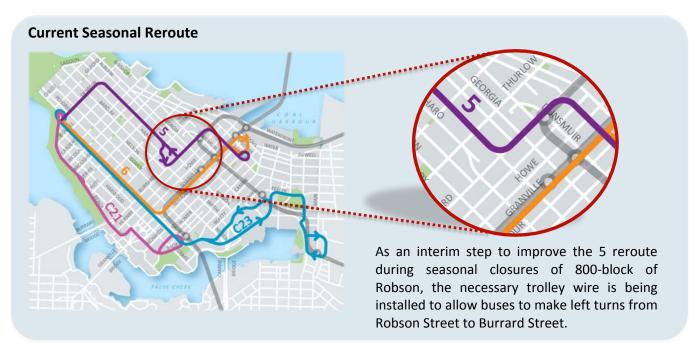
4.1 Redesigning Downtown-only Routes (5, 6, C21, C23)

The following alternative design concepts for consideration involve changes to current downtown-only bus routes, including: 5 Robson/Downtown, 6 Davie/Downtown, C21 Yaletown/Beach, and C23 Davie/Yaletown/Main St Station. The concepts address a number of key themes identified during Phase 1, in particular those related to simplicity and directness, improving connections between downtown neighbourhoods, and integrating bus services with the rapid transit network.

Current Routes



The current 5 and 6 routes effectively connect the West End to the Central Business District and enable connections to regional services including Expo, Millennium and Canada Lines as well as the SeaBus. Minibus route C21 provides coverage service along Beach Ave and connects to the Canada Line at Yaletown Station. Minibus route C23 overlays the 6 on Davie St and extends service to the Canada Line at Yaletown Station. It also provides coverage service through Northeast False Creek via Expo and Pacific Boulevards, and connects to the Expo and Millennium Lines at Stadium and Main St Stations. During seasonal closures of the 800-block of Robson, the 5 is rerouted via Thurlow, Smithe, Burrard, and Pender.





Key Issues & Opportunities:

- Service between the West End and Yaletown does not meet demand.
- No trolley wires on Davie Street east of Richards.
- Ongoing, planned or potential road closures that affect bus routes.
- No direct services connecting the West End or Yaletown to Gastown.
- Interest in a "loop" service connecting downtown neighbourhoods.

Road Closures to consider...

A number of ongoing, planned or potential road closures within downtown affect which streets are available to transit. These closures were taken into account through the development and evaluation of alternative network design concepts. The outcomes of this review will inform these decisions as they are made by the City of Vancouver.



800-block Robson - between Howe and Hornby

The City is exploring the idea of converting the 800-block of Robson Street into a permanent year-round public plaza. The City reports strong public support for this pedestrian-only space as received through public feedback and stakeholder consultation processes, including the Greenest City and the Transportation 2040 Plan. The results of this review will inform Council about the importance of this block with regards to transit service.



600-block Cambie - between Georgia to Dunsmuir

The City is exploring the potential redevelopment of the 600-block of Cambie Street, as part of the new Vancouver Art Gallery exhibition space. The redevelopment would potentially transform the street into a pedestrian plaza that may be semi-permeable to bikes and transit. The alternative design concepts presented in this phase of consultation take into account the potential closure of this block to transit. The results of this review will inform Council about the importance of this block with regards to transit service.



Granville Street

The Vancouver Police Department initiates closures of the Granville Entertainment District (between Helmcken and Robson) on weekend evenings after 9:00pm in the interest of public safety. In addition, a number of festivals and VIVA Vancouver activations lead to closures on summer weekends. During these closures, transit services are rerouted north-bound via Seymour Street and south-bound via Howe Street. This review will inform TransLink decisions regarding transit operations and communications during these closures.





L-Shaped Loop (Concept A1)



Concept Description

- 6 would extend via Davie and Cambie Streets to Yaletown and Stadium Station.
- 5 would remain on Robson Street and Granville Street and connects with the 6 near Stadium Station.
- C21 would provide service along Beach Avenue and through Northeast False Creek to Main Street Station, replacing the C23.

Concept A1 involves the introduction of an L-shaped loop through the extension of the 5 and 6 services, with three concept variations to respond to potential closures on 800-block of Robson and 600-block of Cambie (see next page). This would introduce full-sized trolley bus service along the full length of Davie Street. The C23 would be discontinued since it would provide a duplicate service along a portion of the trolley route. To ensure no loss of service for customers, the C21 would be extended to maintain service through Northeast False Creek to Main Street Station.

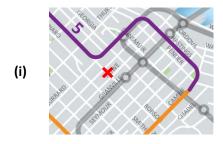
Benefits & Trade-offs

- Easy to understand loop covering the downtown peninsula.
- Improved connections between West End, Yaletown and Gastown.
- Connections to rapid transit lines maintained or enhanced.
- Maintains direct connections from Robson Street to key destinations on Granville Street.
- Direct routes improve reliability and speed.
- 5 would need to be rerouted during closures of Granville or Robson Streets.
- Transfer required from Davie Street to access destinations at north end of Granville Street.
- C21 offers direct connections from Beach Avenue to Expo/Millennium Line Stations.



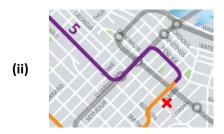


Concept variations for potential road closures on 800-block Robson and/or 600-block Cambie



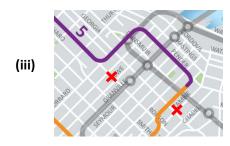
If 800-block Robson is closed to transit:

- 5 reroutes via Burrard and Hastings, which requires additional trolley wires.
- Transfer required to access key destinations on Granville Street
- Route remains consistent during Granville Street closures.



If 600-block of Cambie is closed to transit:

- 6 reroutes via Robson and Hamilton; 5 operates via Pender instead of Hastings.
- Use of Hamilton Street instead of Cambie Street increases distance to Stadium-Chinatown Station.
- Use of Pender Street instead of Hastings Street increases distance to Waterfront Station.



If 800-block of Robson and 600-block of Cambie are closed to transit:

- 5 reroutes via Burrard and Pender.
- 6 reroutes via Robson and Hamilton.
- Use of Hamilton Street instead of Cambie Street increases distance to Stadium-Chinatown Station.
- Use of Pender Street instead of Hastings Street increases distance to Waterfront Station.
- Transfer required to access key destinations on Granville Street.
- Route remains consistent during Granville Street closures.

	Concept A1	Concept variations for road closures			
	Concept A1	(i)	(ii)	(iii)	
	via		via		
	Granville,	via Burrard,	Granville,	via Burrard,	
	Hastings	Hastings and	Pender and	Pender and	
	and Cambie	Cambie	Hamilton	Hamilton	
Infrastructure Assumptions	800-block Robson and 600-block Cambie remain open to transit	800-block Robson is closed to transit	600-block Cambie is closed to transit	800-block Robson and 600-block Cambie are closed to transit	
Account	Score	Score	Score	Score	Description
Economy	/ /	√√	/ /	✓	 Improved access to businesses and key destinations, such as rapid transit stations Easy to understand loop



					stretching full length of downtown peninsula Concepts with road closure offer less direct access to rapid transit stations
Environment	✓	✓	✓	✓	 Improved connectivity may reduce single occupancy vehicle trips
Financial	Capital Cost: \$850,000 Δ Op. Cost: -\$970,000/yr	Capital Cost: \$1.2 M Δ Op. Cost: -\$690,000/yr	Capital Cost: \$1.4 M Δ Op. Cost: -\$850,000/yr	Capital Cost: \$1.7 M Δ Op. Cost: -\$680,000/yr	 Significant capital costs of trolley overhead expansion High cost-effectiveness as connectivity improvements and potential ridership increases outweigh costs
Social and Community	√ √	√ √	√ √	√ √	 Improved connections between multiple downtown neighbourhoods Better access to community services and resources Concept variations allow for improvements to public space near the 800-block of Robson and/or 600-block of Cambie
Transportation	///	4 4 4	√ √	√ √	 Improved service between downtown neighbourhoods and regional rapid transit Improved coverage of downtown peninsula Concepts with 600-block Cambie open to transit provide the most direct connections with key rapid transit stations
Land Use and Urban Development	//	✓	✓	✓	Consistent with city and regional land use objectives
Deliverability	×	×	×	×	 3-4 year implementation High capital cost

Summary of Evaluation Results

These evaluation results vary based mainly on effects on connectivity to key destinations and rail rapid transit stations. Each of the L-shaped loop concepts creates an easy to understand downtown loop that stretches the full length and width of the downtown peninsula. Service between all downtown neighbourhoods is improved and direct connections are maintained or enhanced to the Canada Line, Expo and Millennium Line stations. Directness of routes and walking distances to rapid transit stations vary for each scenario. In all L-shaped loop concepts, route 6 would no longer serve the length of Granville Street, but customers would have access to other frequent services along that corridor.





Rectangular Loop (Concept A2)



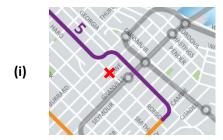
Concept Description

- 6 would extend via Davie Street to Yaletown Station.
- 5 would extend along the full length of Robson Street and connects with the 6 on Cambie Street.
- C21 would provide service along Beach Avenue and through Northeast False Creek to Main Street Station, replacing the C23.

Concept A2 involves the introduction of a rectangular loop by extending routes 5 and 6 to Robson Street and Cambie Street, respectively, with a concept variation to allow for the potential closure of the 800-block of Robson. This concept would introduce full-sized trolley bus service along the full length of Davie Street. The C23 would be discontinued since it would provide a duplicate service along a portion of the trolley route. To ensure no loss of service for customers, the C21 route would be extended to maintain service through Northeast False Creek to Main Street Station.

Benefits & Trade-offs

- Easy to understand loop stretching full length of downtown peninsula.
- Improved connections between West End and Yaletown.
- Connections to rapid transit lines maintained or enhanced.
- Loss of direct connections to some rapid transit stations and the Central Business District.
- Direct routes improve reliability and speed.
- Transfer required from Davie and Robson Street to access destinations at north end of Granville Street.
- C21 offers direct connections from Beach Avenue to Expo/Millennium Line Stations.



If 800-block Robson is closed to transit:

- 5 reroutes via Burrard and Georgia.
- High capital cost of trolley wires on Georgia Street.
- Traffic and transit volumes on Georgia Street may impact service speed and reliability.
- More turns may impact service speed and reliability.





Evaluation Results:

	s:	Concept variation	
	Concept A2	(i)	
	via Robson and Cambie	via Georgia and Cambie	
Infrastructure	800-block of Robson	800-block of Robson is	
Assumptions	remains open to transit	closed to transit	
Account	Score	Score	Description
Economy	✓	✓	 Access is increased to some business areas while reduced to others Easy to understand loop stretching full length of downtown peninsula
Environment	✓	✓	 Improved connectivity may reduce single occupancy vehicle trips
Financial	Capital Cost: \$700,000 Δ Op. Cost: -1.8 M/yr	- Capital Cost: \$2.0 M Δ Op. Cost: -1.4M/yr	 Significant capital costs of additional trolley wire for variation via Georgia Cost-effective, but weaker connections to key destinations such as Waterfront
Social and Community	-	✓	 Improved service coverage in Yaletown Decreased access to some community services and resources Concept variation allows for improvements to public space on 800-block of Robson Concept variation offers better access to community services and resources on Georgia
Transportation	√ ✓	✓	 Improved connectivity between West End and Yaletown, including Canada Line station Improved service coverage in Yaletown area Variation offers more direct connections with rapid transit, but may impact auto traffic on Georgia
Land Use and Urban Development	✓	✓	Consistent with city and regional land use objectives
Deliverability	-	×	 3-5 year implementation High capital cost, particularly for trolley expansion on Georgia

Summary of Evaluation Results

While Concept A2 and the variation concept are similar, the evaluation results vary based mainly on associated infrastructure costs and effects on connectivity to key destinations and rail rapid transit stations. The rectangular loop concept creates an easy to understand downtown loop that stretches the full length of the downtown peninsula. Service is improved to the Canada Line and between the West End and Yaletown neighbourhoods. However, connections to Gastown and Chinatown are not improved and walking distances to Expo and Millennium Lines are increased. In both concepts, route 6 would no longer serve the length of Granville Street, but customers would still have access to other frequent services along that corridor.





4.2 Redesigning Cambie Bridge Routes (17)

These alternative design concepts involve changes to the 17 Oak/Downtown bus route entering Downtown via the Cambie Bridge. The concepts address key themes identified during Phase 1, in particular those related to simplicity and directness and integrating bus services with the rapid transit network. Either of these concepts could be combined with the L-shaped loop or rectangular loop concepts (A1 and A2) to complete a vision for the downtown bus network.

Current Routes



The current 17 routing enters downtown via the Cambie Bridge and follows a large oneway loop via Hamilton, Robson, Granville, Pender and Cambie.

Key Issues & Opportunities:

- One-way loop service is unclear and inconvenient for some customers, particularly for trips within downtown.
- Current trolley wire prevents two-way service on Cambie Street and limits options for turning locations.
- This is the only direct service connecting Yaletown to Gastown, Chinatown and the Central Business District.
- The possible relocation of the Vancouver Art Gallery may involve the closure of 600-block of Cambie Street (between Georgia and Dunsmuir).



Two-Way 17 via Cambie (Concept B1)



Concept Description

This concept involves the introduction of twoway service on the 17 along Cambie Street with a one-way loop turn-around via Hastings, Seymour and Cordova.

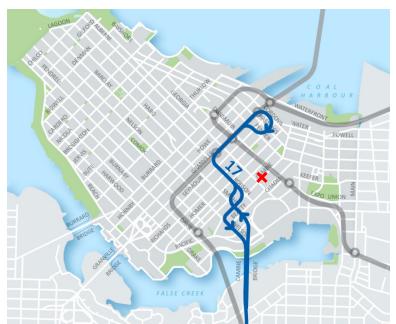
Benefits & Trade-offs

- Improves clarity and usefulness.
- Improves connections between Yaletown and Gastown.
- Maintains connections with rapid transit stations.
- Loss of direct access to Granville Street and parts of the Central Business District
- Requires introduction of trolley wires north-bound on Cambie Street
- Would be impacted by closure of 600block of Cambie Street

Evaluation Results). 	1
	Concept B1	
	Two-way via Cambie	
Infrastructure	600-block of Cambie	
Assumptions	remains open to transit	
Account	Score	Description
Economy	✓	Access to key business areas and destinations is improved
Environment	-	No shift in mode share to transit expected
Financial	Capital Cost: \$230,000 Δ Op. Cost: \$36,000/yr	Modest capital cost to introduce two-way trolley overhead on Cambie Street
Social and Community	✓	Access to key community services and destinations is improved
Transportation	√ √	 Improved simplicity and clarity of the downtown bus network Improved connectivity to key regional destinations and rapid transit stations
Land Use and Urban Development	-	Consistent with city and regional land use plans and policies
Deliverability	-	 2 year implementation Low capital cost



Two-Way 17 via Robson and Granville (Concept B2)



Concept Description

This concept involves the introduction of twoway service on the 17 along Robson and Granville Street with a one-way loop turnaround via Cordova, Richards and Pender.

Key Benefits & Trade-offs

- Improves clarity and usefulness.
- Reduces connections between Gastown and Yaletown.
- Maintains connections with rapid transit stations.
- Maintains direct access to Granville Street and parts of the Central Business District.
- Could be implemented without changes to trolley wires
- Would not be impacted by closure of 600-block of Cambie Street

Evaluation Results).	
	Concept B2	
	Two-way via Cambie	
Infrastructure	600-block of Cambie may	
Assumptions	be closed to transit	
Account	Score	Description
Economy	✓	Access to key business areas and destinations is improved
Environment	-	No shift in mode share to transit expected
Financial	√ √ Capital Cost: \$0 Δ Op. Cost: \$160,000/yr	 Zero capital cost and modest operating cost implications Cost-effective improvement to network legibility
Social and Community	✓	Access to key community services and destinations is improved
Transportation	√ √	 Improved simplicity and clarity of the downtown bus Improved access to key regional destinations and rapid transit stations
Land Use and Urban Development	-	Consistent with city and regional land use plans and policies
Deliverability	-	6 month implementation Negligible cost



4.3 Redesigning Eastern Corridor Routes (3, 4, 7, 8, 19, 200s)

The following alternative design concept involves changes to bus routes currently operating in and out of downtown via the eastern corridors of Powell, Cordova, Hastings, and Pender. The concept addresses key themes identified during Phase 1, in particular those related to simplicity and reliability.

Services operating via these eastern corridors carry approximately 23,000 people in and out of downtown Vancouver each day. Several of these services follow confusing routings with multiple turns before reaching the downtown core.

Current Routes



The current 4, 7 and 200s from the Ironworkers Memorial Bridge enter downtown via Powell Street, Main Street, and Pender Street, and leave via Cordova Street. The 4 and 7 continue west along Granville Street to serve their respective corridors outside of downtown while the 200s terminate at Burrard Station.

The 3 and 8 come in and out of downtown via a one-way loop west of Main Street, using Hastings, Seymour and Cordova Streets.

The 19 operates two-way via Pender Street.

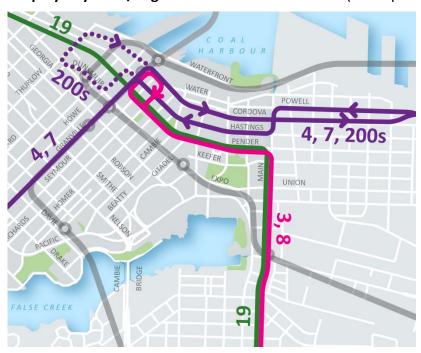
Key Issues & Opportunities:

- Routes 4, 7, and 200s (209, 210, 211, 214) follow confusing and inconsistent routings in and out of downtown, using Powell Street and Pender Street westbound and Cordova eastbound.
- Routes 3, 8 and 19 operate on different streets downtown while serving the same Main Street corridor.
- The variety of service routings in and out of downtown creates confusion and frustration for customers.
- Services operating on Pender Street are particularly slow due to traffic congestion and pedestrian volumes.





Simplify City-wide/Regional Services West of Main (Concept C1)



Concept Description

- 4, 7 and 200s would be rerouted via Hastings inbound west of Main Street.
- All Main Street local services (3, 8, 19) would operate via Pender Street.
- All other Eastern Corridor routes would remain the same including the 20, 22 and 135.

Benefits & Trade-offs

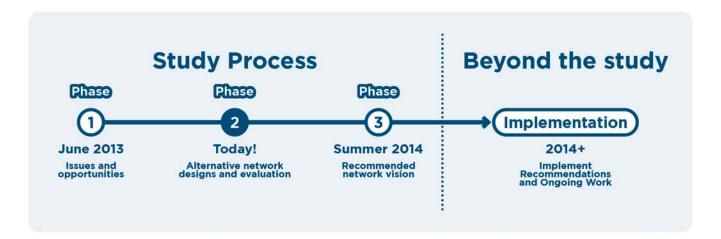
- Improves clarity and usefulness from grouping Main Street services onto Pender Street and city-wide/regional services onto Hastings Street.
- May improve service speed and reliability.
- May require additional transit priority measures to manage increased bus service on Hastings Street

	Concept C1 Simplify City-Wide Services West of Main	
Account	Score	Description
Economy	-	No significant effect on economy
Environment	-	No shift in mode share to transit expected
Financial	– Capital Cost: \$200,000 Δ Op. Cost: None	 Low capital cost of trolley overhead changes No change in operating costs Cost-effective way to improve network legibility
Social and Community	-	Community access to transit is maintained
Transportation	✓	 Improved network clarity Improved service reliability Loss of direct connection at Main and Hastings
Land Use and Urban Development	-	Consistent with city and regional land use plans and policies
Deliverability	-	1 year implementationLow capital cost



5 Next Steps

Following Phase 2 Consultation, the study team will refine the set of promising network design concepts and their evaluation to complete Phase 2. In Phase 3, a network vision and associated actions will be recommended. This vision will help guide decision-making by TransLink and the City over the next five years, ensuring that we are working together to achieve our common goals.



Beyond the Study



Implement Recommendations

TransLink and the City will invest in the infrastructure and service changes necessary to achieve the network vision. Timing of implementation will depend on resource availability and regional priorities.



Ongoing Work

Guided by the network vision, TransLink and the City will continue to work together to improve downtown bus service, applying existing policies and practices to:

- Adjust service levels to meet demand.
- Optimize bus stop locations and amenities.
- Expand transit priority measures on key transit corridors.
- Refine layover locations and timing points.

Stay informed about the Downtown Bus Service Review online at:

www.translink.ca/downtownbusreview



