

Central Fraser Valley Transit

Service Improvement Review - Summary



FINAL March 2015



1.0 Executive Summary

The purpose of this document is to summarize implementation strategies for proposed routing and schedule changes for the Central Fraser Valley (CFV) Transit System for discussion and approval by the local partners. The service change proposals are designed to meet the objectives of the review by primarily reallocating existing resources to grow ridership and revenue, improve ease of use and on-time performance of the transit system, and begin transitioning the system to the route structure identified in the January 2013 Abbotsford – Mission Transit Future Plan.

The Service Improvement Review originally intended to only provide options that were cost neutral. However, the detailed review exposed significant reliability or on-time performance issues that are impacting the health and marketability of the transit system. The extensive analysis of the transit system also revealed that—given the resources that would be required to address reliability, congestion and community growth—many of the proposed service changes would require some level of service expansion and/or capital investment.

Therefore, the implementation strategies for Abbotsford and Mission are split into two phases:

- **Phase One:** service changes that will focus on cost neutral service changes that would address ongoing on-time performance issues (quick wins).
- **Phase Two:** service changes that involve comprehensive network revisions that will require significant resource re-allocation, additional resources or improved infrastructure (e.g. exchange improvements).

It is recommended that the Phase One service changes be implemented as soon as possible and an implementation strategy be developed for the Phase Two service improvements.

2.0 Context

Transit has tremendous potential in Abbotsford and Mission to contribute to a more economically vibrant, healthy and sustainable community. The need to realize this potential in Abbotsford and Mission is increasingly important because of factors such as climate change, population growth, post-secondary institution growth, regional travel, an aging demographic and desire to preserve mobility for individuals who do not have access to a private automobile.

Abbotsford and Mission are projected to grow by 50 per cent, adding another 85,000 people over the next 25 years. Meanwhile, the rest of the Fraser Valley Regional District is going to add 55,000 residents, and the adjacent communities to the west (Surrey and Langley) will be larger than the City of Vancouver with nearly 1 million residents. With such significant increases in population come increases in the sheer number of vehicles and significant growth in trip making.

In 2013, the Transit Future Plan for Abbotsford and Mission was approved that identified a long term, sustainable transit system that will carry an increasing number of passengers. Increasing transit ridership is a significant strategy to address traffic congestion and thereby create more sustainable and healthier communities. The Transit Future Plan is also intended to support transit oriented developments and guide land-use decisions, and is designed to complement Abbotsford's and Mission's development plans by connecting growth nodes, key destinations

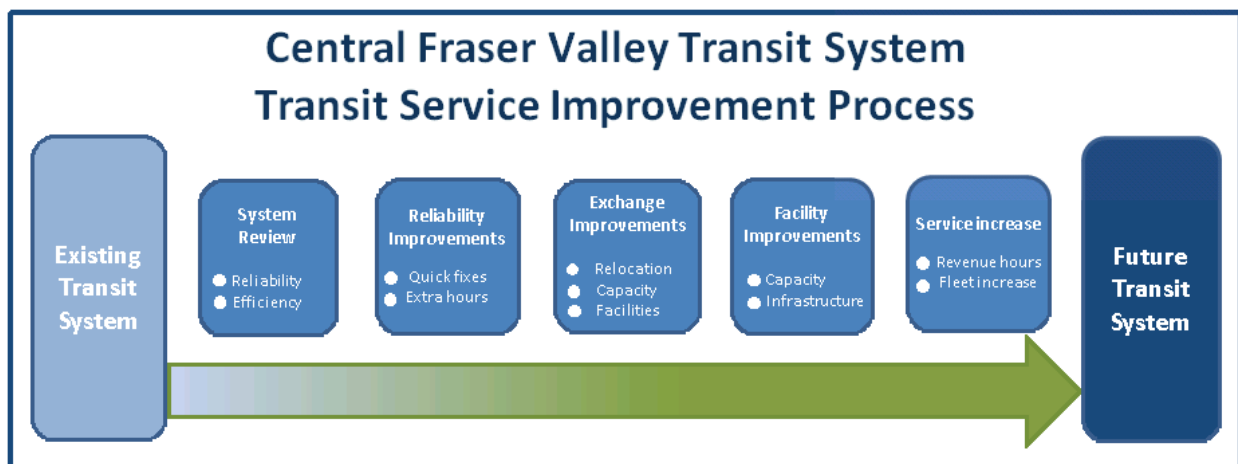
and employment areas. Therefore, transit should also be seen as one of the key tools that helps foster local and regional economic development.

Starting in April 2015, the Fraser Valley Express (FVX) will be introduced to the Abbotsford-Mission transit system. The FVX is a limited-stop regional service that is designed to connect the municipalities in the Fraser Valley to Metro Vancouver and the TransLink transit system. The introduction of the FVX will increase demand to and from the local systems in Abbotsford-Mission, therefore all service change recommendations should consider the connection opportunities between the local system and the FVX to continue to maximize ridership growth.

3.0 Background

One of the first recommendations from the Abbotsford – Mission Transit Future Plan was to conduct a system-wide Efficiency Review. The initial stages of this work was labeled an “Efficiency Review” as per the Transit Future Plan, but has evolved into the present Service Improvement Review in order to reflect the broader and more comprehensive analysis that has taken place.

The context of this Service Improvement Review is depicted in the diagram below as the first step in implementing the recommendations of the Transit Future Plan:



The steps in this process can be summarized as follows:

Step 1: Undertake a comprehensive Service Improvement Review to identify reliability improvements that would lead an increase in customer and driver satisfaction, increased ridership, increased revenue, improved cost recovery and ultimately a reduction in the local share of costs.

Step 2: Implement infrastructure improvements that support existing services as well as position the system to meet future community growth and more efficiently deliver service. This includes the focus and improvement on a downtown exchange (as opposed to the existing Bourquin Exchange behind Seven Oaks Shopping Centre) as well as addressing the capacity and maintenance limitations of the existing transit operations and maintenance center (garage) on Riverside Road.

Step 3: With the necessary infrastructure in place, expand the transit service in terms of the extent of the service day, service frequency as well as transit coverage.

At its May 2013 meeting, the Mission- Abbotsford Transit Committee (MATC) developed and approved the following three principles to guide this review:

- **Budget neutral planning:** both Abbotsford and Mission do not have the financial capacity to increase spending on transit in the short term.
- **Improve system performance** in terms of improved efficiency and increased ridership.
- **Service equity:** match the level of service to the characteristics of the area being served (i.e. neighborhoods with similar density and land use should receive a similar level of service).

The Working Group (comprised of staff from the District of Mission, City of Abbotsford, operating company First Canada ULC and BC Transit) has worked to collect and analyze system ridership and running times to identify service adjustments. Appendix A shows the summary of this performance analysis at the route level.

In addition to the principles noted above, the Working Group has been mindful of the long term vision of the Transit Future Plan, the Official Community Plans of each community and the potential passenger and infrastructure impacts when developing the service proposals. The review therefore included:

- discussions with transit operators and riders about the changes;
- on-board ride checks and ridership counts of key routes and segments that would be most affected by the changes;
- analysis of Automated Passenger Counter and electronic farebox data; and
- operational testing and timing of service options.

As mentioned previously, the original scope of this review was to develop cost-neutral options to improve the transit system. However, based on the detailed analysis of the system and its current operating issues, it was determined that many of the service changes prescribed will require some level of expansion resources or capital investment.

4.0 Public Engagement

A significant amount of community engagement was conducted in 2014 to ensure that service change recommendations reflect the needs and priorities of the communities. The process was led by BC Transit with support from the City of Abbotsford, the District of Mission, First Canada staff and drivers as well as stakeholder groups and local community members.

The engagement strategy was designed to achieve the following goals:

- Identify and solicit targeted feedback from major institutions, organizations, key community groups and community members.
- Employ a variety of methods and means to stimulate participants and ensure a wide range of citizens were reached.
- Ensure the final recommendations reflect the public's needs and desires by incorporating feedback into the proposed service changes within the limitations of the approved project objectives.

The public engagement included a series of open houses, a project website, online and print surveys (in both English and Punjabi), on-board transit passenger information cards, posters and one-on-one meetings with organizations as required. Events were advertised through a variety of print media, advertisements, posters, social media and radio commercials. Stakeholders were also emailed directly with information about the proposed changes, including details on the engagement process opportunities and a link to the website and asked to distribute the information to their colleagues, patients, clients and members.

In total, over 200 individuals were engaged at the open house events and a total of 416 survey responses were received. A full summary of the engagement can be found in the CFV Efficiency Review Public Engagement Report, which was presented in March 2014.

5.0 On-Time Performance

As part of this review, an in-depth analysis of the existing transit schedules in both Abbotsford and Mission was undertaken. Based on this analysis, it was identified that there are significant on-time performance (service reliability) issues in the transit system that are having significant impacts on both existing and potential customers as well as the transit system's front line staff (transit operators):

- To customers, unreliable service affects their perception of service quality, the attractiveness of transit compared to the other mode choices, the perception of value for money and their willingness to use the service or recommend it to others.
- To the system's transit operators, the impact of poor on-time performance usually manifests itself in increased customer confrontation, lack of time to provide good customer service, greater risk of speeding and higher staff turnover due to poor morale.
- To local transit agencies this translates to loss of ridership and revenues resulting in higher costs to provide additional service to compensate for unreliable service operations.

In the CFV transit system the most common causes of service unreliability relate to:

- Growth in traffic volumes and resultant congestion – scheduled times allotted to each trip have not kept pace with actual running times and this lack of adequate time is further exacerbated by maintenance activities and road construction. For example, the route serving the Huntingdon area is regularly affected by increased heavy traffic volumes at the USA border which in turn significantly affects the on-time performance of this route.
- Delays at at-grade railroad crossings – for example the Mission-Abbotsford Connector (Route 31) traverses three railroad crossings in the vicinity of Matsqui Village and the published schedule makes no provision for extra time for trips that leave the highway to serve this community. With the increase in rail traffic that has been evident over the past number of years, significant delays are being experienced on a regular basis.
- Passenger loads – The Bluejay-Huntingdon route (Route 2) is regularly delayed by heavy passenger ridership, including a notable proportion of riders who are seniors with mobility issues that often require more time to board.
- Increased pressure to serve new areas of development - The Cedar Valley route (Route 33) in Mission regularly arrives late simply because the routing has evolved to try to serve an expanded community footprint and is now too long for the run time assigned in the schedule.

It should be noted that due to the size of the CFV transit system and the area that it serves, it relies on transfers for riders to complete their trips. Therefore, different trips converge on the transit exchanges at approximately the same time in order to facilitate transfers before dispersing. Therefore when a specific trip on a specific route runs behind schedule and misses a connection at the exchange - or causes other routes to delay their trips in order to meet it - it potentially has a domino effect on the rest of the service. A very pertinent example of this occurrence is when Route 31 (Abbotsford-Mission Connector) is delayed at the West Coast Express station due to the delay in a train arrival, which then often compromises the connections to other trips at the Bourquin Exchange in Abbotsford.

Service reliability is maintained by adding “recovery” time to the trip. The recovery time is a planned time allowance for the bus (and driver) between the arrival time of a just completed trip and the departure time of the next trip. This additional time acts as a crucial buffer in order to allow the route to return to the “published” schedule if traffic, loading or other conditions have made the trip arrive late. This time may also be used by the driver for a (bathroom) break before departing on his/her next trip.

In similar sized transit systems, recovery time makes up approximately 12 to 15 percent of the total revenue hours in the system. This is an industry standard to ensure reliable system performance.

The following table provides a summary of the schedule recovery time for the CFV transit system compared to comparable systems in British Columbia.

System	Annual Revenue Hours	Weekday Recovery %	Saturday Recovery %	Sunday Recovery %
CFV	108,617	6.23%	6.37%	7.38%
Kamloops	106,192	11.47%	13.31%	14.33%
Kelowna	175,098	13.85%	15.22%	17.08%
Nanaimo	113,892	15.85%	20.28%	16.97%
Whistler	62,123	14.50%	14.50%	14.50%

In the CFV system, there is currently only 6-7% recovery time allocated for the transit system. This reflects minimal recovery time in comparison to similar systems and this lack of recovery time is further exacerbated by the already insufficient running times on certain routes. This means that routes lack the basic foundational resources required to operate on-time and meet the published schedule.

As mentioned, since many of the routes are interlined - meaning that each bus will operate trips on multiple routes over the course of a day - on-time performance issues can have a domino effect where multiple routes run behind schedule which can even lead to incomplete or cancelled trips in order to get back on scheduled time for the remaining trips.

The best strategy to deal with on-time performance issues is to ensure that trip running times reflect actual operating conditions (schedule times reflect expected delays) and that sufficient recovery time is provided as a contingency buffer at the end of trips to correct to the scheduled next departure in the event of an unforeseen delay.

Additional strategies include:

- Regular system monitoring to enforce balanced and consistent intervals between trips to avoid poor spacing of departing buses; this in turn ensures that ridership is more evenly spaced between trips which reduces overcrowding and ensures a more positive customer experience.
- Using control strategies such as traffic signal priority, transit-only lanes or queue jump lanes at congested intersections to assist in reducing the variability in running times and manage the spacing of service.

For service changes to be cost neutral, there are two approaches that can be followed to address on-time performance issues, namely:

1. Reduce the total number of trips on certain routes in order to invest the time saved into additional running time resources for each trip, and/or
2. Reduce the routing distance of certain routes to reduce the total running time.

Based on feedback collected in stakeholder and public engagement throughout 2014, the preferred approach to address the on-time performance issues is the second option. Public feedback likely makes sense given that when compared to its peers of a similar population size, the Central Fraser Valley system already offers the lowest number of service hours per capita and offers some of the lowest service frequencies for urban routes. This public feedback and analysis means that it is recommended that the CFV transit system maintain service frequencies and focus on discontinuing certain low-performing or overlapping sections of transit routes and reinvest the time saved into the existing operating schedules.

6.0 Service Implementation Summary

This section provides an overview of the system restructuring recommendations for Mission and Abbotsford which is split into two phases:

- **Phase One:** Cost neutral service changes that immediately address ongoing on-time performance issues.
- **Phase Two:** More comprehensive network revisions that will require additional resources, improved infrastructure or significant resource re-allocation.

6.1 Mission – Phase One

The focus of the cost-neutral Phase One service changes within Mission has been to improve on-time performance and to identify opportunities to build ridership and thus revenue, to offset local costs through the following:

- Improving the ease-of-use of the service and therefore its attractiveness to new customers by reducing the number of routing variations
- Increasing service to and from major destinations such as Walmart and the Real Canadian Superstore
- Increasing the directness of travel for commuters travelling between Mission and Abbotsford on the 31 Mission-Abbotsford Connector
- Reducing duplication and making routing changes that will help preserve the on-time performance and schedule reliability of the system.

Based on the in-depth review and consultation, the table below summarizes the Phase One recommended improvements to the Mission transit system. It should be noted that some of these changes will be implemented April 6, 2015, to coincide with the Fraser Valley Express introduction.

Route	Service Change(s)	Benefits	Challenges	Implementation Date
Mission				
31 Abbotsford/Mission Connector	To improve on-time performance, reduce the number of trips that leave the highway to serve Matsqui Village.	Customers benefit from improved on-time performance, particularly with local service connections. Better matches service levels in Matsqui to the level of ridership.	Customers who currently use the service in Matsqui Village will have reduced service.	Proposed Fall 2015
32 West Heights	To improve on-time performance, adjust the routing of the limited service along Wren and the Mall Access Road and service to the Hospital.	Customers benefit from improved on-time performance, particularly with connections to the West Coast Express. Customers also benefit from a more consistent route design.	Customers who currently use the service along Scott Avenue will have to adjust their travel pattern to use the bus on Wren Street or Hurd Street. Customers accessing the Hospital may also have to change their trip pattern.	April 6, 2015
33 Cedar Valley	To improve on-time performance, adjust the routing so that service no longer extends to Junction Mall.	Customers benefit from improved on-time performance, particularly with connections to the West Coast Express. Reduces duplication of service to the mall (until this point, buses were travelling to the same location within a minute of each other).	Customers who currently use the 33 Cedar Valley to access Junction Mall will have to transfer to either the 31 Abbotsford/Mission Connector or the 39 Shopper Shuttle.	April 6, 2015
34 East Side	To improve on-time performance, remove the limited service deviations via Alder to provide more consistent service.	Customers benefit from improved on-time performance, particularly connections to the West Coast Express. Customers also benefit from a more consistent route design.	Customers who currently use the 34 East Side to access the Alder area will have to transfer to the 39 Shopper Shuttle.	April 6, 2015
40 East Mission Night	Adjust schedule so that all trips operate in a consistent counter-clockwise one way loop. Extend service to Riverside Training Centre.	Customers benefit from improved clarity of the schedule.	Customers who currently use the clockwise loop will now have a longer trip if they are departing from Downtown Mission, but a shorter trip if they are destined for Downtown Mission.	April 6, 2015
All Routes	Improve the consistency on routing to the West Coast Express Station and Downtown Mission.	Customers benefit from improved on-time performance and also benefit from a more consistent routing design.		April 6, 2015

In addition to the above service improvements, the following strategies can also assist in building ridership and maintaining a reliable transit system:

- Introduce the online trip planner to the Abbotsford-Mission transit system (April 6, 2015).
- Improve signage particularly at the downtown exchange (April 6, 2015)
- Introduce regular, annual service change dates that provide the opportunity to review and adjust schedules to ensure that they reflect actual operating conditions. For example, the Kelowna transit system currently has two regular service changes per year in April and September. These standard service change dates provide an opportunity to review on-time performance, connections and key start/finish times to ensure they are kept current.

6.2 Mission – Phase Two

The service changes for Phase Two for Mission will require either additional resources or significant resource re-allocation. As per the Transit Future Plan, Mission’s routes would evolve from their existing large loops to two-way service along key corridors. This change would make the system easier to understand, more direct and more dependable. However, prior to this significant network restructure, it is recommended that Mission focus on improving the existing transit system. Therefore, if expansion resources were to become available, the following service enhancements should be considered:

Service Improvement	Estimated Additional Service Hours*	Estimated Additional Vehicles	Estimated Additional Total Cost	Forecasted Revenue	Estimated Additional Net Local Share of Cost
Provide Sunday service on Routes 33 and 34	750	0	\$90,000	\$3,750	\$39,244
Provide Sunday levels of service on holidays on Routes 31 (jointly funded between Mission and Abbotsford)	200	0	\$24,000	\$1,500	\$11,300
Provide Sunday levels of service on holidays on Routes 32, 33 and 34	400	0	\$48,000	\$2,000	\$20,930
Extend weekday and Saturday service until 10:30 p.m. on Routes 33 and 34	1,500	0	\$180,000	\$7,500	\$78,488
Improve weekend service to Hatzic	250	0	\$30,000	\$1,250	\$13,081

*Note any expansion of vehicles is subject to the capacity of the transit center on Riverside Road in Abbotsford.. More details on the transit center are provided in section 9.0.

In addition to the service changes above, opportunities to revise (or relocate) the downtown exchange routing configurations to assist in simplifying the network, maintaining a reliable transit system and building ridership should be explored. The current one-way road network requires routes having to make circuitous detours in order to make connections. Simplifying this road network may yield additional efficiencies.

6.3 Abbotsford: Overview

When route performance was analysed and part of the Service Improvement Review, it was found that Abbotsford had both the highest and the lowest performing routes in the Central Fraser Valley transit system. At the same time, unlike Mission's route structure - where all routes are focused on the downtown exchange every half hour from which they all "pulse" out again - Abbotsford's route structure is already more linear in nature which makes it somewhat easier to restructure.

Therefore, existing routes in Abbotsford have more reason to be restructured on a route performance basis and there is also more latitude to do so within a cost-neutral environment. This has meant that the proposed restructuring within Abbotsford is much more significant than that proposed for Mission at this time.

The focus of the Service Improvement Review recommendations within Abbotsford has been to look for opportunities to increase ridership and therefore revenue, by:

- Addressing on-time performance issues.
- Transitioning the system to the longer term Transit Future Plan structure as far as possible without increasing exchange facilities at Bourquin and Downtown Abbotsford.
- Introducing Rapid line service along the South Fraser Way / McCallum / King corridors between Highstreet Mall and the University of the Fraser Valley, offering 15 minute service weekdays on this reconfigured route.
- Improving the ease-of-use of the service and therefore its attractiveness to new customers by increasing the consistency of service and reducing the number of routing variations.
- Increasing service to major destinations, in particular the Abbotsford Regional Hospital and Cancer Centre.
- Reallocating service based on ridership performance at the stop level and residential density. This has primarily meant the rationalization of service from East Abbotsford routes (where performance has generally been lower and residential areas are less dense) to service to key corridors and neighbourhoods in central and West Abbotsford. The graphic on the following page visually demonstrates how this existing ridership is distributed at the stop level and why this redistribution should be considered.

The service changes proposed below are divided into two phases:

- **Phase One:** Cost neutral service changes that that immediately address ongoing on-time performance issues.
- **Phase Two:** More comprehensive network revisions that will require additional resources, improved infrastructure or significant resource re-allocation.

6.4 Abbotsford – Phase One

For Phase One, the focus of the cost-neutral service changes within Abbotsford will be to improve on-time performance and to identify opportunities to build ridership and therefore revenue to offset local costs, by:

- Reducing duplication and making routing changes that will maximize on-time performance and schedule reliability of the system.
- Improving the ease-of-use of the service and therefore its attractiveness to new customers by reducing the number of routing variations.
- Improving integration with the new Fraser Valley Express service.
- Increasing service near popular destinations such as Highstreet Shopping Mall.
- Increasing the directness of travel for commuters travelling between Mission and Abbotsford on the 31 Mission-Abbotsford Connector.

Based on the in-depth review and consultation, the table below summarizes the recommended changes to the Abbotsford transit network. It should be noted that some of these changes will be implemented for April 6, 2015.

Route	Service Change(s)	Benefits	Challenges	Implementation Date
Abbotsford				
2 Bluejay-Huntingdon GoLine	-Reduce service operating to 2 nd and Sumas (Huntingdon) on Monday-Saturday to every second trip to improve on-time performance. Service not extended to 2 nd and Sumas will terminate at Target. -Reroute service to improve access to Highstreet Shopping Centre and adjust schedule to meet with FVX.	Customers benefit from improved on-time performance, improved access to Highstreet Shopping Centre and connections with FVX. Reduces service to Huntingdon to a level more appropriate for this lower density neighborhood.	Customers currently using the service south of Target will now have reduced service to their area.	Proposed Fall 2015
3 Clearbrook-UFV GoLine	Adjust schedule to connect with FVX at McCallum, where feasible	Customers benefit from improved connections to the FVX.	Some existing users may see minor adjustments to existing trip times.	April 6, 2015
31 Abbotsford/Mission Connector	To improve on-time performance, reduce the number of trips that deviate into Matsqui Village.	Customers benefit from improved on-time performance, particularly with local service connections. Better matches service levels in Matsqui to the level of ridership.	Customers who currently use the service in Matsqui Village will have reduced service.	Proposed Fall 2015

In addition to the service changes above, the following strategies listed below can also assist in building ridership and maintaining a reliable transit system:

- Introduce the online trip planner to the Abbotsford-Mission transit system (April 6, 2015).
- Improve signage (April 6, 2015)
- Introduce regular, annual service change dates that provide the opportunity to review and adjust schedules to ensure that they reflect actual operating conditions. For example, the Kelowna transit system currently has two regular service changes per year in April and September. These standard service change dates provide an opportunity to review on-time performance, connections and key start/finish times to ensure they are kept current.

6.5 Abbotsford – Phase Two

The Phase Two service changes summarized below reflects a more comprehensive restructuring of the Abbotsford transit network that will begin to align the service in accordance to the network vision identified in the Transit Future Plan. This comprehensive restructuring does potentially include implementing improvements at the downtown exchange on Montrose Street (see Section 7 for more details).

Based on the in-depth review and consultation, the table on the following page summarizes the conceptual recommended changes to the Abbotsford transit structure. A more detailed summary of each route change can be found in Appendix B.

Route	Service Change(s)	Benefits	Challenges
Abbotsford			
Primary Routes (1, 2, 3)	Routes 1, 2 and 3 to be reconfigured into the structure of primary routes envisioned in the Transit Future Plan. Over time, these routes will have the highest level of service and carry the bulk of passengers, many of whom will transfer to these routes from the more local routes. These routes would no longer be referred to as Go Lines.	Customers benefit from more direct and frequent service to popular destinations and corridors within Abbotsford. These routes would also act as 'spines' for the system and encourage transit oriented development along the corridors.	Service in some areas may be re-allocated and some customers who do not transfer today may have to now transfer.
Local Routes (4, 5, 6, 7, 9, 11, 12, 14, 15, 16, 17)	Local routes are redesigned to focus on neighbourhood destinations and are meant to link into the primary routes. Frequencies are adjusted to match service levels with demand and density.	Customers benefit from service levels that are more reflective of demand in their neighborhoods.	Service in some areas may be reduced or re-allocated and some customers who do not transfer today may have to now transfer.
Regional and Interregional Routes (21, 31)	Make the routes more direct and frequent and improve integration with primary and local routes.	Customers benefit from improved and more direct service, connections with primary and local service and increased access to popular destinations	Service in some areas may be reduced or re-allocated and some customers who do not transfer today may have to now transfer.
Targeted Service (School focused 22, 23, 24, 26)	Discontinue school-focused service and re-invest resources into local routes.	Improved service on local routes. The presence of these school trips as separate routes only serves to make the existing route map more confusing and discontinuing these additional routes helps to make service more clear.	Customers who currently use this service will continue to be served by the regular routes in Abbotsford and the schedule will be designed around school bell times.

In order to achieve the proposed service changes listed above, three different implementation strategies have been identified:

1. The availability of expansion hour funding together with downtown exchange improvements potentially requiring low levels of resource reallocation (reinvestment of resources from low-performing areas to high-performing areas)
2. The unavailability of expansion hour funding with only downtown exchange improvements. This would require medium levels of resource reallocation (primarily from East Abbotsford).
3. The unavailability of both expansion hour funding and no downtown exchange improvements that would require high levels of resource reallocation are required throughout the entire Abbotsford transit structure.

These implementation strategies and their impact on existing customers and projected future ridership growth are summarized below:

Implementation Strategies	Expansion Funding Availability	Downtown Exchange Improvements**	Level of resource reallocation	Potential Negative Impact to Existing Customers	Potential Positive Impact on Future Ridership Growth
1. Expansion hours + downtown exchange improvements (low resource reallocation)	Yes	Yes	Low	Low	High
2. Downtown exchange improvements only (medium resource reallocation)	No	Yes	Medium	Medium	Medium
3. No expansion, no exchange improvements (high resource re-allocation)	No	No	High	High	Low

*The estimated resources required in option 1 is approximately 3,000 – 4,000 annual service hours and approximately 2-3 expansion buses. The local share cost increase to this expansion is approximately \$300,000. Please note this may have an impact on the transit center. See section 9.0 for more information on the transit center.

**See Section 6.0 for more information on the Downtown Exchange.

Based on the table above, Implementation Strategy 1 and 2 would have the least negative impact to existing customers and the most positive impact to future ridership and growth. However, both of these options require some level of new investment. Implementation Strategy 3 with no investment would have the highest negative impact on existing riders (reduction) and also possible lead to poor growth in future ridership (attracting new riders).

7.0 Downtown Abbotsford Exchange

As summarized in the previous section, improvements to the Downtown Exchange are critical for the preferred implementation strategies that improve the transit system and realize the route structure outlined in the Transit Future Plan. This is due to the current on-street exchange on Montrose Avenue being at capacity, which in turn requires many of the transit routes serving East Abbotsford and Mission having to travel all the way to the Bourquin Exchange for their connections. The extension of these routes to Bourquin requires a significant amount of resources, needlessly duplicates service and also contributes to the ongoing on-time performance issues.

Improving the Downtown Exchange and expanding the capacity would allow the optimization of several routes which would lead to operational savings that could be re-invested into the transit system. There are two possible options for improvements to the Downtown Exchange:

1. Improving and expanding the existing on-street exchange
2. Relocating the exchange to a larger (off-street) location.

The first option would necessitate significant infrastructure improvements to the existing Downtown Exchange site that includes:

- Six large bus shelters
- Driver washroom facility
- Central barrier on Montrose Avenue (to discourage jaywalking)
- CCTV cameras
- Improved street lighting
- Pedestrian crosswalk improvements
- Removal of parking spaces on Montrose Avenue.

The estimated total cost of the above improvements is in the order of \$200,000. The risks associated with keeping the exchange at this location is that pedestrian safety issues may still persist and the investment may only be of a short-term nature if the exchange were to be relocated (to a more desirable location) in the future.

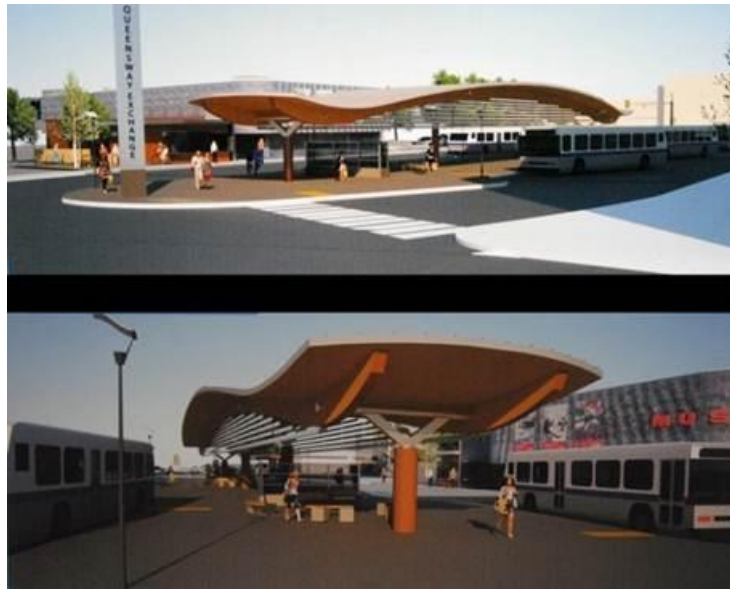
Therefore, the second option may be the better overall option over the long term. While the initial cost of relocating the exchange to more desirable location in Downtown Abbotsford is much higher (approximately \$1–2 million), the longer term benefits are much greater. A dedicated exchange in Downtown Abbotsford would:

- Provide a centralized area for transit buses and customers which improves connections and safety.
- Provide a central ‘heartbeat’ for the transit system that will allow the network proposed in the Transit Future Plan to come to fruition.
- Improve the opportunities for different routes to be operated together (or “interlined”), which in turn enables system schedules to make the best possible use of available resources.
- Assist in the revitalization of the Downtown area, promoting mixed land use opportunities.
- Increase public parking along Montrose as capacity for buses would be no longer required.

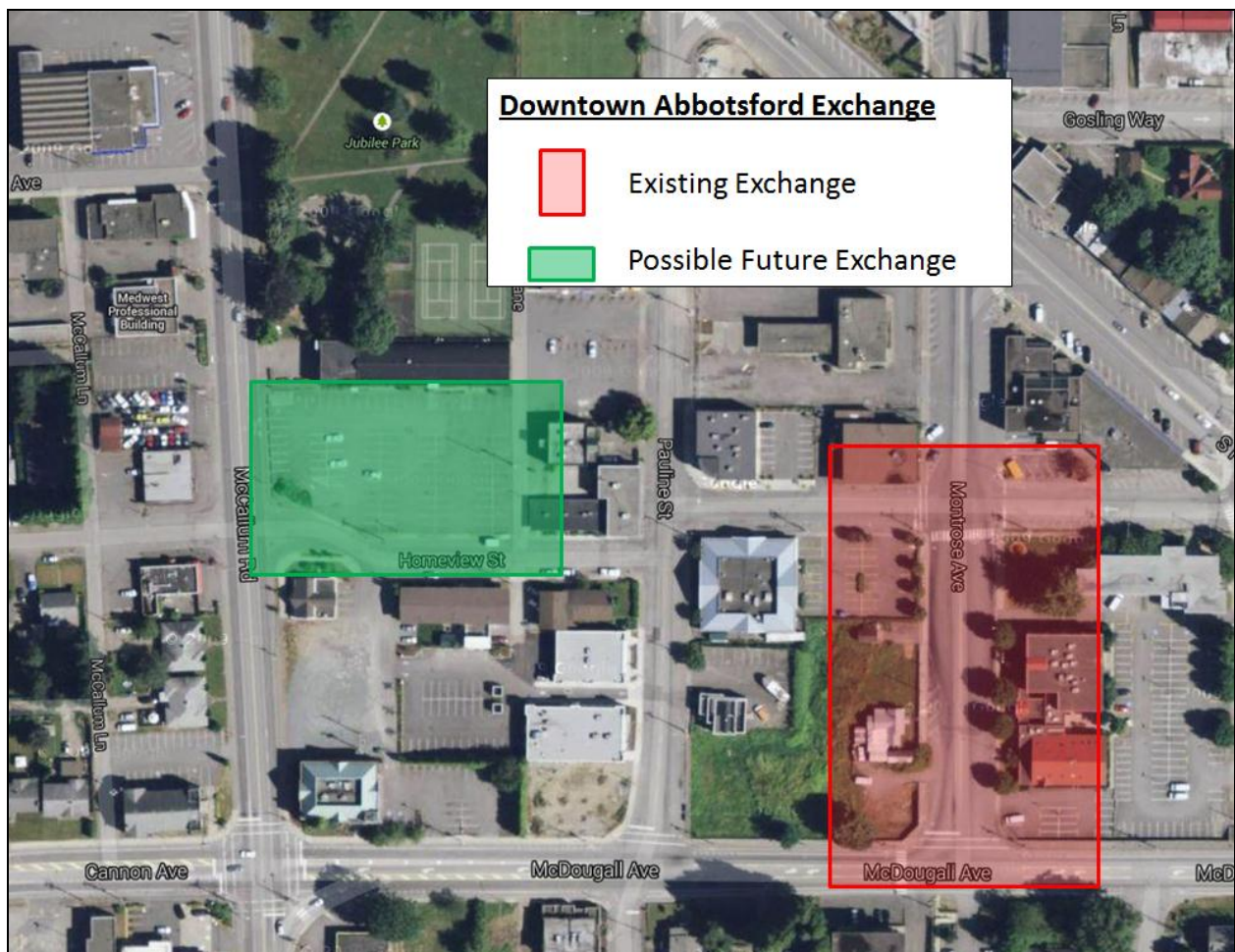
A comparable example of a Downtown Exchange that acts as a central hub for the transit system is Queensway Exchange in Downtown Kelowna. This exchange provides capacity for several different types of service including RapidBus, Frequent Transit and local service. The exchange is designed to provide a safe and accessible place for customers to transfer or wait for their bus. The centralized ‘hub’ nature of the exchange also allows significant optimization (or the ability to tailor service to ridership) of the transit system in Kelowna as route service levels can be designed specifically to meet demand on the different ‘spokes’ of the hub.

In addition to improving the transit system, the downtown exchange in Kelowna also brings more pedestrian activity to the downtown core which has assisted in the revitalization of the area.

Below is a conceptual image of what this exchange will look after the completion of upgrades in the Spring of 2015.



A potential location for a new transit exchange is the parking area adjacent to Jubilee Park on the northeast corner of McCallum Road and Homeview Street:



If the City of Abbotsford is keen on pursuing this further, BC Transit and its Capital Planning/Fixed Asset Construction teams will be available to explore cost-sharing opportunities and work collaboratively to develop transit exchange options.

8.0 Fleet Implications

In conjunction with the routing and schedule improvement proposals, the analysis indicates that there may well be an opportunity to shift from heavy-duty conventional vehicles to light-duty community bus vehicles within the fleet, particularly now that low floor community bus vehicles are available.

It is therefore proposed that vehicle size adjustments be explored to determine if these changes are feasible in relation to ridership, service scheduling and transit operator labour agreements once the extent of service improvements have been confirmed.

9.0 Implementation Considerations

The report recommends implementing the service change options in a staged approach. This will allow the most critical needs and cost-effective options to be implemented first. It is also recognized that service needs and/or local government capacity to fund transit improvements may change over time. Therefore, options for implementation which require expansion to service hours or vehicles will need to be confirmed on an annual basis for the subsequent year as part of the local budget approval process. All new fleet requests stemming from any service expansion - or potentially a reallocation of vehicle types - will likely trigger a new bus order, therefore necessitating an 18-24 month lead time before expected delivery and introduction to revenue service.

Also, it is recognized that the implementation of any option requiring expansion is dependent on BC Transit's fiscal year budget, as well as the allocation of available provincial transit expansion funding between transit systems as determined through BC Transit's Transit Improvement Program (TIP).

Once local government has approved a service option or combination of options for implementation – and local and provincial funding has been approved, if required – an Implementation Agreement Memorandum of Understanding (MOU) will be developed for signature by local government partners and BC Transit. This MOU outlines the exact service changes to be developed for implementation and the roles and timeline for implementation.

10.0 Transit Garage Capacity

The existing transit garage was built in 2001 and is located at 1225 Riverside Road on 1.06 hectares of land leased from the City of Abbotsford. This property is bound on the three sides by a fish-bearing creek that feeds into the province's largest trout hatchery. The site was built to accommodate parking for 58 buses (40 heavy duty and 18 light duty buses), but as of recently there are 38 heavy duty buses, 7 medium duty buses and 17 light duty buses stored on site, for a total fleet of 62.



Therefore, prior to expansion of any service, the capacity of the facility must be expanded - an initiative that needs to be addressed as soon as possible - due to the time required to establish improvements. BC Transit and its Capital Planning/Fixed Asset Construction teams are available to work collaboratively with local partners to start developing transit operations and maintenance center improvement options.

11.0 Conclusions

The proposals presented in this document optimize the Central Fraser Valley Transit System's existing resources to attract more passengers and revenue and ensure that service reliability is maximized.

Based on the objectives of the Service Improvement Review and the 2013 Abbotsford Transit Future Plan, the proposed service improvements:

- Start aligning the system with the longer term Transit Future Plan route structure.
- Provide options that are cost neutral as well as requiring additional funding.
- Match service to demand, particularly in terms of existing ridership and existing and future land use.
- Integrate service with the regional Fraser Valley Express (FVX) service.

The changes proposed will negatively affect some existing passengers but on the whole are projected to be positive. A preliminary and conservative estimate of impacts that takes into account possible ridership losses as well as gains from the service improvements, shows that the improvements in the first year would likely result in a net increase of 48,450 passenger trips (+2.0% over 2013/14 budget) and \$46,500 in revenue (+1.6%). Further ridership and revenue gains would accrue in following years at the restructured system stabilizes and matures.

12.0 Recommendations





It is recommended that the City of Abbotsford and District of Mission:

- Receive and approve this report and direct staff to work with BC Transit to finalize and submit this to their respective councils.
- Approve the Phase One recommendations for Mission and Abbotsford for implementation in April 2015 and Fall 2015 as outlined in sections 6.1 and 6.4.
- Consider the longer term options and strategies outlined in sections 6.2 and 6.5 and provide direction on the desired options to form the basis of future Three Year Budgets.
- Provide guidance to BC Transit with respect to initiating capital improvements relating to the Abbotsford Transit Exchange and the Operations and Maintenance Transit Center.

Appendix A: Route Level Performance Summary

Based on Winter 2013 performance compared with Transit Future Plan Performance Guidelines

Route No	Passenger Boardings	weekday hours	Boardings per hour
1 Blueridge-McKee GoLine	1,717	63.87	26.9
3 Clearbrook-UFV GoLine	1,411	43.18	32.7
2 Bluejay-Huntingdon GoLine	1,171	56.78	20.6
31 Abbotsford-Mission Connector	895	37.25	24.0
5 Hospital	331	12.55	26.4
34 East Side	401	12.58	31.9
32 West Heights	389	16.07	24.2
4 Saddle	285	14.27	20.0
7 Sumas Mountain	260	15.55	16.7
12 UFV-Bourquin Connector	246	6.5	37.8
33 Cedar Valley	362	12.87	28.1
21 Aldergraove Connector	263	14.23	18.5
6 Gladwin-Peardonville	257	12.55	20.5
16 McMillian Commuter	111	5.08	21.9
15 Auguston Connector	259	5.73	45.2
35 Hatzic	91	2.75	33.1
39 Shoppers Shuttle	110	8.83	12.5
17 Townline Industrial	109	6.83	16.0
40 East Mission Night	15	1.45	10.3
23 West Townline	52	1.33	39.1
24 Centre Loop	41	1.03	39.8
26 Sandy Hill	34	1.6	21.3
22 East Townline	28	1.07	26.2

KEY	
	Above 35
	25 – 35
	15 – 25
	Below 15

Transit Future Plan: Rapid and Frequent Transit Network Performance Guidelines

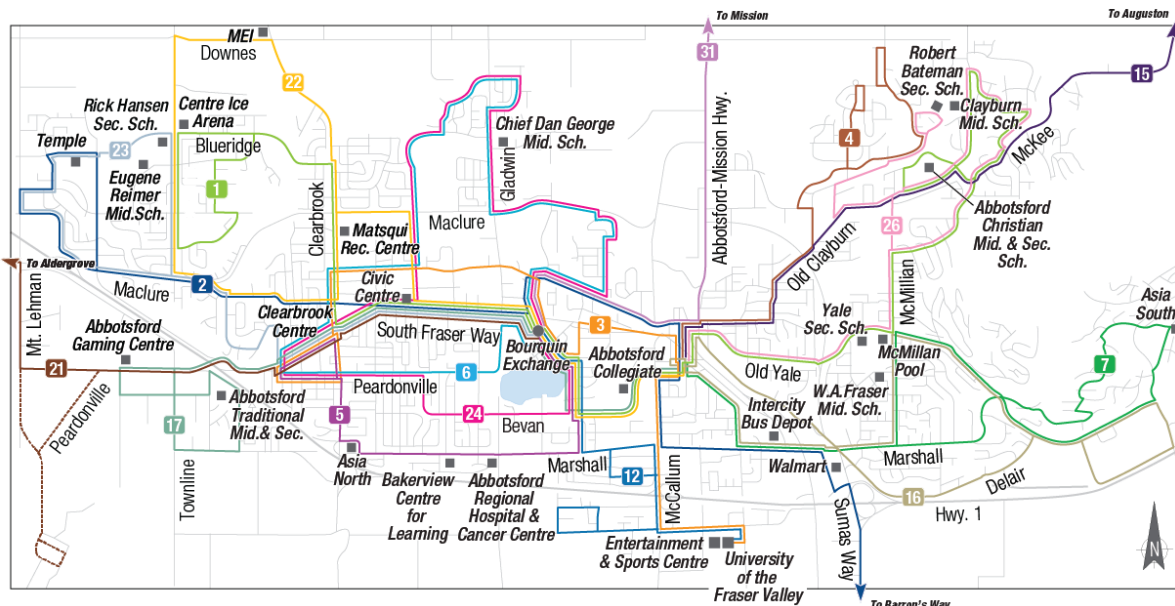
	Target Threshold	Minimum Threshold
Boardings per service hour	35	25
Boardings per service km	1.5	1.0
Cost recovery	35%	25%

Local Transit Network Performance Guidelines

	Target Threshold	Minimum Threshold
Boardings per service hour	25	12
Boardings per service km	1.0	0.5
Cost recovery	25%	15%

Appendix B: Phase Two Route Change Recommendations

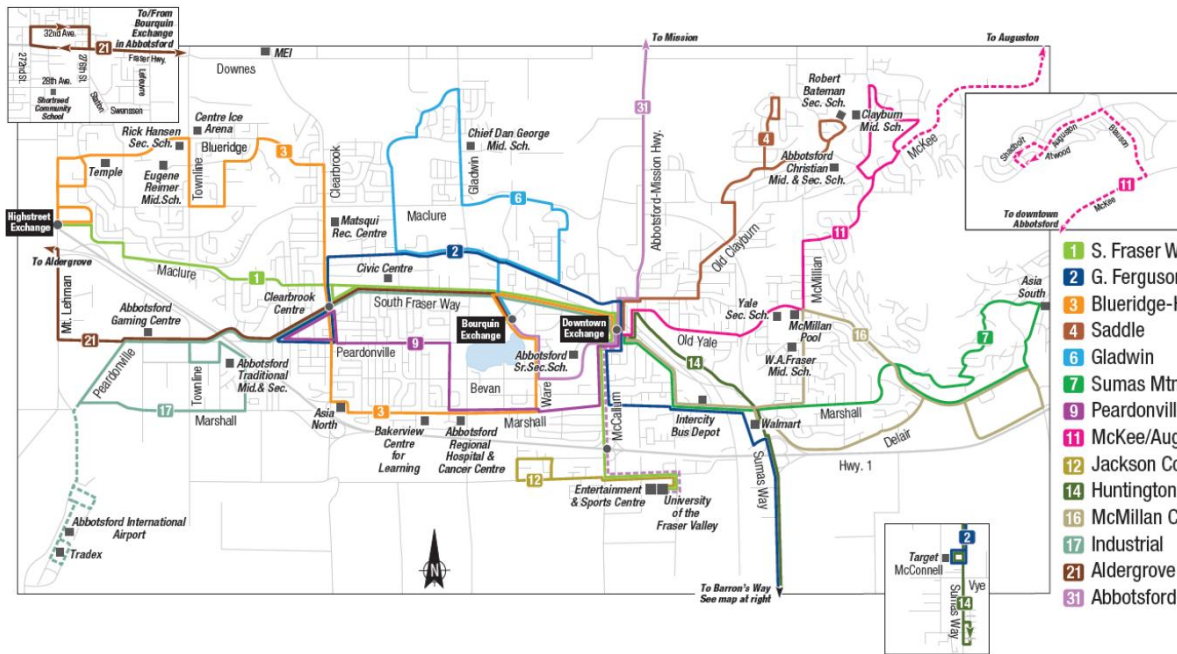
Abbotsford: Existing Service



- | | | |
|------------------------------------|----------------------------------|----------------------------|
| 1 Blueridge-McKee GoLine | 7 Sumas Mountain | 22 East Townline |
| 2 Bluejay-Huntingdon GoLine | 12 UFV-Bourquin Connector | 23 West Townline |
| 3 Clearbrook-UFV GoLine | 15 Auguston Connector | 24 Centre Loop |
| 4 Saddle | 16 McMillan Commuter | 26 Sandy Hill |
| 5 Hospital | 17 Townline Industrial | 31 Valley Connector |
| 6 Gladwin-Trethewey | 21 Aldergrove Connector | |

Abbotsford: Proposed Service

Abbotsford: Proposed Service



- | |
|--------------------------------|
| 1 S. Fraser Way |
| 2 G. Ferguson |
| 3 Blueridge-Hospital |
| 4 Saddle |
| 6 Gladwin |
| 7 Sumas Mtn. |
| 9 Peardonville |
| 11 McKee/Auguston |
| 12 Jackson Connector |
| 14 Huntington Connector |
| 16 McMillan Connector |
| 17 Industrial |
| 21 Aldergrove |
| 31 Abbotsford-Mission |

The recommended service changes to the Abbotsford routes are as follows:

- **Primary routes:** The reallocation enables the existing Go Line routes (Routes 1, 2 and 3) to be reconfigured into the structure of primary routes envisioned in the Transit Future Plan. Over time, these routes will have the highest level of service and carry the bulk of passengers, many of whom will transfer to these routes from the more local routes. These routes would no longer be referred to as Go Lines. The proposed new primary routes are:

1 S. Fraser Way (Currently 2 Bluejay and 3 UFV)

- This new route becomes the main spine or “Rapid line” for Abbotsford’s service and is the most important of the primary routes. With 15 minute peaks and 30 minute off-peaks, it links the corridor from Highstreet Mall to UFV, including major employment and commercial nodes along South Fraser Way, Downtown Abbotsford and potential future interregional connections at the McCallum Interchange/U-District. This compares to the existing 15 minute service all day.
- This new route is created by joining part of the western portion of the existing 2 Bluejay-Huntingdon Go Line with the eastern portion of the existing 3 Clearbrook-UFV Go Line. Service to the Bluejay area would now be the new route 3.

2 G. Ferguson (Currently 3 Clearbrook and 2 Huntingdon)

- This route connects the City’s densest residential corridors on Clearbrook and George Ferguson Way with Downtown Abbotsford major shopping destinations on Sumas Way.
- While the existing 2 Huntingdon Go Line terminates in Huntingdon, the new route would terminate at Target. Service to Huntingdon could either be served by the extension of this route every hour or by introducing a new route, the 14 Huntingdon, to provide service every hour.
- This route would not serve the Bourquin Exchange but would enable transfers to and from the 1 S. Fraser Way and other routes at Clearbrook and Downtown.

3 Blueridge - Hospital (Currently 1 Blueridge and 5 Hospital)

- This new route would connect the Blueridge, Bluejay and Marshall Road areas to Highstreet Mall and the Sikh Temple on Blueridge, as well as to the Clearbrook area, Abbotsford Regional Hospital and Cancer Centre, the Bourquin Exchange and Downtown Abbotsford.
- Through reallocation, this restructuring means that the Hospital would now have 15 minute service at peak times at no additional cost. This compares with the existing 30 minute service all day and hourly in evenings.
- The new route enables transfers to the 1 S. Fraser Way Rapid line at three points (Highstreet, Clearbrook and Downtown Abbotsford) plus retains the ability for Blueridge and Marshall Rd. area residents to reach Seven Oaks Mall / the Bourquin Exchange without transferring.

- **Local routes:** Local routes serve neighbourhood destinations and are meant to link into the primary routes shown above, particularly the 1 S. Fraser Way. The following summarizes the proposed changes to these routes:

4 Saddle

- This route would no longer serve the Latimer / Prior / Coachstone / Hearthstone loop but would instead turn around at its eastern-most end via Latimer, Exbury and Laburnum. This change reflects ridership patterns, offers new consistent service past Robert Bateman Secondary and Clayburn Middle School, and enables the route to operate on time while maintaining a 30 minute frequency throughout the day.

5 Hospital

- No longer exists; incorporated into the new 3 Blueridge-Hospital route.

6 Gladwin

- The existing larger loop would become more focused and shorter, to try to serve the higher density areas near Maclure and Gladwin more effectively.
 - The low ridership Harwood/Gatefield section of the route would be eliminated to streamline service.
 - The segment of the 6 Gladwin currently operating on Clearbrook and Peardonville would now be operated by the 9 Peardonville.

7 Sumas Mtn.

- This change would focus service in both directions along Marshall Road, instead of alternating inbound service via Old Yale and McMillan. This change reflects ridership patterns, makes the service more easy to understand and use, and means that the majority of passengers now have a more direct trip.
- To address schedule reliability issues without incurring additional cost, frequency would shift from 30 minutes at all times to 30-40 minutes at peak, with 40 minute service during the rest of the day. This is in line with current ridership.
 - Service to the highest density stretch of this route on Old Yale between Marshall and Whatcom will receive 20 minute service since the 16 McMillan also covers this area.

9 Peardonville (Currently 6 Gladwin, 24 Centre Loop)

- This new route covers areas of South Fraser Way, Clearbrook and Peardonville currently served by the 6 Gladwin. It provides new service to the MSA Arena and Centennial Pool on Emerson, additional service to the Hospital, and connections to Abbotsford Middle and Abbotsford Collegiate along Bevan.

11 McKee / Auguston (Currently 1 McKee and 15 Auguston)

- The new McKee route consists of the eastern portion of the existing 1 Blueridge – McKee Go Line. This route would now start and end at Downtown Abbotsford, with every second trip at peak times extending to Auguston in place of the existing 15 Auguston.
- Combining the Auguston service with the McKee route enables the Old Yale / McMillan / McKee segments of the route to retain 15 minute service during peak times while still reallocating resources.
- This change will also present the opportunity to explore service to Auguston using a larger vehicle. If a larger vehicle is possible (depending upon routing) then there would be more flexibility to increase the level of service provided to Auguston in the future, particularly on evenings and weekends as the route has been performing quite well with more than 35 boardings per hour (Appendix A).

12 Jackson Connector (Currently 12 UFV – Bourquin Connector)

- With the 1 S. Fraser Way operating 15 minutes all day, the additional service to UFV provided by the 12 UFV – Bourquin Connector is no longer needed. The only other segment that has relatively high ridership for this route and that is beyond the 400 metre walk limit to transit is in the Jackson neighbourhood.
- This proposed route links the Jackson area and the Matsqui Institution to connecting transit at UFV. Service would be limited to select trips.

14 Huntingdon Connector (Currently 2 Huntingdon and 16 McMillan Commuter)

- This new route would cover the section of Gladys to be deleted from the 16 McMillan Commuter and the Huntingdon section to be deleted from the new 2 G. Ferguson route.
- Service would be hourly throughout the day in comparison to the existing 30 minute service at peak times with no trips in other portions of the day. This means that businesses and social services on Gladys would now have more consistent and direct trips and that the Huntingdon area would have a level of service more appropriate to that neighbourhood.

15 Auguston

- This route would be deleted as a separate entity and would instead be operated as an extension of the 11 McKee / Auguston route.

16 McMillan Connector (Currently 16 McMillan Commuter)

- Routing would be identical to the existing route except that the section on Gladys would be moved to the 14 Huntingdon. Doing so enables the route to operate in both directions along McKenzie and Marshall.
- This route continues to serve at peak times the areas on Old Yale and McMillan deleted from the 7 Sumas Mtn.
- Similar to the route 7, frequency on the 16 McMillan would shift from 30 minutes to 30-40 minutes at peak to address schedule reliability within existing resources.

17 Industrial (Currently 17 Townline Industrial)

- This route is identical to the existing but uses the new extension of Marshall Road to route to Peardonville, providing better coverage and making the routing slightly less confusing.
- This new routing also better enables service to the Airport, Tradex and the UFV Aerospace Centre (which would no longer be part of the 21 Aldergrove route).

School-Focused Routes: 22 East Townline, 23 West Townline, 24 Centre Loop, 26 Sandy Hill

- These school-focused routes would be deleted, with their schools and neighbourhoods to be served as much as possible by the regular routes noted above. (Transit trips will still aim to be mindful of school bell times).
 - MEI would no longer be served given the recent introduction of a private bus service to MEI by the school and the low levels of ridership in the surrounding areas of this route.
 - The presence of these school trips as separate routes only serves to make the existing route map more confusing and deleting these additional routes helps to make service more clear.
- **Regional and Interregional Routes:** Other than those changes outlined in section 3.1 for the 31 Abbotsford-Mission route, the following is outlined for the 21 Aldergrove.

21 Abbotsford-Aldergrove (Currently 21 Aldergrove Connector)

- This route is identical to the existing except that it deletes the inbound section along Station, Swenssen and Lefevre (where ridership is very low) and the deviation on some trips to the UFV Aerospace Centre (which would now be served by the 17 Industrial).
- The routing changes noted above serve to make the route more direct and consistent for the majority of riders.
- It should also be explored at some point in the future a possible service extension to Highstreet Shopping Mall to integrate with the FVX.