

# Columbia Valley Transit System (CVTS)

## Long-Range Plan – Report



August 25, 2011

Regional District  
of East Kootenay



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## EXECUTIVE SUMMARY

This service review suggests attention must be given to the Columbia Valley Transit System. This system does not compare favorably to like systems outside of the East Kootenay on rides and cost per hour. These can largely be attributed to the significant distance required to transport a low number of riders.

This raises concerns when two other pending cost pressures are considered. First, significant capital replacement costs will be incurred in the near future due to the pending replacement of a vehicle which was previously funded through a Public Transit grant. This vehicle is coming to the end of its useful life and the replacement vehicle will come with new capital costs. The second challenge to be considered is the number of vehicles required to reliably deliver the service. Currently only one vehicle exists to provide the service. When this vehicle is out for scheduled or unplanned maintenance, the Health Connections bus is used. This poses a serious service risk on the two days a week Health Connections is provided.

This report offers ways forward with suggestions for service improvements and cost saving measures. They include:

1. Working with the operator to identify opportunities to relocate the vehicle to the Invermere area
2. Address the associated service reliability issues with such a relocation (availability and purchase of an additional vehicle)
3. Minor modification to the routing of route 1 and the introduction of a Winter and Summer schedule
4. Replacing the on-request portion of the day with scheduled fixed route service
5. Working with the Regional District and local governments to improve signage and public information

The first recommendation comes with some significant challenges which BC Transit and the operator have begun to discuss solutions to. Regardless, increased costs are associated to this relocation including additional fixed costs and vehicle capital costs. However, the benefits of relocation will likely outweigh the negatives and ultimately add to the options for improving the service.

Feedback from stakeholders suggests the current service is not meeting the needs of riders in the area outside of a few key markets. Currently the service benefits those living in Canal Flats and working in Fairmont but a key market that needs to be listened to in improving ridership are the seniors. Their feedback indicates they are largely not using the service primarily due to the significant gap between inbound and outbound trip times. Either better communication of the available on demand service must be put into place or as recommended the on-request portion of the day should be replaced with scheduled runs. Improving ridership during this portion of the day would likely have the greatest positive impact on the system.

BC Transit is keen to work with the local government to implement these improvements in a timely fashion and continue to find ways to make this system sustainable.

## 1.0 INTRODUCTION

This report examines the existing Columbia Valley Transit System service and markets and outlines service change proposals for consideration. Included in this report are cost analyses for these proposals.

The service change proposals are based on discussions held with the following:

- The Regional District of East Kootenay
- The Columbia Valley Transit Advisory Commission
- Political appointees:
  - Council Representatives, District of Invermere and the Village of Radium Hot Springs
  - Directors, RDEK Electoral Areas F & G
  - Mayor, Village of Radium Hot Springs
- Community groups:
  - Columbia Valley Chamber of Commerce
  - Fairmont Community Association
  - Columbia Ridge Community Association
  - Fairmont Hot Springs Resort
  - Panorama Resort
  - College of the Rockies, Invermere Campus
  - Family Resource Centre, Invermere
- Transit operating company staff

as well as data collected from:

- Two-week passenger counts (November 2008 & 2009)
- A two-week stop activity count (November 2010)
- A residential survey (March 2010)
- An on-board passenger survey (October 2009)
- Operating company monthly ridership counts

Summaries of this data are presented in the body of the report, with full results included in the appendices.

## 2.0 BACKGROUND TO PRESENT SERVICE

The Columbia Valley Transit System (CVTS) was implemented at the end of February 2008 and is operated by Olympus Stage Lines Ltd., based in Golden. It offers primarily conventional-style, fixed-route, fixed-schedule service using one 20-passenger minibus. The vehicle is lift-equipped to accommodate wheelchair passengers.

Additionally, a Health Connections service to Cranbrook, also operated by Olympus Stage Lines Ltd., was implemented in April 2006. While Health Connections operations fall under the purview of the Interior Health Authority and are therefore outside the scope of this planning report, a basic overview is included.

### 2.1 History

The Columbia Valley Transit Feasibility Study was completed in April 2002. The report recommended a local transit system that would connect the communities of Radium and Fairmont to Invermere, with a summer shuttle service to Radium Hot Springs pools. The report additionally recommended a once-a-week transit health link to Cranbrook. The key markets identified in the study were seniors, people with a disability, students, and low-income residents in the Valley.

This system was one of several targeted by the BC Transit Board for implementation as part of a small town and rural transit strategy. Funding for the seven communities in this group was finally approved as part of the 2007/08 budget year.

The operator of the existing Health Connections service was selected through an RFP process to operate the service. Two vehicles were acquired through the PTA/PTIP gas tax funding available to new small towns and rural areas. The Regional District of East Kootenay (RDEK) went to referendum to obtain local approval for the service and has set a limit on the amount of taxation for it.

The Health Connections portion of the service is funded 100% by the Interior Health Authority by way of a Community Transit Partnership Agreement with the Kootenay East Regional Hospital District.

## **2.2 Implementation**

Two conventional routes were implemented on a weekday basis, serving Invermere north to Radium and Edgewater and south to Fairmont and Canal Flats. It should be noted that Edgewater and Canal Flats lie ten kilometres and thirty kilometres, respectively, outside the service area boundary suggested in the feasibility study, and that the study's suggested summer shuttle service option to the Radium Hot Springs pools was not implemented.

Additionally, a weekday handyDART-style on-request service was put in place, designated to operate between Invermere and Radium for three hours during the midday period.

The Health Connections service operates two round-trips per week between Golden and Cranbrook, on Mondays and Fridays, with scheduled stops in Invermere. Priority is given to passengers travelling to Cranbrook for medical appointments, but anyone is eligible to use the service if space is available.

## **2.3 Historical Ridership Data**

Appendix A shows the CVTS's monthly ridership levels since inception and year-on-year monthly differences. In summary:

- Ridership in the first year of service was well below expectations.
- The second year showed a 42% year-on-year ridership increase.
- Ridership for the first ten months of fiscal 2010-11 shows a 4% decrease from the same period in fiscal 2009-10.
- Except for the first quarter, 2010-11 ridership levels are in general significantly lower than 2009-10's.
- This decline in ridership in only the third year of service is cause for concern.

The Health Connections service's annual ridership increased 40% between 2007-2008 (the first year that full ridership numbers were available) and 2009-2010.

## **2.4 Other Performance Indicators**

The table below shows performance indicators for the Columbia Valley Transit System (CVTS) and a comparison to other similar-sized systems based on total cost. In its second year of service, despite a gain in ridership, the CVTS was towards the bottom of the group in terms of productivity, with a rides-per-hour ratio of 2.52. It consequently had one of the highest costs per ride compared to similar-sized systems. At 6.5%, it had the second lowest cost recovery of the group.

**2009/10 INFORMATION & PERFORMANCE SUMMARY**  
**Year End Actuals**

Transit System	Municipal Population	Licensed Vehicles <sup>2</sup>	Revenue Hrs of Service <sup>3</sup>	Revenue Passengers <sup>4</sup>	Total Revenue	Total Cost	Provincial Contribution	Local Govt. Contribution <sup>5</sup>	Cost Recovery	Rides/Hour <sup>6</sup>	Cost/Ride	Total Cost/Hour <sup>8</sup>
Agassiz - Harrison	8,900	1	2,981	29,164	\$49,408	\$182,194	\$80,499	\$52,287	27.1%	9.71	\$6.25	\$60.14
Ashcroft-Cache Creek-Clinton	8,900	2	3,187	3,902	\$15,690	\$176,565	\$70,178	\$90,696	8.9%	0.72	\$45.25	\$55.41
Bella Coola	3,300	2	3,519	15,839	\$23,132	\$208,086	\$0	\$184,954	11.1%	4.50	\$13.14	\$59.13
Columbia Valley	9,500	2	3,257	10,592	\$15,630	\$241,515	\$88,416	\$137,469	6.5%	2.52	\$22.80	\$74.16
Elk Valley	12,800	2	3,512	8,353	\$14,257	\$214,482	\$75,375	\$124,851	6.6%	1.87	\$25.68	\$61.06
Hazeltons' Regional	6,300	4	2,574	13,167	\$27,423	\$215,601	\$104,896	\$83,283	12.7%	5.12	\$16.37	\$83.68
Kicking Horse Country	7,500	2	3,873	8,868	\$10,046	\$292,004	\$111,569	\$170,389	3.4%	2.29	\$32.93	\$75.35
Kimberley	7,200	3	5,093	13,244	\$32,952	\$265,908	\$108,544	\$124,413	12.4%	2.07	\$20.08	\$52.21
Kootenay Lake West	3,100	4	3,531	20,026	\$35,174	\$267,385	\$53,488	\$178,723	13.2%	5.59	\$13.35	\$75.74
Mt Waddington	7,800	2	4,313	21,284	\$48,876	\$295,415	\$0	\$246,538	16.5%	4.93	\$13.88	\$68.49
100 Mile House	6,900	3	3,155	13,232	\$24,188	\$175,278	\$60,404	\$90,685	13.8%	3.66	\$13.25	\$55.55
Port Edward	700	1	1,926	31,917	\$42,552	\$194,662	\$80,653	\$71,458	21.9%	16.57	\$6.10	\$101.08
Powell River	21,100	3	4,136	13,985	\$23,082	\$274,118	\$133,822	\$117,215	8.4%	3.38	\$19.60	\$65.20
Salt Spring Island	10,500	3	4,084	56,760	\$104,259	\$281,677	\$135,805	\$41,613	37.0%	13.90	\$4.96	\$68.97
Skeena Regional	29,100	1	3,342	36,055	\$33,071	\$311,247	\$68,342	\$209,834	10.6%	10.70	\$8.63	\$93.14
Smithers and District	12,100	2	3,699	18,238	\$37,315	\$194,419	\$105,971	\$51,132	19.2%	4.93	\$10.66	\$52.56

*Source: BC Transit Year End as of March 31, 2010*

<sup>2</sup> Includes in-service & spare vehicles  
<sup>3</sup> Excludes deadhead hours  
<sup>4</sup> Includes Health Connections & Taxi passengers  
<sup>5</sup> Excludes revenue  
<sup>6</sup> Non-Taxi passengers only  
<sup>8</sup> Non-Taxi passengers only

## 2.5 Provincial Transit Greenhouse Gas (GHG) Emission Guidelines & CVTS GHG Emissions

In support of the Provincial Transit Plan target of 4.74 Mt of greenhouse gases avoided from the Plan's implementation by 2020, BC Transit has developed indicative greenhouse gas (GHG) emission targets for larger transit systems. These targets are benchmarked against GHG emissions from a representative light-duty vehicle with average occupancy. The average indicative GHG emissions for a light-duty vehicle in BC are estimated to be 320g CO<sub>2</sub>/km.

Although these GHG emission targets for larger transit systems are unlikely to be met in smaller systems operating over greater distances, CVTS vehicles have a budgeted fuel consumption rate of 24 L/100 kms, giving a GHG footprint of 648g CO<sub>2</sub>/km, more than twice the average light-duty vehicle GHG emissions in BC.

However, investing in transit does provide broader social and environmental benefits, including supporting transit and land use integration objectives of local government, social inclusion, and public health benefits.

## 2.6 Background to Present Service: Conclusions

- The current service area reaches farther north and south than outlined in the feasibility study.
- The feasibility study's suggested summer shuttle service option between Radium Hot Springs Village and the Radium Hot Springs pools was not implemented.
- CVTS ridership demonstrated a strong increase in its second year but has been showing a downward trend in recent months.
- Ridership is still low relative to similar-sized systems. As a result:
  - productivity is also relatively low
  - per-ride cost is high
  - cost recovery is low
- The CVTS fleet's GHG footprint is more than two times higher than the BC average of comparable vehicles.

## 3.0 PRESENT SERVICE AND MARKET ANALYSIS

Appendix C shows the Columbia Valley Transit System's current schedules.

### 3.1 Present Service and Market Analysis

Currently, the CVTS operates two conventional routes Monday to Friday from 7:30 a.m. to 5:30 p.m. An area map displaying general routing is shown below. Route 1 operates two one-way trips daily, whereas Route 2 operates two round trips daily. An on-request, handyDART-type service, designated as operating between Invermere and Radium, is available Monday to Friday between 10:30 a.m. and 2:30 p.m.



Appendix D shows an analysis summary of two-week passenger count results and two-week stop activity count results, with full results available in Appendix E and Appendix F respectively.

The daily ridership averages of 18-40 passengers comprise less than one sixth to one third of total system capacity. The passenger counts showed that the majority of riders were adults, with students also a significant ridership segment, but that seniors represented only 8% of total ridership, or two to three passengers daily. 2010's two-week count showed a decrease in ridership compared to both 2009's and 2008's. During the 2010 count period, the CVTS carried fewer than half the passengers per revenue hour of 2009's, and its average cost per ride was more than three times higher than 2009's. This cost-per-ride increase is due mainly to the decrease in ridership and productivity but is also partly attributable to a 37% increase in operating costs between 2009-10 and 2010-11.

In terms of bus stop activity, 2010's results showed that the stops at Canal Flats and Fairmont Lodge were the most frequently used during the count period, reflecting the daily transit commute by a number of Fairmont Resort employees residing in Canal Flats. The stops at the Akisqnuq First Nations Band Hall, Invermere's Petro-Can gas station and the Chamber of Commerce were the most seldom used.

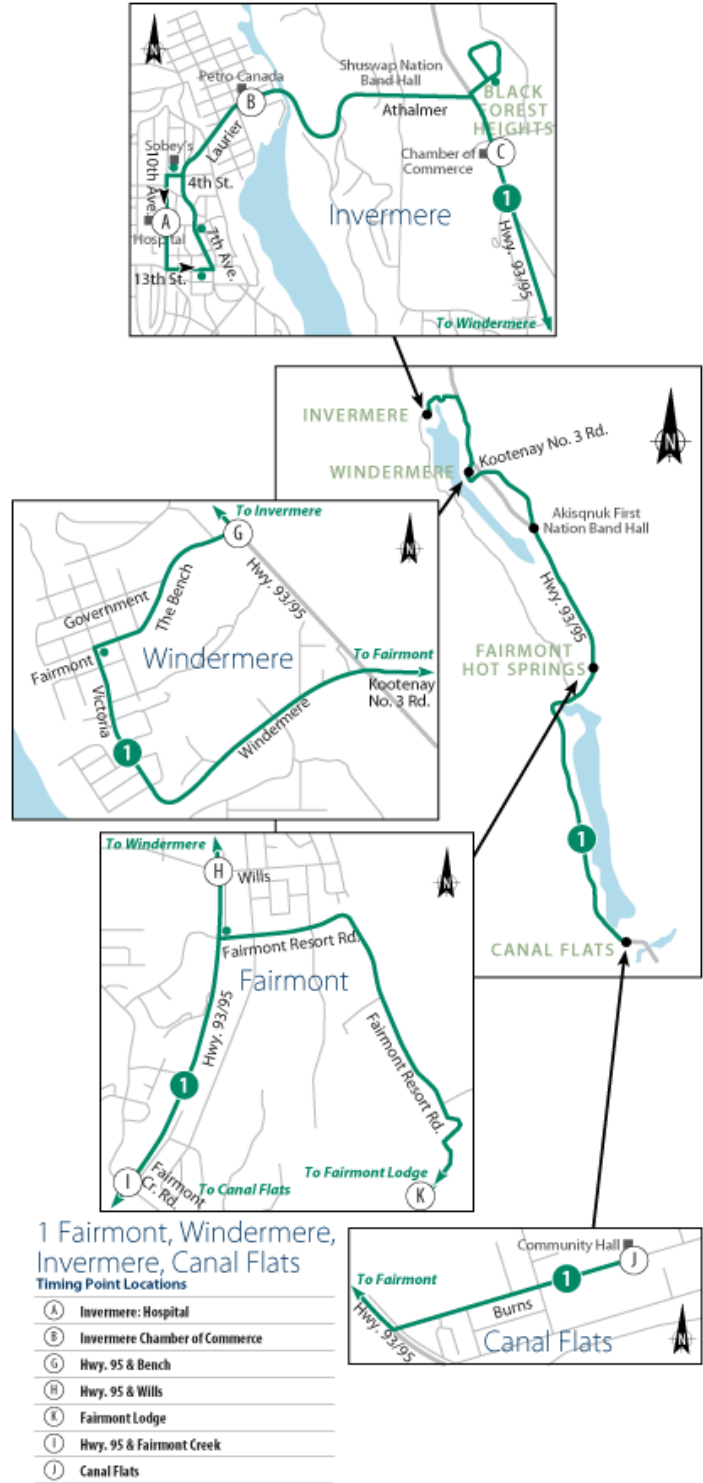
According to additional information provided by the operator, the conventional routes carry on average four passengers with disabilities, using wheelchairs, per week.

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### **3.1.1 Route 1: Invermere, Fairmont, Canal Flats**

Route 1 provides one inbound trip on weekday mornings and one outbound trip on weekday afternoons. Depending on the time of day, a one-way trip takes 70-75 minutes. Trips operate between 7:30-8:39 a.m. and 4:16-5:31 p.m. Its routing is shown below:





Route 1 mainly serves Fairmont Resort employees living in Canal Flats, where accommodation is more affordable than in Fairmont or Invermere and where lower-income families tend to reside. The trip times coincide with Fairmont Resort’s work start and end times. It also serves students attending the high school and one of the two elementary schools in Invermere, coinciding with these schools’ start times,

and to a certain extent with their end times. With only two one-way trips daily, there is a 7½-hour interval between the inbound bus arriving in, and the outbound bus departing from, Invermere.

The two-week count results indicate that Route 1 has the highest rideshare of the CVTS's two conventional routes. During the 2010 count period its ridership was significantly lower than 2009's, it carried approximately half the passengers per revenue hour of 2009's, and its average cost per ride was two-and-a-half times higher than 2009's. This increase in cost per ride was caused mainly by the decrease in ridership and productivity but is also due in part to the increase in operating costs between 2009-10 and 2010-11.

The stop activity count shows that this route's most frequently used stops were in Canal Flats and at Fairmont Lodge. Its least frequently used stops were at the Akisqnuq First Nations Band Hall and the Chamber of Commerce.

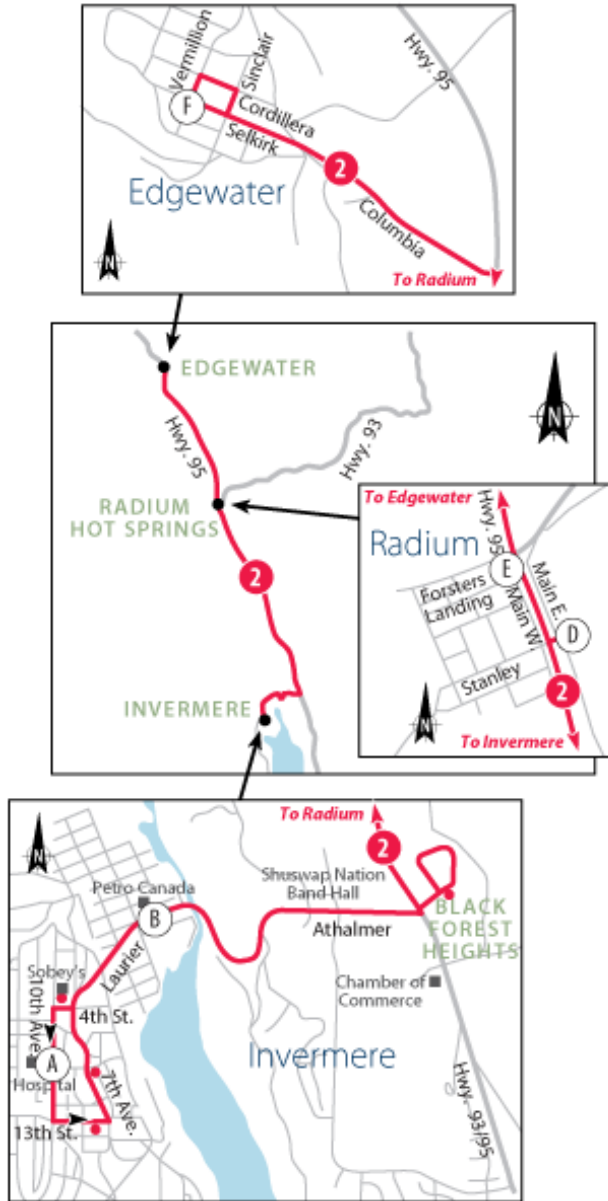
### **3.1.2 Route 2: Radium, Edgewater**

Route 2 provides two round trips Monday to Friday, one in the morning and one in the afternoon, each round trip taking about 90 minutes. Trips run between 8:39-10:10 a.m. and 2:45-4:16 p.m. Its routing is shown below:

## 2 Radium, Edgewater

### Timing Point Locations

- (A) Invermere: Hospital
- (B) Greyhound Bus Depot
- (D) Radium Main Street East
- (F) Edgewater: Pips General Store
- (E) Radium Main Street West



Route 2's morning trip runs consecutively to the Route 1 trip from Canal Flats, and thus does not meet work start times in Radium or Invermere. Route 2's afternoon trip precedes the Route 1 trip to Canal Flats, and so leaves Invermere too early to suit work end times there or in Radium. The majority of passengers appear to be students, who have missed the regular school bus, and adults running errands.

With only two round trips per day, this route has a 4½-hour interval in Invermere between the morning and afternoon trips.

The two-week counts show that Route 2's rideshare was the lowest of the two routes. During the 2010 count period, its ridership was 71% lower than during 2009's, it carried less than one third the passengers per revenue hour of 2009's, and the average cost per ride was approximately five times higher than 2009's. The cost-per-ride increase was mainly caused by the decrease in ridership and productivity but is also attributable partly to the operating cost increase between 2009-10 and 2010-11.

Route 2's most frequently used stops during the stop activity count were those in Invermere and Radium, and the least frequently used were in Edgewater and Black Forest Heights:

### **3.1.3 On-request Service**

In addition to the CVTS's two conventional routes, there is an on-request, handyDART-type service available 10:30 a.m.–2:30 p.m. that was implemented to operate between Invermere and Radium. The service is open to anyone, with the requirement that passengers call 24 hours in advance to book a seat.

During the 2010 count period, the on-request service carried on average 10.2 daily passengers, or 3.4 passengers per revenue hour. This passenger-per-service-hour ratio was lower than Route 1's but more than Route 2's. As a result, the on-request service's average cost per ride was higher than Route 1's but lower than Route 2's.

The stop activity results indicate that this service is used primarily as a shuttle service for groups of children travelling between two daycare centres and Eileen Madsen Elementary School: 94% of riders were daycare children and their chaperones, and the remaining 6% were individual bookings.

It should be noted that during the stop activity count, all of the pick-up locations for individual bookings and one of the drop-off locations for group bookings lay outside of the designated Invermere–Radium service area. If the on-request service continues, it should be decided whether to expand the service area officially and advertise this in future Riders Guide editions, or whether to restrict service to the currently designated service area.

## **3.2 Present Service and Market Analysis: Conclusions**

- Ridership on the conventional portion of the CVTS service is at most around 25-50% of capacity.
- If ridership can be increased within the existing level of service, productivity will increase, and the cost per ride will decrease.
- Currently, the only workers being served by the transit system appear to be those living in Canal Flats and working in Fairmont.
- The conventional system seems to be serving three of the four key markets identified in the feasibility study (lower-income residents, students, and persons with disabilities).
- As the conventional portion of the system is carrying only two to three seniors per day, it does not appear to be serving the seniors' market or meeting their needs. This can be explained by the long interval between inbound and outbound trips on both routes.
- The on-request service, with 94% of its ridership during the two-week sample period comprised of daycare children, does not appear to be complementing the conventional system to serve the target markets identified in the Columbia Valley feasibility study.
- The on-request service area needs to be reviewed.

## **3.3 Health Connections Service to Cranbrook**

As it is funded entirely by the Interior Health Authority, the Health Connections service to Cranbrook is designed for people travelling there for non-emergency medical appointments. While people travelling for medical reasons are given priority, others wishing to use the service for shopping or other errands in Cranbrook can also book a seat, as long as there is space available. For the 2008-2009 and 2009-2010 fiscal years, 44% and 32% of passengers respectively were travelling for medical purposes.

#### 4.0 VEHICLE REVIEW

The fleet consists of two Ford Polar minibuses seating twenty passengers and equipped with a wheelchair lift. One wheelchair occupies four seated spaces, so total passenger capacity varies depending on the number of wheelchairs carried. The vehicles are housed in Golden.

There is one in-service vehicle for the CVTS, which deadheads twice daily between Golden and Canal Flats, where service begins and ends. The second vehicle is used on the Monday and Friday Health Connections service that starts and ends in Golden.

BC Transit's Fleet Department guidelines recommend that the annual vehicle mileage per licensed vehicle (for both in-service vehicles and spares) average a maximum of 70,000 kilometres. The CVTS fleet exceeds this guideline, as a result of the daily deadheading between Golden and Canal Flats:

	Using: - 1 in-service vehicle - CVTS kms only	Using: - 1 in-service vehicle (CVTS) - 1 Health Connections vehicle (CVTS) - 1 in-service vehicle (KHCTS) - 1 spare ( KHCTS) - CVTS + KHCTS + Health Connections kms
<b>Average annual kilometres</b>	<b>156,000</b>	<b>74,000</b>
Data source: - In-service vehicles: Data captured by GPS tracking unit placed on the vehicles for: (Columbia Valley) July 12, 2011 (Kicking Horse Country) July 11, 2011 - Health Connections vehicle: Average of two July 2011 daily odometer readings reported by operator		

Solutions to this are presented in Section 6.0 (Phase I Proposal 6) and Section 7.0 (Phase II Proposal 2) below.

In the short term, the purchase of a spare vehicle is required in order to avoid service disruptions and ensure schedule reliability.

The current vehicle type is appropriate for the service in terms of capacity. However, in order to better serve the aging population, eventual replacement with similar-sized low-floor buses is recommended. BC Transit is undertaking an RFP process to acquire a new vehicle type suitable for replacing the current fleet of Polars. The current vehicle years and recommended replacement dates are:

	<b>CVTS vehicle</b>	<b>Health Connections vehicle</b>
<b>Year:</b>	2007	2005
<b>Replacement date:</b>	2012	2010

It should be noted that due to the high vehicle mileages involved, these recommended replacement dates will need to be more closely adhered to than is sometimes the case in transit systems with lower-mileage fleets.

It needs to be emphasized that the current vehicles were purchased using PTA/PTIP funding and were thus obtained at no cost. When they are replaced or additional vehicles purchased, significant debt servicing will be incurred. This will result in a considerable financial burden to the RDEK.

## **5.0 RECOMMENDATIONS RECEIVED FOR IMPROVING THE CVTS**

Recommendations for improving the CVTS were solicited from various sources, as outlined in Section 1.0. Appendix G details the public consultation methodologies used.

The most frequent responses from official stakeholders were as follows:

- Introduce service for Radium & Edgewater residents commuting to Invermere
- Replace on-request service with scheduled service
- House the vehicle in Invermere
- Introduce service to Wilmer
- Introduce service to Brisco and Spillimacheen
- Increase service frequency: more trips per day, shorter wait time in Invermere between trips
- Introduce weekend service

The most frequent responses from other public consultation sources that were different from official stakeholder responses were as follows:

- Improve public awareness of the service, schedules, and stop locations
- Improve bus stop signage – people don't know where stops are located
- Introduce service to Panorama Mountain Village
- Introduce evening and late night service
- Purchase a second vehicle – the system cannot be scheduled to serve both directions (N & S of Invermere) without it
- Avoid Route 1 service along Kootenay No. 3 Road (poor surfacing)
- Have more stops in Canal Flats, or have the bus make a loop around it

The following service proposals take into account the above responses from official stakeholders, the residential surveys, passenger surveys, and public open houses.

It should be noted that Phase II service proposals are based on the assumption that all proposed service enhancements in Phase I have been implemented. Likewise, Phase III service proposals are based on the assumption that all proposed service enhancements in Phases I and II have been implemented. As such, actual scheduling for Phase II and Phase III proposals will depend on factors determined during implementation of the previous phase(s), including the number of vehicles available and their storage locations, vehicle allocations, and the number of available drivers. The practical implementation details of Phase II and Phase III proposals may therefore differ from how these proposals are described here.

In order to give estimated ridership, revenue, and costing projections, various assumptions have been made, which are listed below each projection summary. Being based on assumptions, these projections are “best-guess” scenarios only and actual ridership, revenue, and costs will vary.

Scheduling examples are based on current, scheduled trip times for routings that exist presently, and on Google Maps™ calculations for new routings. Actual trip times would need to be verified by BC Transit's Scheduling department during on-site runtime checks and would affect total revenue hours, additional revenue cost and additional net municipal share.

“Additional ridership” shown in the projection summaries is projected ridership over and above current ridership, and is defined as additional rides per day: for example, one round-trip passenger per day equals two rides per day. Estimates for additional ridership are conservative and are based on current

usage of the CVTS. Actual additional ridership may prove higher in the long term as the various service enhancement proposals are implemented and, with effective public information, attract new transit users.

All costing projections are estimates based on the 2011-2012 costs of running the existing service.

The extent to which an individual proposal is recommended is based on its estimated viability level, assessed based on projected revenue hours, cost, ridership, revenue, and improvement in overall system functionality.

## **6.0 SERVICE ENHANCEMENT PROPOSALS – PHASE I**

### **6.1 Service Enhancement Proposals - Phase I**

Phase I service recommendations refer to short-range enhancements regarded both as the highest priority and/or achievable over the short term. As such, the following suggestions take into account the most frequent responses detailed in Section 5.0 above that could be accommodated within a relatively short time frame, depending on funding availability. The focus is on improving system efficiency, public information, routing efficiency, service reliability, and service frequency.

#### ***I-1. In-Service Vehicle Relocation to Invermere***

Having the CVTS in-service vehicle storage location in Golden and its service based around Invermere results in approximately 800 hours (59,000 kilometres) per year of vehicle deadhead between Golden and Invermere. There have been requests from several official stakeholders to have the in-service vehicle relocated to Invermere in order to increase the available revenue hours and to save costs. One perception appears to be that current deadhead hours could be converted to revenue hours in order to increase service at no additional cost. In actuality, these deadhead hours between Golden and Invermere are not included in the CVTS's annual operating agreements (AOAs) and as such, relocating the vehicle to Invermere would not result in a gain in available revenue hours. However, eliminating the current deadhead between Golden and Invermere would result in a substantial savings in annual operating cost, due to reduced fuel costs. These annual savings are estimated at \$16,000, which represents approximately 6% of the CVTS's 2011-2012 total budgeted direct operating costs. There would be additional savings from reduced vehicle maintenance costs.

Another reason for relocating the in-service vehicle to Invermere concerns vehicle mileage. In order to fall below the maximum recommended annual vehicle mileage of BC Transit's Fleet Department (see Section 4.0, Vehicle Review), either the CVTS's in-service vehicle will need to be relocated to Invermere (or to Canal Flats – see Proposal *I-2*. below), or a spare vehicle will need to be purchased for the system. As vehicle relocation is far less costly and more feasible than purchasing an additional vehicle, this proposal is included at the beginning of this phase, while the purchase of a spare vehicle is included towards the end of this phase.

Vehicle relocation to Invermere would also greatly reduce the vehicle's GHG emissions and result in an annual reduction of approximately 39 tonnes of CO<sub>2</sub>.

The District of Invermere's maintenance yard has been identified as a potential storage facility and appears to meet BC Transit's storage facility guidelines. A maintenance facility in Invermere, while desirable, is not required as the vehicle could be serviced elsewhere.

Locating the vehicle in Invermere would also make it possible to have more than one driver shift during the day. The operator currently works a 13.5-hour day (exclusive of 1-hour lunch break), which is close to the National Safety Code maximum on-duty time of 14 hours per day.

The recommendation comes with some significant challenges which BC Transit and the operator have begun to discuss solutions to. Increased costs will be associated to this relocation but are not included in

the calculation including additional fixed costs and additional vehicle capital costs. However, the benefits of relocation are believed to out weight the negatives and ultimately add to the options for improving the service.

This service enhancement proposal is recommended.

Summary Information for	In-Service Vehicle Relocation to Invermere
<i>Annual Impact:</i>	
Savings in Deadhead Hours:	0
Savings in Operating Cost:	\$15,800 (does not include additional savings in vehicle maintenance costs)
Savings in Municipal Share:	\$6,900

*Assumptions:*

- savings in operating cost based on:
  - eliminating 59,470 kms of deadhead annually
  - fuel cost of \$1.10/L

Vehicle kilometres calculated using Google Maps™.

**I-2. In-Service Vehicle Relocation to Canal Flats**  
(alternative to I-1. above)

Revenue service on the CVTS currently begins and ends in Canal Flats, resulting in approximately 280 hours (24,000 kilometers) per year of deadhead between Invermere and Canal Flats, in addition to the existing deadhead between Golden and Invermere. An alternative to I-1. above would be the relocation of the CVTS's in-service vehicle to Canal Flats instead of to Invermere. This would eliminate the 260 hours of deadhead in the AOA's and its associated costs.

Theoretically, these hours could be converted to revenue hours. However, this would not benefit the CVTS in actuality. They would convert to only one extra revenue hour per day, which would not be sufficient to operate any service that would attract ridership as the vehicle already operates revenue service between 7:30 a.m. and 5:30 p.m., with a one-hour lunch break for the driver. With the vehicle stored at Canal Flats, the only options to add service would be either before or after the existing operating hours, or during the driver's lunch break. Adding a one-hour short-turn round trip between Canal Flats and Fairmont Hot Springs, arriving at the Hot Springs at either 7 a.m. or 6 p.m., would likely have zero ridership. Alternatively, adding one hour of on-request service during the driver's lunch would not be possible: either a relief driver would need to be employed just for the lunch hour, which is impracticable in terms of hiring, as well as the BC Employment Standards Act's minimum hours of work, or, if the second driver operated the vehicle for the remainder of the day, each driver would have a different shift start and end location, either in Canal Flats or in Invermere, which is impracticable in terms of transport to/from shift start/end. As such, if this proposal is implemented, it is strongly recommended that the deadhead hour savings be retained as an interim cost savings and not converted to revenue hours at this stage.

The estimated annual cost savings for this proposal are \$30,000 (\$14,000 more than relocating the vehicle to Invermere), due to increased reductions in fuel plus the elimination of payroll hour costs associated with the deadhead hours. This represents approximately 11% of the CVTS's 2011-2012 total budgeted direct operating costs. There would be additional savings from reduced vehicle maintenance costs.

Relocating the vehicle to Canal Flats would also enable the annual vehicle mileage to fall within the recommended range, and would further reduce the vehicle's annual GHG emissions by approximately 16 tonnes of CO<sub>2</sub>, for a total annual CO<sub>2</sub> savings of approximately 54 tonnes.

There may be difficulties finding a suitable vehicle storage facility in Canal Flats and finding a qualified vehicle operator who is a resident of Canal Flats or willing to commute to/from there. This service enhancement proposal is recommended, if a suitable storage facility and vehicle operator can be found.



Again it should be noted additional costs will be associated to this relocation but are not included in the calculation including additional fixed costs and additional vehicle capital costs. However, the benefits of relocation are believed to out weight the negatives and ultimately add to the options for improving the service.

Summary Information for	In-Service Vehicle Relocation to Canal Flats
<i>Annual Impact:</i>	
Savings in Deadhead Hours:	260 (in addition to deadhead hour savings from I-1.)
Savings in Operating Cost:	\$29,700 (does not include additional savings in vehicle maintenance costs)
Savings in Municipal Share:	\$12,900

*Assumptions:*

- savings in operating cost based on:
  - vehicle stored at Canal Flats Community Hall or Canal Flats Arena
  - zero annual deadhead  
(elimination of deadhead hours currently in Operator Detailed Budget)  
saving 84,000 kms of deadhead annually
  - fuel cost of \$1.10/L
- savings in operating cost are inclusive of those shown in I-1.

Vehicle kilometres calculated using Google Maps™.

### **I-3. Improved Stop Signage and Public Information**

A common concern reported by the Columbia Valley Transportation Commission and heard at the open houses was that residents are unsure where bus stops are located and how the CVTS works. Improved stop signage, Riders Guide availability, and public information was also the second-highest system improvement request (16 respondents, or 16%) among residential survey respondents.

Subsequent inspection of Columbia Valley’s bus stops noted that the eight stops currently marked are using the previous signage design. These signs are small and non-reflective, and perhaps not readily identifiable as bus stops without some public education. In addition, there are no schedules or route maps at the stops. There are an additional seven bus stops indicated in the Columbia Valley Transit Riders’ Guide that are not marked “on the ground”. Three of these are located within Invermere, and four are located outside of municipal boundaries, in Edgewater, Windermere, and Fairmont. It is recommended that BC Transit issue new bus stop signs to the Regional District of East Kootenay, both for replacement of existing signage and for installation of signage at currently unmarked stops. While not presently a standard practice in BC Transit’s rural communities, having on-street schedules and maps at bus stops, equivalent to BC Transit’s Transit Information Post program in major urban centres, is the long-range goal.

Another public comment was that people are unsure how the transit system works and don’t understand how to read the bus schedules. Seniors commented that the schedules in the Riders’ Guides are too small for them to read. It was suggested that a new, bigger and more detailed schedule be produced and posted in high-traffic areas such as post offices and community centres, and published in the local newspaper. BC Transit’s 2011-2012 and 2012-2013 marketing budgets for the CVTS will be approximately \$2,000, so any additional marketing materials will be limited to available funds once the standard materials (Riders’ Guides, bus stop signs, and fare products) have been produced. A half-page newspaper advertisement would cost approximately \$500. An additional schedule format can be looked into at that time, or alternatively produced and distributed by the operating company or local municipality, as is the case in the Elk Valley and Kicking Horse Country transit systems.

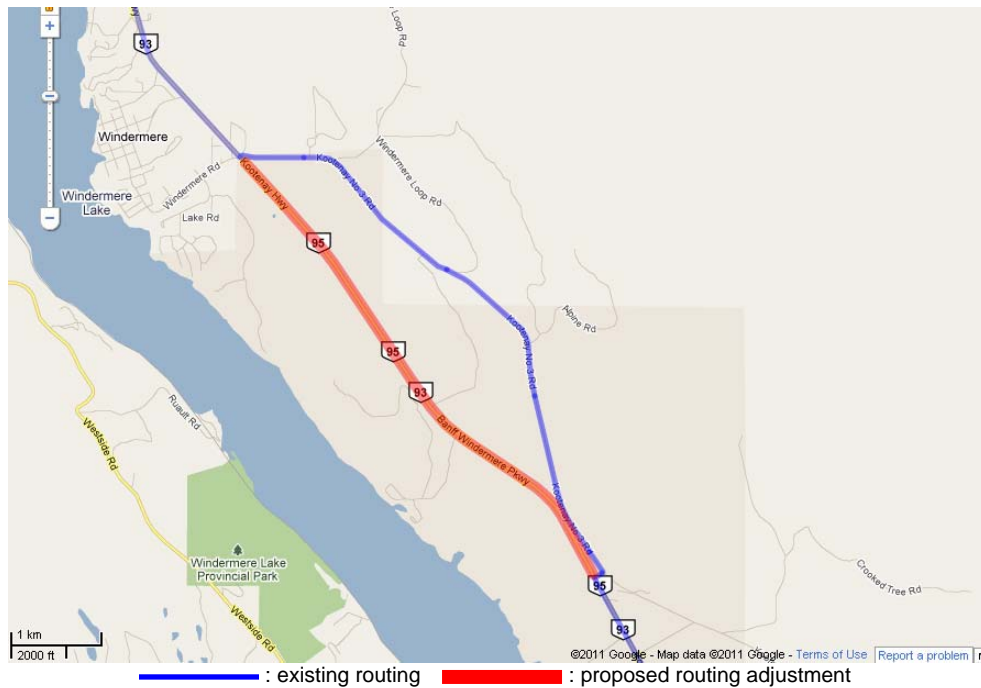
This service enhancement proposal is recommended. The estimated costing is as follows:

Summary Information for	Improved Stop Signage
Total Cost:	\$4,560
Municipal Share:	\$3,960

**Assumptions:**

- Cost of bus stop signs: \$40 per stop
  - Cost of labour for replacing old signs: \$20 per stop\*
  - Cost of bus stop poles and labour for installing signs at currently unmarked stops:
    - Municipal areas: \$200 per stop\*
    - Unincorporated areas: \$800 per stop\*
- \* Costs as per Shannon Moskal, RDEK

**I-4. Routing Change for Route 1: Kootenay No. 3 Rd.**



Route 1 currently deviates from Highway 93/95 to travel along a section of Kootenay No. 3 Rd. The second most frequent comment in the passenger survey (3 respondents, or 10%) requested that this routing be avoided due to poor road surface conditions.

The initial rationale behind this routing was that there are residences along this part of Kootenay No. 3 Rd. with the potential to provide ridership, whereas there are none along the corresponding section of highway. However, the stop activity count results (see Section 3.1 above) and anecdotal reports from the operator indicate that there are no users of the service along Kootenay No. 3 Road. Routing via the highway instead would save an estimated 40 revenue hours annually, with the associated estimated cost savings shown below.

This service enhancement proposal is recommended.

Summary Information for	Route 1 Change: Kootenay No. 3 Rd.
<i>Annual Impact:</i>	
Additional Revenue Hours:	-40
Additional Operating Cost:	-\$4,200
Additional Net Municipal Share:	-\$1,800

### ***I-5. Introduction of Summer/Fall (May-Oct) and Winter/Spring (Nov-Apr) Schedules***

The CVTS has a year-round schedule, with recovery time built in to account for snow conditions during the winter months. When roads are clear, the vehicle spends up to one hour each day waiting at timing points in order to not get ahead of schedule. Creating separate schedules for the November–April and May–October periods would eliminate these nonproductive service hours from the late spring, summer, and early fall months and produce a significant annual cost savings, as estimated below.

This service proposal is recommended.

<b>Summary Information for</b>	<b>Introduction of May-Oct &amp; Nov-Apr Schedules</b>
<i>Annual Impact:</i>	
Additional Revenue Hours:	-250
Additional Operating Cost:	-\$24,800
Municipal Share:	-\$12,200

**Assumptions:**

- Reduction by 1 service hour per day in May-Oct period

### ***I-6. Spare Vehicle Purchase for Schedule Reliability***

The CVTS service is currently operating without a spare vehicle. This means that in case of vehicle breakdown, there is no backup vehicle available to prevent disruption of service. In order to improve schedule reliability, a key factor in both maintaining current ridership and attracting new riders, a spare vehicle will need to be purchased, to be stored, as with the in-service vehicle, in Invermere. Acquisition of a spare vehicle is strongly recommended before commencing any increases in service in the proposals following.

An incidental effect of implementing this proposal would be the reduction of the CVTS's average annual vehicle mileage to within BC Transit Fleet Department guidelines, as mentioned in Section 4.0 and Proposal I-1. above.

This service proposal is recommended, albeit with the understanding that it represents a significant financial investment. The estimated costs for this purchase are shown below:

<b>Summary Information for</b>	<b>Spare Vehicle Purchase</b>
<i>Annual Impact:</i>	
Additional Vehicle Cost:	\$38,000
Additional Net Municipal Share:	\$16,500

**Assumptions:**

- new-style low-floor vehicle  
- using 2011-12 costs. Actual costs will be higher depending on year of purchase.  
- annual additional vehicle cost and municipal share based on projected total vehicle cost divided by projected 10-year vehicle lifespan.

### ***I-7. Replacement of On-Request Service with Conventional Service***

The on-request service constitutes 760 revenue hours annually. The November 2010 stop activity count indicated that it is used primarily as shuttle service for daycare students (94% of its ridership) between two daycare centres and Eileen Madson Elementary school. It has been suggested at public open houses

and at official stakeholder meetings that this service be replaced with conventional service. Eileen Madson Elementary is changing its schedule as of September 2011 to make its kindergarten class an all-day program, meaning that transportation from and to the daycare centres will no longer be required.

Due to the minimal number of trips, Route 1 currently has a 7½-hour interval and Route 2 a 4½-hour interval until the return bus departs from Invermere. This makes it impractical to use for service area residents needing to travel to Invermere for medical appointments or shopping purposes.

Adding one extra round trip per route per day to the conventional service would increase trip frequency, the top request for service improvement from the residential surveys (30%, or 30 respondents), passenger surveys (14%, or 4 respondents), public open houses, and official stakeholder meetings. It would enable Route 1 to be used by commuters and non-commuters alike, and make Route 2 much more attractive to daytime users. These changes would enable seniors, the unemployed, non-working parents and shift workers to run errands or attend medical appointments in Invermere with a much shorter wait for the return bus home. It may also be possible to schedule one trip on either Route 1 or Route 2 to better suit school end times.

If the CVTS continues to have only one in-service vehicle, replacing the on-request service with conventional service is the only way of increasing conventional trip frequency and decreasing the wait time in Invermere between inbound and outbound trips. As doing so would make the transit system significantly more convenient, ridership would likely increase significantly as a result.

It may take six to twelve months of increased conventional service for ridership to increase, as people adjust to it, and it should be noted that during the November 2010 stop activity count, ridership on the on-request service averaged 3.4 rides per revenue hour, whereas ridership on the conventional service averaged only 3.2 rides per revenue hour (5.3 rides per revenue hour for Route 1 and 1.5 rides per revenue hour for Route 2). However, as noted above, as of September 2011 the on-request service will be losing the majority of its ridership, with levels decreasing to an estimated average of 0.2 rides per revenue hour. In addition, increasing frequency is likely to not only generate additional ridership on new trips but also grow ridership on existing trips, and would also result in the transit service better reflecting the passenger markets identified as priorities in Columbia Valley’s feasibility study.

This service enhancement proposal is recommended. Its estimated costing is shown below:

Summary Information for		Replacement of On-Request with Conventional Service	
<i>Annual Impact:</i>			
<u>Additional</u> Revenue Hours:	30	<u>Additional</u> Revenue:	\$2,400
<u>Additional</u> Vehicles Required:	0	<u>Additional</u> Operating Cost:	\$3,100
<u>Additional</u> Ridership:	500	<u>Additional</u> Net Municipal Share:	-\$1,100

**Assumptions:**

- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - routing along Hwy 93/95, not No. 3 Rd (see I-4.)
  - weekday service only
  - one additional Route 1 round trip
  - one additional Route 2 round trip
- resulting in two round trips on Route 1, three round trips on Route 2
- additional ridership based on an average of 3.73 rides per revenue hour, the average from 2009-10 and 2010-11.
- additional revenue based on a combination of regional and local cash fares

\* Additional here means in excess of current on-request revenue hours, ridership, revenue and costs

## 6.2 Conclusions

The proposals described above are those most required in order to improve the efficiency and functionality of the CVTS. Overall, they offer the best opportunity to increase ridership with minimal expenditure – implemented in total, they would in fact provide a significant cost savings. Proposals I-1. and I-2. are alternatives to each other. If Proposals I-1. and I-3. through I-7. are implemented, their total annual costs are estimated at \$900, with a net annual municipal share savings of \$1,500. If Proposals I-2. and I-3. through I-7. are implemented, their total cost savings are estimated at \$1,300, with a net municipal share savings of \$7,500. Ridership increase is estimated at 500 extra rides annually, with a net revenue increase of \$2,400. These numbers do not reflect the unknown additional fixed costs associated with the vehicle/operation relocation.

## 7.0 SERVICE ENHANCEMENT PROPOSALS – PHASE II

### 7.1 Service Enhancement Proposals - Phase II

Phase II service enhancements refer to those that may be planned and implemented in the medium term, depending upon funding resources and demand for expanded services, once Phase I enhancements have been successfully implemented and productivity has increased to viable levels. These medium-range plans feature a minor route extension but focus primarily on increasing the in-service vehicle fleet size in order to provide Route 2 commuter service, local service, and a possible increase in Route 1 service. All the following proposals are based on the assumption that the vehicle storage location is Invermere.

#### II-1. Routing Change for Route 1: Canal Flats Loop



Requests for a looping route through Canal Flats were the second most frequent comment in the passenger survey (3 respondents, or 10%), equal to the number of requests for Proposal I-4. above. As

Canal Flats is the CVTS's single biggest source of ridership and has a relatively high population density, this may be desirable in order to improve bus route accessibility, which could potentially increase ridership by up to four rides per day. The majority of residences in Canal Flats are located 500-1,000 metres from the current bus route. Some of the hours saved by implementing Proposal I-4. above could be put towards this route adjustment, which would require an estimated 25 revenue hours annually.

This service enhancement proposal is recommended, with the proviso that ridership should be monitored for changes. The estimated costing is as follows:

Summary Information for		Route 1 Change: Canal Flats Loop	
<i>Annual Impact:</i>			
Additional Revenue Hours:	25	Additional Revenue:	\$600
Additional Vehicles Required:	0	Additional Operating Cost:	\$2,600
Additional Ridership:	300	Additional Net Municipal Share:	\$500

**Assumptions:**

- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - routing along Hwy 93/95, not No. 3 Rd (see I-4.)
  - a total of 2 round trips per day (see I-6.)
  - weekday service only
- additional ridership based on 0.5 passengers per round trip (= 1 ride) per service day
- additional revenue based on a one-way fare of \$2.50

**II-2. Introduction of Local Service around Invermere**

Requests for increased coverage and frequency within Invermere were the ninth most frequent request for service improvement (3 respondents, or 3%) from residential survey respondents. With a second driver available to reduce the time needed for driver breaks, local service could operate during the interval when the vehicle is not running conventional service. This proposal would benefit especially those with mobility issues, such as seniors and persons with disability, and would also ensure maximum vehicle efficiency. Due to the short journey distances involved and given that one of the most likely ridership segments for this service would be the seniors market, local service should be offered at a reduced fare in order not to discourage ridership. It is possible that a trip could be scheduled to coincide with some of the travel needs of the daycare groups currently using the on-request service. This would also increase potential revenue sources.

This service proposal is moderately recommended, with the proviso that ridership should be closely monitored. Below is the estimated costing for this proposal:

Summary Information for		Introduction of Local Service around Invermere	
<i>Annual Impact:</i>			
Additional Revenue Hours:	500	Additional Revenue:	\$500
Additional Vehicles Required:	0	Additional Operating Cost:	\$52,400
Additional Ridership:	500	Additional Net Municipal Share:	\$22,300

**Assumptions:**

- 2nd driver available, enabling 2 shifts and maximizing vehicle operation time
  - additional revenue hours and operating cost based on:
    - vehicle located in Invermere (see I-1.)
    - weekday service only
    - using 2011-12 costs. Actual costs will be higher depending on year of purchase.
    - 2 hours of revenue service per day
  - additional ridership based on:
    - 1 round-trip passenger (= 2 rides) per service day
- N.B. Ridership projections do not include daycare group passengers.*
- additional revenue based on:
    - \$1 cash fare per one-way trip

**II-3. Second In-Service Vehicle Purchase**

A second in-service vehicle is a prerequisite for the provision of service at commuter times on Route 2 (Phase II Proposal 4 below), but is a significant cost. This proposal should be reviewed once Phase I proposals have been implemented and annual productivity statistics are available for their performance monitoring. It would need to be reconsidered should productivity remain low after Phase I implementation. The potential storage facility identified would need to have the capacity for this third vehicle or an alternative facility located.

An incidental effect of implementing this proposal would be the reduction of the CVTS's average annual vehicle mileage to within BC Transit Fleet Department guidelines, as mentioned in Section 4.0 and proposals I-1. and I-6. above.

An estimated costing is provided below:

Summary Information for	2nd In-Service Vehicle Purchase
<i>Annual Impact:</i>	
Additional Vehicle Cost:	\$38,000
Additional Municipal Share:	\$16,500

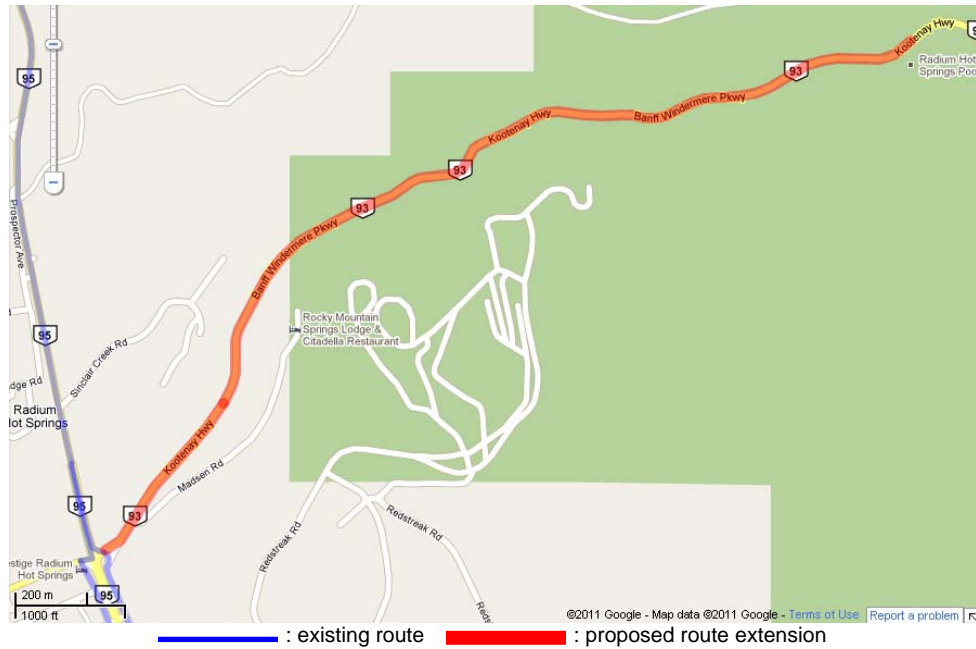
**Assumptions:**

- new-style low-floor vehicle
- using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available
- annual additional vehicle cost and municipal share based on projected total vehicle cost divided by projected 10-year vehicle lifespan.

**II-4. Route 2 (Edgewater & Radium): Morning and Afternoon Commuter Trip**  
(dependent on II-3. above)

It was requested by official stakeholders, at public open houses, and by residential survey respondents (the third most frequent request for service improvement: 9%, or 9 respondents) that service be offered to Radium residents commuting to Invermere and Edgewater residents commuting to Radium or Invermere. Introducing two additional Route 2 trips at suitable commuting times would enable the CVTS to serve commuters north and south of Invermere equally.

Two residential survey respondents specifically requested service to Radium Hot Springs pools for employees. If the schedule could accommodate shift start and end times at the pools as well as work start and end times in Invermere, these commuter trips could potentially include a route deviation to the pools. It should be noted, however, that there are a maximum of around ten employees at the pools, during the summer high season, and that this route deviation is unlikely to produce any significant ridership.



Further discussion of service to Radium Hot Springs pools is included under Phase III Proposal 2, Saturday service.

This proposal is recommended from the perspective of providing more equitable service to commuters into Invermere. However, it is recognized that it will cause a considerable cost increase and may not be financially viable. Estimated costs are as follows:

Summary Information for		Route 2 A.M. and P.M. Commuter Trip	
<i>Scenario 1: Using current routing</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	280	Additional Revenue:	\$2,000
Additional Vehicles Required:	↑ 11-3. above	Additional Operating Cost:	\$67,400
Additional Ridership:	2000	Additional Net Municipal Share:	\$27,300
<i>Scenario 2: Routing via Radium Hot Springs pools</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	370	Additional Revenue:	\$3,000
Additional Vehicles Required:	↑ 11-3. above	Additional Operating Cost:	\$76,800
Additional Ridership:	3000	Additional Net Municipal Share:	\$30,400



**Assumptions:**

- 2nd in-service vehicle available
  - new-style low-floor vehicle
  - using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available
- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - 2 trips per service day
  - weekday service only
  - vehicle is deadheading on first outbound trip and last inbound trip segments
- additional ridership based on:
  - (Scenario 1): 4 round-trip passengers (= 8 rides) per service day
  - (Scenario 2): 6 round-trip passengers (= 12 rides) per service day
    - includes 2 daily commuters to Radium Hot Springs pools
- additional revenue based on all passengers using monthly passes
- additional operating cost and net municipal share include additional annual vehicle cost
- additional net municipal share is municipal share of additional operating cost less projected additional revenue

**Note:**

The additional operating costs and net municipal shares above are inclusive of the projected annual costs of an additional vehicle over its lifespan.

## **7.2 Conclusions**

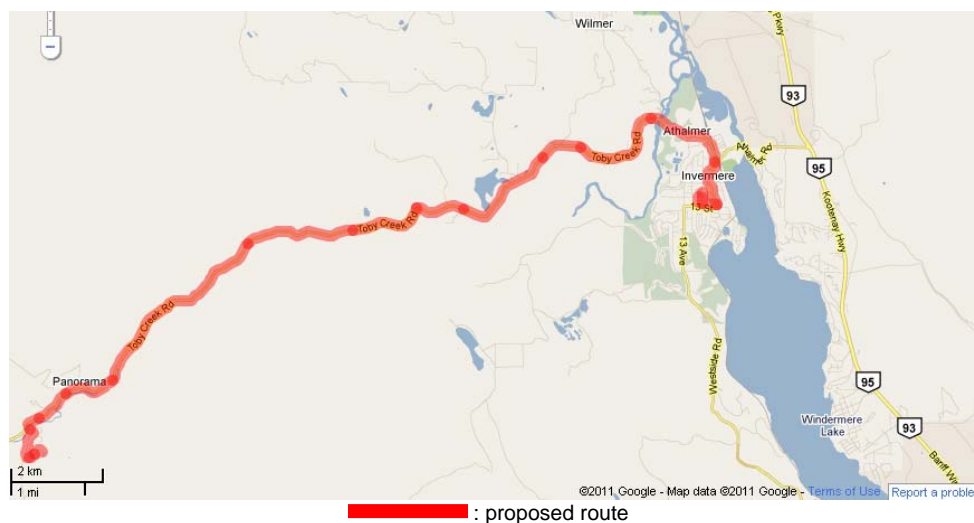
The proposals described above are those that would best provide the opportunity to improve CVTS ridership and system functionality, providing Phase I implementation has resulted in an increase in system cost recovery and productivity. Phase II will entail intermediate- to high-level costs. Proposal II-4. presents two different scenarios. If II-4. Scenario 1 is implemented, the total annual costs for this phase are estimated at \$160,000, with a net annual municipal share of \$67,000, an annual ridership increase of 2,800 rides, and an annual revenue increase of \$3,100. If II-4. Scenario 2 is implemented, the total annual costs for this phase are estimated at \$170,000, with a net annual municipal share of \$70,000, an annual ridership increase of 2,800 rides, and an annual revenue increase of \$4,100. Implementation of these proposals will be dependent upon funding availability at the time.

## **8.0 SERVICE ENHANCEMENT PROPOSALS - PHASE III**

### **8.1 Service Enhancement Proposals - Phase III**

Phase III service enhancements depend on the success of Phase I and Phase II enhancements in increasing the CVTS's productivity and strengthening its ridership base. They entail substantial additions to the existing service, and may be implemented over the long term, depending on ridership levels after Phases I and II, and on available funding. Phase III enhancements feature weekend and evening service, new routes, and route extensions. As in Section 7.0 above, these proposals are all based on the assumption that the vehicle storage location is Invermere.

### III-1. New Route: Panorama Mountain Village – Ski Season Weekend Service



Service to Panorama Mountain Village was the third-highest self-generated service request in the residential survey, given by nine respondents and comprising 9% of system improvement requests. It should be noted, however, that the majority (seven) of these respondents were Panorama employees. According to the resort’s President and COO, Panorama Mountain Village provides its own employee shuttle, running five return trips a day, so there currently appears to be no need to serve Panorama employees with public transit.

When asked a non-commitment question about how often they would use this service during the ski season if it existed, 284 residential survey respondents (27%) said they would use it either one to three days per month, one day per week, or two to three days per week. An additional 49 respondents (5%) said they would use it four to five days per week (60% of these were Panorama employees). The majority of other sources consulted (open house attendees, the Columbia Valley Transportation Commission, council representatives, electoral area directors and the operating company) did not identify a need for service to this area, whether for employees or for people using the resort for leisure purposes.

While daily service during ski season for resort employees does not appear warranted due to the staff shuttle, service could be implemented on weekends for leisure users, in order to cater to the respondents saying they would use it between one day per month to three days per week. As it would be targeting a very specific market and trip times would be scheduled to meet lift start and end times, this service proposal is likely to have the highest actual take-up of the non-commitment service questions asked in the residential survey.

It should be noted that the only market identified by the feasibility study served by this proposal would be students. It can be perceived as a “luxury” service rather than a necessity and thus lower priority than Phase II proposals, as it would be for leisure purposes rather than for getting the transit dependent to work, school, medical appointments or shopping destinations. As such, it can be considered as an “add-on” discretionary service, once the regular routes serving non-choice riders have received more investment in Phase II.

This service proposal is not recommended in the short or medium term. The estimated costing for this service would be as follows:

Summary Information for		Weekend Service to Panorama – Ski Season	
<i>Scenario 1: Saturday service only</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	30	Additional Revenue:	\$700
Additional Vehicles Required:	0	Additional Operating Cost:	\$3,100
Additional Ridership:	300	Additional Net Municipal Share:	\$600
<i>Scenario 2: Saturday &amp; Sunday service</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	70	Additional Revenue:	\$1,300
Additional Vehicles Required:	0	Additional Operating Cost:	\$7,300
Additional Ridership:	700	Additional Net Municipal Share:	\$1,900

**Assumptions:**

- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - 2 round trips (a.m. and p.m.) per service day
- additional ridership based on 10 round-trip passengers (= 20 rides) per service day
- additional revenue based on a one-way fare of \$2

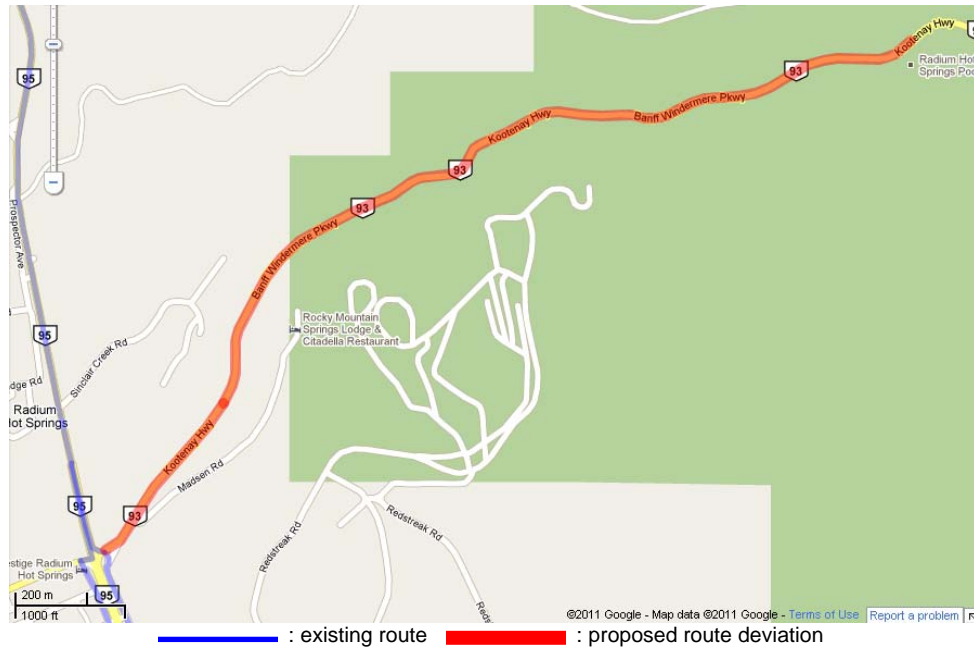
Revenue hours estimated using Google Maps™.

### **III-2. Saturday Service – Including Route Deviation to Radium Hot Springs Pools**

Four residential survey respondents (4% of system improvement requests) and two (7% of) passenger survey respondents requested weekend service on the existing conventional routes. As Saturday service and Sunday service have different characteristics, they are handled in this report under separate proposals.

Generally, rural transit systems within B.C. have Saturday service if they are linked to an urban transit system or are already generating strong weekday ridership. While the Columbia Valley is somewhat atypical, in that it is a major weekend destination for tourists and second-home owners in the summer months, this seasonal population is unlikely to be a source of ridership: visitors will have private vehicle access and are unlikely to use the type and level of public transit available in rural areas. However, it is noted that many residents of the Columbia Valley will access the same leisure facilities at weekends that attract visitors, for example the Panorama ski resort mentioned above, and the hot springs pools at Radium and Fairmont.

The Fairmont Hot Springs pools are currently served on weekdays by Route 1, but the transit schedule is for resort employees and does not work for leisure users. Radium Hot Springs pools, owned and operated by Parks Canada in Kootenay National Park, lie approximately three kilometres from Radium's main hub and the current routing of Route 2:



A service extension to Radium Hot Springs pools has been suggested by two official stakeholders. The pools receive approximately 250,000 visitors annually, some of whom will be local residents who might use transit. Weekends, when the pools receive the most visitors, would likely provide the greatest chance of generating viable ridership, as this would be drawn from multiple market segments, for example workers on a Monday to Friday schedule, families with young children, and students, as well as seniors. However, as with the proposal for Panorama above, this can be perceived as more of a “luxury”, or discretionary, service, to be added once the more essential services required to transport residents for employment, education, medical and shopping purposes have been implemented.

The residential survey asked for a non-commitment response on usage of potential transit service to the pools at Radium and Fairmont. 270 respondents (26%) stated that they would use transit service to Radium Hot Springs pools. The majority, 200 respondents, said that they would use it either between one to three days per month or one day per week. 251 respondents (24%) stated that they would use transit service to Fairmont Hot Springs pools, 203 of these saying that they would use it either between one to three days per month or one day per week.

The estimated actual daily ridership to the Radium and Fairmont pools on Saturdays or Sundays, based on the residential survey responses, is between three to four passengers. While this is not enough in itself to justify providing service, especially for leisure purposes and thus more discretionary than essential, it is likely that Saturday shoppers would provide additional ridership. Saturday service may prove viable once weekday ridership has increased and stabilized enough to provide a reasonable passenger base to draw on, and could be reviewed at that time.

A shuttle service between the Village of Radium Hot Springs and the pools has also been suggested. However, as the only potential ridership source would be Village of Radium residents living within two to three hundred meters of the bus route, this would likely not be viable. In order to be effective as a public service, service would also need to be provided to residents of Invermere and Edgewater. As such, it would constitute full Route 2 service, with no corresponding Saturday service on Route 1 or to the Fairmont Hot Springs pools. It is therefore suggested that service to Radium Hot Springs pools be combined with introduction of Saturday service on both routes.

It is recognized that resort employees tend not to work a standard Monday-Friday work week. Employees of Fairmont Hot Springs Resort may well benefit from service on Saturdays at commuter times, although there may not be any significant demand for commuter service to Radium Hot Springs Pools due to its

relatively small number of employees. There may also be Saturday commuters into Invermere from Edgewater, Radium, Canal Flats and Fairmont. Providing a schedule that would accommodate commuters, as well as shoppers and pool users, would require a service increase from two to four round trips per route per service day, the same amount of operating hours as the enhanced weekday service outlined in Phases I and II. It would also require a second bus, due to the amount of service and to meeting commuter needs on both routes simultaneously.

This service proposal is not recommended in the short or medium term, but its estimated costing is shown below:

Summary Information for		Saturday Service (including Radium Pools)	
<i>Scenario 1: 2 round trips per route - for shoppers and pool users</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	360	Additional Revenue:	\$900
Additional Vehicles Required:	0	Additional Operating Cost:	\$37,700
Additional Ridership:	400	Additional Net Municipal Share:	\$15,500
<i>Scenario 2: 4 round trips per route - including two commuter trips</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	720	Additional Revenue:	\$1,600
Additional Vehicles Required:	↑ <i>11-3. above</i>	Additional Operating Cost:	\$113,500
Additional Ridership:	700	Additional Net Municipal Share:	\$47,700

**Assumptions:**

- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - routing along Hwy 93/95, not No. 3 Rd (see I-4.)
  - routing via Canal Flats route extension (see II-1.)
  - routing via Radium Hot Springs pools and Fairmont Hot Springs pools
- additional ridership based on:
  - 1 round-trip passenger (= 2 rides) per day to Fairmont Hot Springs pools
  - 1 round-trip passenger (= 2 rides) per day to Radium Hot Springs pools
  - 1 round-trip shopper passenger (= 2 rides) per day per round trip
  - 1 round-trip shopper passenger (= 2 rides) per day per commuter round trip
  - (Scenario 2 only):
    - additional:
      - 1 round-trip commuter passenger (= 2 rides) per day per route
      - average 0.5 round-trip shopper passenger (= 1 ride) per day per route
- additional revenue based on:
  - 50% of rides per day paying local cash fare
  - 50% of rides per day paying regional fare
- 2nd in-service vehicle available

Scenario 2 only:

- new-style low-floor vehicle
- using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available

**Note:** The additional operating cost and net municipal share in Scenario 2 above are inclusive of the projected annual costs of an additional vehicle over its lifespan.

**III-3. Evening Service**  
(dependent on II-3. above)

Evening service was the fifth-highest request for service improvement received from the residential surveys, from eight respondents (8% of improvement requests). In the vast majority of transit systems with evening service, ridership during this time period is significantly lower than during the morning peak, midday, and afternoon peak periods. As the CVTS's daytime ridership is already low, evening service should be considered only after daytime productivity has strengthened to viable levels and the system has a larger passenger base to draw on.

In order to provide evening service both north and south of Invermere and still operate the existing Route 1 commuter trip, or the proposed Route 2 commuter trip, two in-service vehicles would be required due to the long distances and vehicle running times involved.

This service proposal is not recommended. However, its estimated costing is shown below:

Summary Information for		Evening Service	
<i>Annual Impact:</i>			
Additional Revenue Hours:	890	Additional Revenue:	\$1,100
Additional Vehicles Required:	↑ <i>II-3. above</i>	Additional Operating Cost:	\$131,300
Additional Ridership:	500	Additional Net Municipal Share:	\$55,900

**Assumptions:**

- 2nd in-service vehicle available
  - new-style low-floor vehicle
  - using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available
- additional revenue hours and operating cost based on:
  - vehicles located in Invermere (see I-1.)
  - 1 round trip per route per service day
  - routing along Hwy 93/95, not No. 3 Rd (see I-4.)
  - routing via Canal Flats route extension (see II-1.)
  - routing via Radium Hot Springs pools (see III-2.)
  - weekday service only
- additional ridership based on 2 round-trip passengers (= 4 rides) per service day
- additional revenue based on:
  - 2 rides per day paying local cash fare
  - 2 rides per day paying regional fare
- additional operating cost and net municipal share include additional annual vehicle cost
- additional net municipal share is municipal share of additional operating cost less projected additional revenue

**Note:** The additional operating cost and net municipal share above are inclusive of the projected annual costs of an additional vehicle over its lifespan.

**III-4. New Route: Weekday Service to Wilmer**  
(dependent on II-2. above)



Red line: proposed route

Service to Wilmer has been suggested as a potential new route in the CVTS system, although the residential survey responses contained only 2 requests for it, or 2% of self-generated service requests. This area has a total population of 250, with 100 occupied residences (Source: BC Stats, 2006 census). Using an estimate based on the major population centres currently served by the CVTS (allowing for the proportion of people in these areas not residing within 300 metres of the transit route), it is projected that service to this area will generate between one to two round-trip passengers per day. The estimated costing below is based on two round trips per day operating on weekdays only.

It should be noted that as this would be a weekday service, its implementation is dependent on the purchase of a second in-service vehicle.

This service proposal is not recommended, but estimated costing for it is shown below:

Summary Information for	Service to Wilmer	
<i>Annual Impact:</i>		
Additional Revenue Hours:	200	Additional Revenue: \$1,000
Additional Vehicles Required:	↑ 11-3. above	Additional Operating Cost: \$59,000
Additional Ridership:	500	Additional Net Municipal Share: \$24,600

**Assumptions:**

- 2nd in-service vehicle available
  - new-style low-floor vehicle
  - using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available
- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - 2 round trips per service day
  - weekday service only
- additional ridership based on 1 round-trip passenger (= 2 rides) per service day
- additional revenue based on a 1-way fare of \$2
- additional operating cost and net municipal share include additional annual vehicle cost
- additional net municipal share is municipal share of additional operating cost less projected additional revenue

Revenue hours estimated using Google Maps™.

Note: The additional operating cost and net municipal share above are inclusive of the projected annual costs of an additional vehicle over its lifespan.

### **III-5. Sunday Service**

As mentioned above, four residential survey respondents (4% of system improvement requests) and two (7% of) passenger survey respondents requested weekend service. Due to low demand and high costs, Sunday service is not currently provided to rural areas in BC (with the exception of Pemberton because of the daily commuter market to Whistler). It can be considered, however, if Saturday service is already in place and generating viable ridership levels.

This service proposal is not recommended. However, based on two round trips per route per service day, the estimated costing for this service would be as follows:

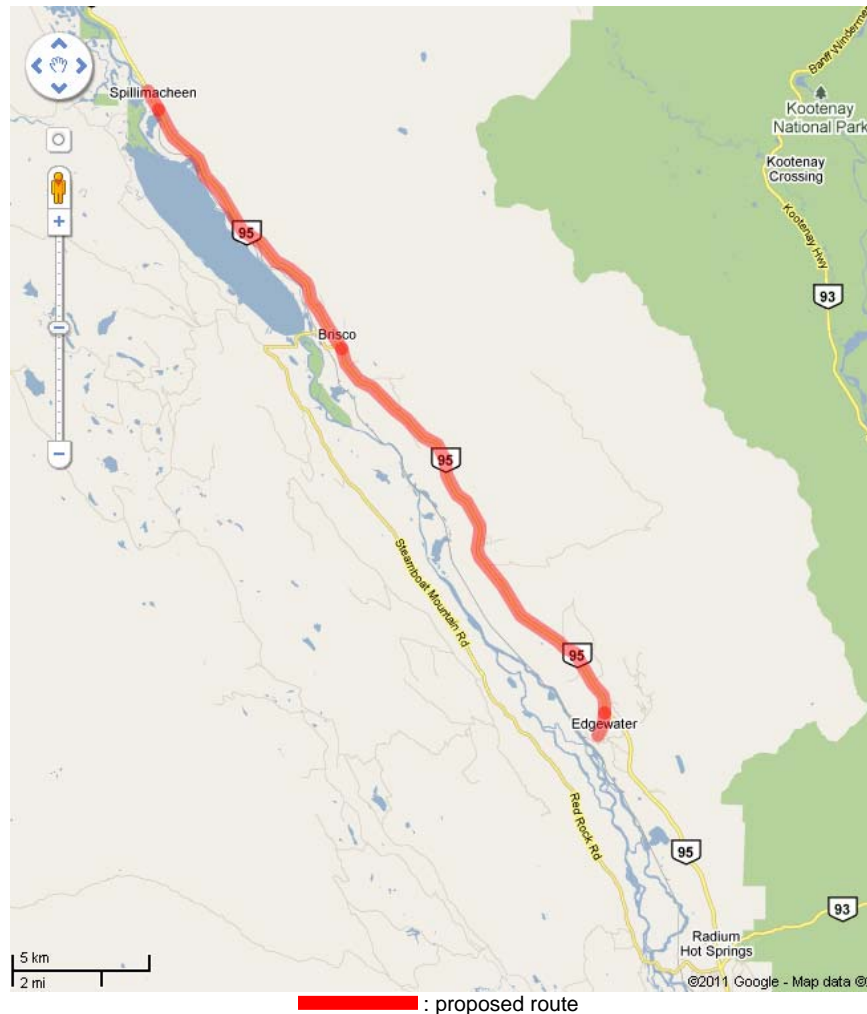
Summary Information for	Sunday Service	
<i>Annual Impact:</i>		
Additional Revenue Hours:	360	Additional Revenue: \$500
Additional Vehicles Required:	0	Additional Operating Cost: \$37,700
Additional Ridership:	200	Additional Net Municipal Share: \$15,900

**Assumptions:**

- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - 2 round trips per route per service day
  - routing along Hwy 93/95, not No. 3 Rd (see I-4.)
  - routing via Canal Flats route extension (see II-1.)
  - routing via Radium Hot Springs pools (see III-2.)
- additional ridership based on 2 round-trip passengers (= 4 rides) per route per service day
- additional revenue based on:
  - 2 rides per day paying local cash fare
  - 2 rides per day paying regional fare

### **III-6. Route 2 Extension: Brisco and Spillimacheen** (dependent on II-2. above)





There has been a request from an official stakeholder to have Route 2 service extended to Brisco and Spillimacheen, which together have a total population of about 325 (Source: Columbia Valley Chamber of Commerce). While service to these areas was discussed in the Columbia Valley feasibility study, it was ultimately discounted because of a combination of land-use type, extremely low population density due to residences being widely dispersed, and high vehicle ownership levels.

When asked for a non-commitment response, 82 residential survey respondents, or 8%, stated that they would use this service if it existed. However, using a demand estimation formula to calculate the actual service demand based on this response results in an estimated average ridership of 0.1 passengers per weekday.

Implementation of this proposal would require the purchase of a second in-service vehicle. It should be noted that this service extension between Edgewater and Spillimacheen would occupy nearly two extra hours of vehicle usage per day and thus significantly reduce the vehicle time available for implementing many of the Phase II and III service proposals discussed so far.

A service extension to these areas is not recommended, but a cost estimate is provided below:

Summary Information for		Service Extension to Brisco & Spillimacheen	
<i>Scenario 1: Weekday service only</i>			
<i>Annual Impact:</i>			
<u>Additional</u> Revenue Hours:	390	<u>Additional</u> Revenue:	\$150
<u>Additional</u> Vehicles Required:	↑ <sup>II-3. above</sup>	<u>Additional</u> Operating Cost:	\$78,900
<u>Additional</u> Ridership:	50	<u>Additional</u> Net Municipal Share:	\$34,100
<i>Scenario 2: Saturday service only</i>			
<i>Annual Impact:</i>			
<u>Additional</u> Revenue Hours:	80	<u>Additional</u> Revenue:	\$30
<u>Additional</u> Vehicles Required:	0	<u>Additional</u> Operating Cost:	\$46,400
<u>Additional</u> Ridership:	10	<u>Additional</u> Net Municipal Share:	\$20,100

**Assumptions:**

- 2nd in-service vehicle available
  - new-style low-floor vehicle
  - using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available
- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - 2 round trips per service day
- additional ridership based on 0.1 round-trip passengers (= 0.2 rides) per service day
- additional revenue based on a 1-way fare of \$3
- additional operating cost and net municipal share include additional annual vehicle cost
- additional net municipal share is municipal share of additional operating cost less projected additional revenue

Additional here means in addition to those required for service between Invermere & Edgewater

Note: The additional operating cost and net municipal share in Scenario 1 above are inclusive of the projected annual costs of an additional vehicle over its lifespan.

**III-7. Route 2 Extension: Golden**  
(dependent on II-2. above)

The residential survey included a question about potential use of service extending north and linking to the Kicking Horse Country transit system area up to Golden. 197 respondents (19%) said that they would use it, of which 167 said that they would use it between one to three days a month. Using a demand estimation formula to calculate the actual service demand based on this non-commitment response gives an estimated average ridership of 0.6 passengers per weekday.

As with Proposal III-6. above, implementation of this proposal between Spillimacheen and Golden would depend on the purchase of a second in-service vehicle. However, due to the distance and travelling time between these areas, this service would use an additional 3 ½ hours of vehicle time per day, precluding any implementation of most of the service proposals already discussed in this phase and Phase II.

Given its projected ridership and the impact it would have on other service enhancements, implementing this proposal does not appear warranted or feasible and is not recommended. However, a cost estimate follows:

Summary Information for		Service to Golden	
<i>Scenario 1: Weekday service only</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	1070	Additional Revenue:	\$900
Additional Vehicles Required:	↑ <sup>II-3. above</sup>	Additional Operating Cost:	\$150,200
Additional Ridership:	300	Additional Net Municipal Share:	\$64,300
<i>Scenario 2: Saturday service only</i>			
<i>Annual Impact:</i>			
Additional Revenue Hours:	220	Additional Revenue:	\$200
Additional Vehicles Required:	↑ <sup>II-3. above</sup>	Additional Operating Cost:	\$61,100
Additional Ridership:	60	Additional Net Municipal Share:	\$26,300

**Assumptions:**

- 2nd in-service vehicle available
  - new-style low-floor vehicle
  - using 2011-12 costs. Actual costs will be higher depending on year of purchase.
- 2nd driver available
- additional revenue hours and operating cost based on:
  - vehicle located in Invermere (see I-1.)
  - 2 round trips per service day
- additional ridership based on 0.6 round-trip passengers (= 1.2 rides) per service day
- additional revenue based on a 1-way fare of \$3
- additional operating cost and net municipal share include additional annual vehicle cost
- additional net municipal share is municipal share of additional operating cost less projected additional revenue

**Note:**

- All projected revenue hours, ridership, revenue and cost are exclusive of III-6. projections.
- The additional operating costs and net municipal shares above are inclusive of the projected annual costs of an additional vehicle over its lifespan.

## 8.2 Conclusions

The proposals described above are those that would be desirable to have if both Phase I and Phase II have been successfully implemented and have generated a significant improvement in cost recovery and productivity. Four of these seven Phase III proposals present different scenario alternatives. Selecting the alternatives with the lowest costs would result in estimated total annual costs for Phase III of \$380,000, with a net annual municipal share of \$159,000, an annual ridership increase of 2,000 rides, and an annual revenue increase of \$4,400. Selecting the alternatives with the highest costs would result in estimated total annual costs for Phase III of \$580,000, with a net annual municipal share of \$245,000, an annual ridership increase of 3,000 rides, and an annual revenue increase of \$6,500. Due to the high costs involved, with the exception of weekend service during ski season to Panorama Resort, implementation of these proposals is not recommended based on current cost recovery and productivity levels.

## 9.0 SUMMARY OF PHASE I, PHASE II & PHASE III PROPOSALS

The tables below provide summaries of the estimated costs of the various Phase I, Phase II, and Phase III service enhancement proposals for the Columbia Valley Transit System. Each table lists the service enhancements discussed in this review in order of current, perceived priority. These priorities may change, depending on those of the Regional District of East Kootenay, funding resources, and demand.

Viability levels have been determined by assessing a combination of different factors, including projected revenue hours and cost, projected ridership and revenue, and projected improvement in overall system functionality.

<b>Replacement of current vehicles recommended for:</b>	<b>2012</b>	<b>- CVTS in-service vehicle</b>
	<b>2010 (overdue)</b>	<b>- Health Connections service vehicle</b>

Viability level assessments are based on a combination of projected revenue hours, cost, ridership, revenue, and improvement in overall system functionality. Viability levels range from "Very High" through to "Low" and "--".

#### Summary of Proposed Phase I Service Enhancements

Proposal No.	Description	Additional Annual:						Viability Level
		Revenue Hours	Vehicles	Ridership	Revenue	Cost	Net Municipal Share	
I-1.	In-Service Vehicle Relocation to Invermere	0	0	n/a	n/a	-\$15,800	-\$6,900	Very High
I-2.	In-Service Vehicle Relocation to Canal Flats	0	0	n/a	n/a	-\$29,700	-\$12,900	Very High
I-3.	Improved Stop Signage	n/a	0	difficult to quantify		\$4,560	\$3,960	High
I-4.	Route 1 Change: Kootenay No. 3 Rd.	-40	0	0	\$0	-\$4,200	-\$1,800	Very High
I-5.	Introduction of May-Oct & Nov-Apr Schedules	-250	0	0	\$0	-\$24,800	-\$12,200	Very High
I-6.*	Spare Vehicle Purchase	n/a	1	n/a	n/a	\$38,000	\$16,500	Medium
I-7.	Replacement of On-Request with Conventional Service	30	0	500	\$2,400	\$3,100	-\$1,100	Very High
<b>Total Phase I Service Enhancement Proposals:</b>		<b>-250 to -260</b>	<b>0</b>	<b>0 to 500</b>	<b>0 to \$2,400</b>	<b>-\$29,700 to -\$13,040</b>	<b>-\$12,900 to -\$7,540</b>	

\* Will incur significant debt service

#### Summary of Proposed Phase II Service Enhancements (Phase I to be completed first)

Proposal No.	Description	Additional Annual:						Viability Level
		Revenue Hours	Vehicles	Ridership	Revenue	Cost	Net Municipal Share	
II-1.	Route 1 Change: Canal Flats Loop	25	0	300	\$600	\$2,600	\$500	High
II-2.	Introduction of Local Service around Invermere	500	0	500	\$500	\$52,400	\$22,300	Low
II-3.*	2nd In-Service Vehicle Purchase	n/a	1	n/a	n/a	\$38,000	\$16,500	Medium
II-4.^	Route 2 A.M. and P.M. Commuter Trip							
	Scenario 1: Using current routing	280	1	2000	\$2,000	\$67,400	\$27,300	Medium
	Scenario 2: Routing via Radium Hot Springs pools	370	1	3000	\$3,000	\$76,800	\$30,400	--
<b>Total Phase II Service Enhancement Proposals:</b>		<b>25 to 895</b>	<b>0</b>	<b>300 to 3,800</b>	<b>500 to \$4,100</b>	<b>\$2,600 to \$169,800</b>	<b>500 to \$69,700</b>	

\* Will incur significant debt service

^ Implementation of II-3. (2nd in-service vehicle purchase) a prerequisite for this service proposal

#### Summary of Proposed Phase III Service Enhancements (Phases I & II to be completed first)

Proposal No.	Description	Additional Annual:						Viability Level
		Revenue Hours	Vehicles	Ridership	Revenue	Cost	Net Municipal Share	
III-1.	Weekend Service to Panorama – Ski Season							
	Scenario 1: Saturday service only	30	0	300	\$700	\$3,100	\$600	High
	Scenario 2: Saturday & Sunday service	70	0	700	\$1,300	\$7,300	\$1,900	High
III-2.	Saturday Service (including Radium Pools)							
	Scenario 1: - for shoppers and pool users	360	0	400	\$900	\$37,700	\$15,500	Low
	Scenario 2: - including two commuter trips^	720	1	700	\$1,600	\$113,500	\$47,700	--
III-3.^	Evening Service	890	1	500	\$1,100	\$131,300	\$55,900	--
III-4.^	Service to Wilmer	200	1	500	\$1,000	\$59,000	\$24,600	--
III-5.	Sunday Service	360	0	200	\$500	\$37,700	\$15,900	--
III-6.	Service Extension to Brisco & Spillimacheen							
	Scenario 1: Weekday service only^	390	1	50	\$150	\$78,900	\$34,100	--
	Scenario 2: Saturday service only	80	0	10	\$30	\$46,400	\$20,100	--
III-7.^	Service to Golden							
	Scenario 1: Weekday service only	1070	1	300	\$900	\$150,200	\$64,300	--
	Scenario 2: Saturday service only	220	1	60	\$200	\$61,100	\$26,300	--
<b>Total Phase III Service Enhancement Proposals:</b>		<b>30 to 3,700</b>	<b>0</b>	<b>10 to 2,950</b>	<b>30 to \$6,550</b>	<b>\$3,100 to \$577,900</b>	<b>600 to \$244,400</b>	

^ Implementation of II-3. (2nd in-service vehicle purchase) a prerequisite for this service proposal

## 10.0 FARE STRATEGIES

The fares implemented with the system's startup are in line with those of transit systems with similar levels of service. The fare structure differentiates between local travel, between Invermere, Radium, Windermere and Fairmont, and regional travel, from Edgewater and Canal Flats. The fares were set to be affordable and to provide a reasonable cost recovery. Due to lower-than-expected ridership, the cost recovery is currently only 6.5%.

The CVTS carries the full suite of fare products: passengers can purchase discounted tickets (\$5 discount on a sheet of 10 local tickets, \$7 discount on a sheet of 10 regional tickets) or monthly passes as an alternative to the full cash fare. Monthly passes are available from bus drivers, while sheets of tickets are sold at a number of locations throughout the Columbia Valley. Including the cash-only Health Connections service, CVTS revenue to date from system inception averages 86% cash fares versus 14% monthly passes. No ticket sales have been reported since service began.

A fare increase in the conventional system will most likely have a negative impact on ridership, and thus would not increase cost recovery. The CVTS is still a new service and as such the focus at this time should be on improving the service and increasing ridership. A fare increase is not recommended at the present time but could be reconsidered when Phase III, or possibly Phase II, service enhancements are implemented.

## 11.0 LIST OF APPENDICES

**Appendix A:** Historical Ridership Statistics

**Appendix B:** Provincial Transit GHG Emission Guidelines & CVTS GHG Emission Calculations

**Appendix C:** Current Route Maps & Schedules

**Appendix D:** Two-Week Passenger and Stop Activity Count Analysis Summaries

**Appendix E:** November 2008 & 2009 Two-Week Passenger Count Results

**Appendix F:** November 2010 Two-Week Stop Activity Count Results

**Appendix G:** Public Consultation Methodologies

**Appendix H:** March-August 2010 Residential Survey

**Appendix I:** October 2009 On-Board Survey Summary

**Appendix J:** Fare Structure

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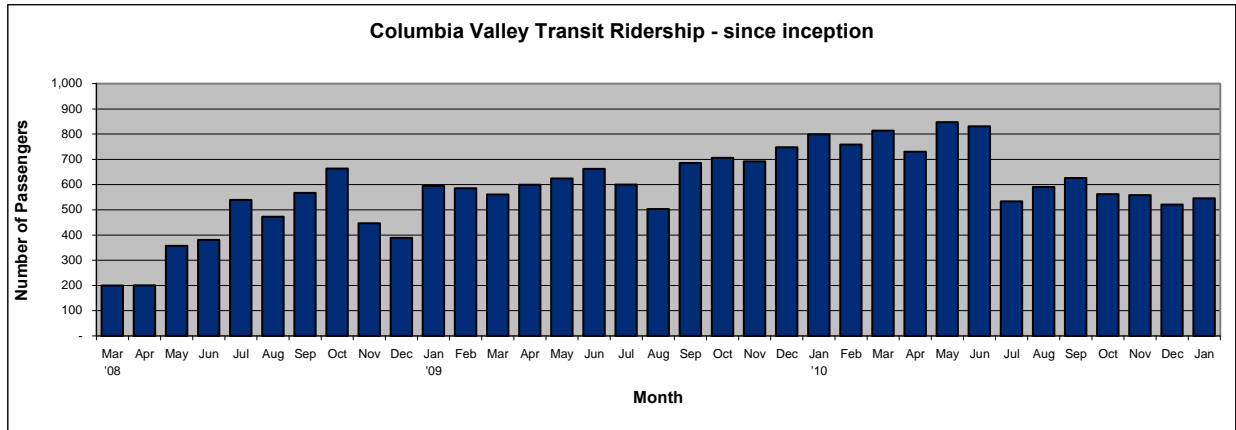
# APPENDICES



## Appendix A: Historical Ridership Statistics

### Historical Ridership Statistics

The chart below show monthly ridership levels since inception:

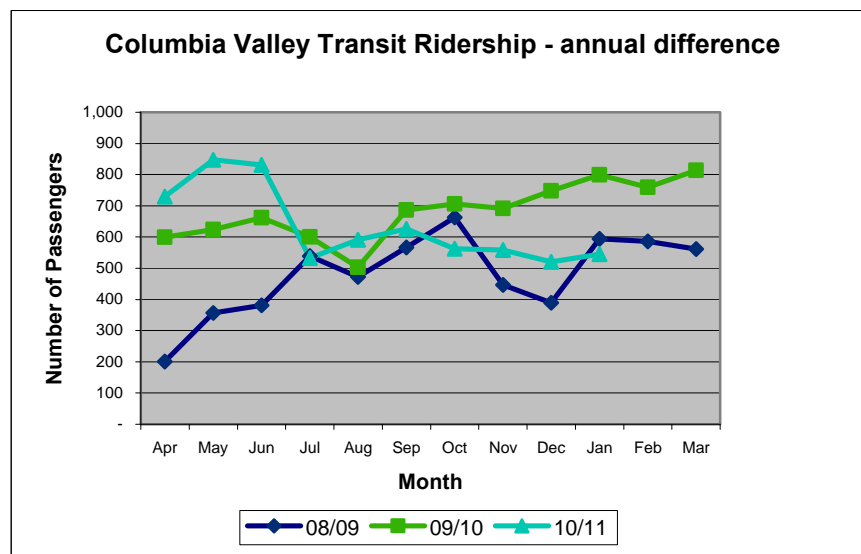


\* Conventional service only; does not include Health Connections ridership

#### Analysis Summary:

- Ridership for the 2008-2009 fiscal year was nearly 5,800. This was well below expectations, as BC Transit had estimated an initial 12-month ridership of 10,500.
- Ridership for the 2009-2010 fiscal year showed a good recovery at nearly 8,200, representing a 42% year-on-year increase.
- Ridership for the first ten months of fiscal 2010-11 shows a 4% decrease from the same period of the previous fiscal year:
  - The first quarter showed solid ridership.
  - July and August 2010 showed a dip in ridership, normal for the season across most transit systems in BC.
  - The usual fall recovery did not occur.
  - October's, November's, December's and January's ridership was all lower than August's.

The following chart shows the year-on-year monthly differences in ridership since inception:



\* Conventional service only; does not include Health Connections ridership



## Appendix A: Historical Ridership Statistics

### Analysis Summary:

- Ridership in 2008-2009 generally increased during the year. There was a small drop in August, which is typical of most transit systems in BC, and a sharp drop in November and December, which is abnormal for BC transit systems.
- Ridership in 2009-2010 showed significant overall improvement on 2008-2009's: it was higher than 2008-2009's in every month.
- Ridership for the first ten months of fiscal 2010-11 shows an overall decrease from the same period of the previous fiscal year:
  - 2010-11's ridership was higher than 2009-10's in each month of the first quarter.
  - it was lower than 2009-10's in six of the following seven months.
  - in two particular months (October and January), it was lower even than 2008-09's.

**Appendix B: 2008/09-2010/11 Budgeted Fuel Consumption & GHG Emission Calculations**

<b>Budget</b>								
<b>2008/09</b>			<b>2009/10</b>			<b>2010/11</b>		
	litres	kms	litres	kms	litres	kms	litres	kms
	Consumption Rate (L/100 kms)		Consumption Rate (L/100 kms)		Consumption Rate (L/100 kms)		Consumption Rate (L/100 kms)	
<b>CVTS</b>	25,298	97,299	23,259	96,913	23,445	97,685	24.0	24.0

1 litre of diesel produces approximately 2.7 kg CO<sub>2</sub>

$$\text{CVTS produces } \frac{24.0 \text{ L} \times 2.7 \text{ kgs}}{100 \text{ kms}} \text{ kg CO}_2 \text{ per km}$$

$$= 0.648 \text{ kg CO}_2 \text{ per km}$$

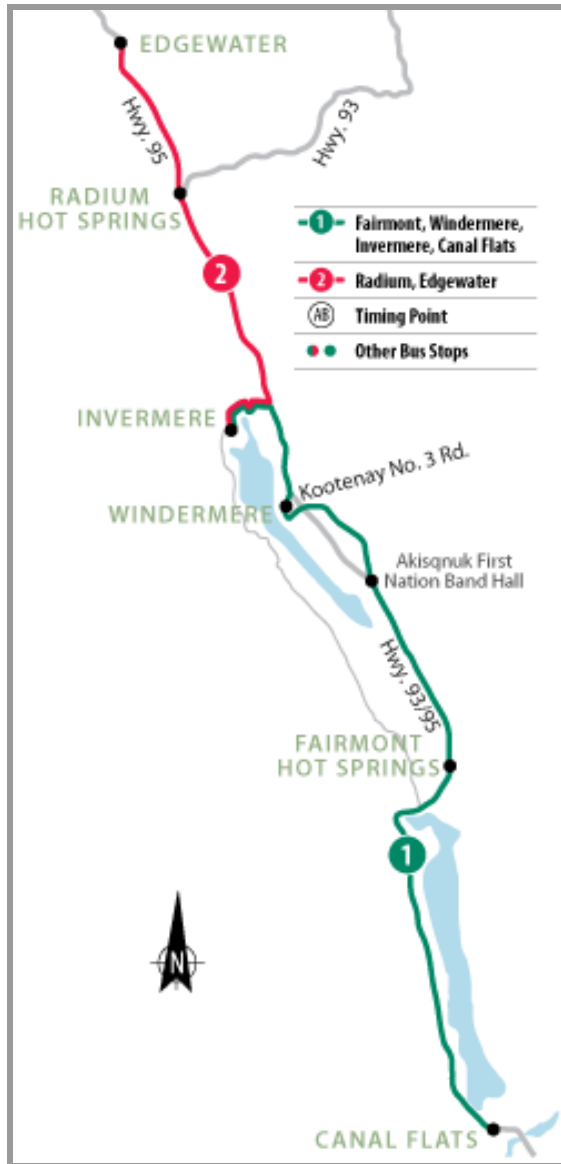
$$\text{or } 648 \text{ g CO}_2 \text{ per km}$$

**Vehicle relocation to:**

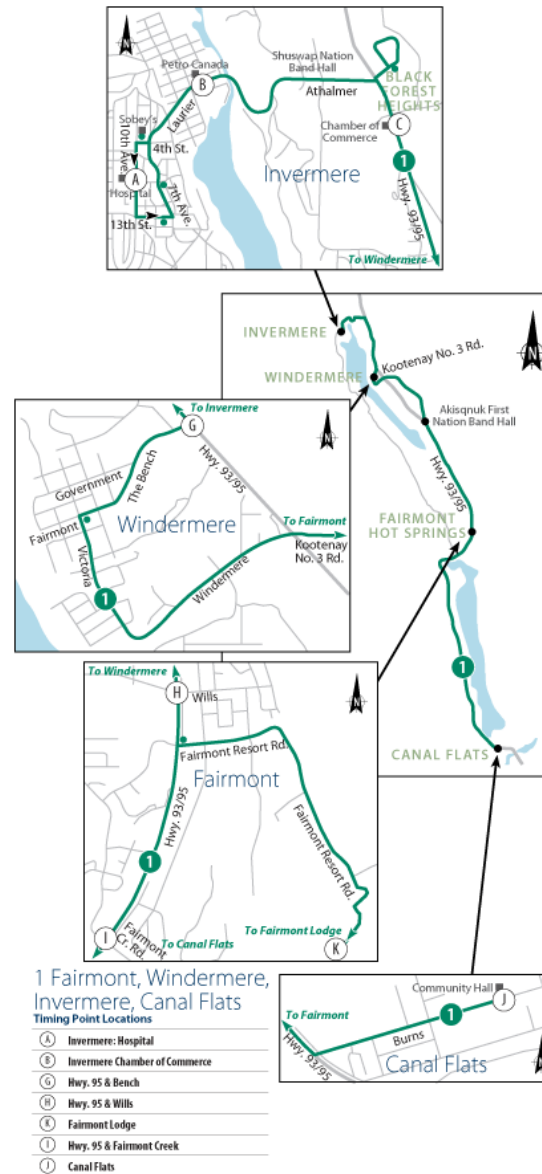
- **Invermere** → Savings of **59,472** km per year results in an annual CO<sub>2</sub> reduction of **38,538** kg or **38.54** t
- **Canal Flats** → Savings of **83,664** km per year results in an annual CO<sub>2</sub> reduction of **54,214** kg or **54.21** t

# Appendix C: Current Route Maps & Schedules

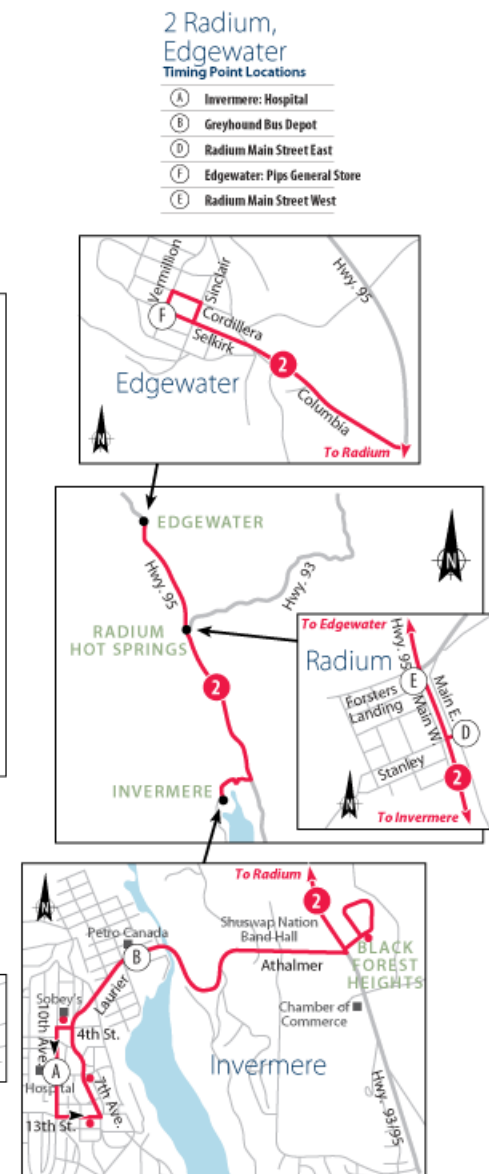
## Columbia Valley Area Map



## Route 1: Invermere, Fairmont, Canal Flats



## Route 2: Radium, Edgewater



**Appendix C: Current Route Maps & Schedules**

<b>1 Canal Flats / Fairmont to Invermere</b>						
<b>Monday - Friday</b>						
(J)	(I)	(K)	(H)	(G)	(C)	(A)
	Lv. Hwy 95 & Fairmont Creek	Lv. Fairmont Lodge	Lv. Hwy 95 & Wills	Lv. Hwy 95 & Bench	Lv. Invermere Chamber of Commerce	Ar. Hospital
Lv. Canal Flats	7:30	7:52	7:57	8:03	8:24	8:29
8:39						

<b>1 Invermere to Fairmont / Canal Flats</b>						
<b>Monday - Friday</b>						
(A)	(C)	(G)	(H)	(K)	(I)	(J)
Lv. Hospital	Lv. Invermere Chamber of Commerce	Lv. Hwy 95 & Bench	Lv. Hwy 95 & Wills	Lv. Fairmont Lodge	Lv. Hwy 95 & Fairmont Creek	Ar. Canal Flats
4:16	4:32	4:37	4:58	5:04	5:09	5:31

<b>2 Invermere – Radium / Edgewater</b>					
<b>Monday - Friday</b>					
(A)	(B)	(D)	(F)	(E)	(A)
Lv. Hospital	Lv. Greyhound Bus Depot	Lv. Radium Main Street East	Lv. Edgewater (Pips Country Store)	Lv. Radium Main Street West	Ar. Hospital
8:39	8:47	9:12	9:27	9:42	10:10
2:45	2:53	3:18	3:33	3:48	4:16

## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

### November 2008, 2009 & 2010 Two-Week Count Summaries

Passenger counts were conducted over a period of two weeks in November in both 2008 and 2009 on the conventional portion of the CVTS. A two-week stop activity count was conducted in November 2010 on the conventional and on-request portions of the CVTS. All counts collected data on ridership, and thus productivity and cost. Additionally, the passenger counts collected information on passenger type, and the stop activity count captured passenger boarding and alighting locations.

While two-week count statistics may not be representative of system activity over an entire year, they provide a useful snapshot of activity in the same period each year. When supported by other general ridership data like the monthly statistics shown in Appendix A, these snapshots can be extrapolated to approximate annual patterns.

Count results are summarized in the tables below, with the stop activity data shown where possible in the same format as the passenger count data. The tables show data on route rideshare, productivity and cost, passenger numbers, and passenger types and individual stop activity as available. An analysis summary follows each data table.

#### 1. Combined Totals for Routes 1 & 2

##### Average daily revenue rides

	Daily avg.	Time Period Distribution			Passenger Type			
		AM Peak	Midday	PM Peak	Adults	Students	Seniors	BC Bus Pass holders
2008	22	17.1	0.6	4.4	11.6	8.7	1.8	0.0
2009	40	21.2	7.4	11.3	22.3	14.3	3.3	0.0
2010	18	9.5	1.8	6.3				

	Daily avg.	Time Period Distribution			Passenger Type			
		AM Peak	Midday	PM Peak	Adults	Students	Seniors	BC Bus Pass holders
2008	22	77%	3%	20%	52%	39%	8%	0%
2009	40	53%	19%	28%	56%	36%	8%	0%
2010	18	54%	10%	36%				

##### Analysis Summary:

- 2010's two-week count showed a 55% and 18% ridership drop respectively compared to the 2009 and 2008 counts. This downward trend is reflected in Appendix A's monthly ridership figures.
- The morning peak period consistently had the highest ridership share, followed by the afternoon peak period, while the midday period had the lowest.
- The 2008 and 2009 counts showed that the majority of passengers were adults, with students also a significant ridership segment, but that seniors represented only 8% of total ridership.
- The BC Bus Pass, an annual pass administered by BC's Ministry of Housing and Social Development and available to seniors and persons with a disability on a restricted income, has no subscribers in the Columbia Valley, as reflected by the count results.
- The daily passenger averages during the three count periods were between 18-40 passengers.
- The minimum trip capacity is 20 passengers—a minimum as most passengers do not ride from route start to route end. As six one-way trips operate per day, with a minimum capacity for 120 passengers, these daily averages comprise a maximum of approximately one sixth to one third of total system capacity.

## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

### Productivity and cost

	Daily avg.	Rides/Revenue Hour				Cost/Ride*			
		AM Peak	Midday	PM Peak	Avg.	AM Peak	Midday	PM Peak	Avg.
2008	22	6.4	0.4	3.5	4.1	\$9.50	\$154.02	\$17.31	\$14.98
2009	40	8.0	4.9	9.0	7.3	\$9.29	\$15.14	\$8.17	\$10.06
2010	18	3.5	1.2	5.0	3.2	\$28.53	\$87.62	\$20.06	\$31.39

\* expressed as net cost to RDEK after revenue and municipal administration.  
Does not include portion of costs funded by Kootenay East Regional Hospital District.

### Analysis Summary:

- Of the three count periods, overall:
  - 2009's showed the highest productivity and the lowest average cost per ride.
  - 2010's showed the lowest productivity and the highest average cost per ride.
- 2010's cost-per-ride increase was due mainly to the decrease in ridership and productivity but also partially to a 37% increase in operating cost between 2009-10 and 2010-11.
- The period and year with the lowest productivity and highest cost per ride was 2008's midday period.
- The period and year with the highest productivity and lowest cost per ride was 2009's afternoon peak period.

### 2010 Bus Stop Activity Count Results

Stop Location	Average daily:		Combined
	Boardings	Alightings	Average:
Canal Flats	5.5	5.6	5.6
Fairmont Lodge	3.6	3.4	3.5
Invermere - Hospital	2.0	2.3	2.2
Radium - Main St. West	2.0	0.0	1.0
Invermere - 7th Ave & 9th St	1.2	0.8	1.0
Black Forest Heights	1.0	0.7	0.9
Radium - Main St. East	0.1	1.3	0.7
Invermere - Sobey's	0.3	0.9	0.6
Invermere - 13th St & 7th Ave	0.6	0.5	0.6
Edgewater	0.5	0.4	0.5
Windermere	0.3	0.5	0.4
Fairmont Resort Rd. & Hwy 95	0.1	0.5	0.3
Hwy 95 & Fairmont Creek	0.1	0.4	0.3
Akisqnuq First Nations Band Hall	0.1	0.1	0.1
Invermere - Petro-Can	0.0	0.2	0.1
Chamber of Commerce	0.0	0.0	0.0

### Analysis Summary:

- The most frequently used stops during the count period were located at Canal Flats and Fairmont Lodge, and also in Invermere.
- This reflects the daily commute on transit by a number of Canal Flats residents employed at the Fairmont Resort and, to a lesser extent, in Invermere.
- The most seldom used stops during the count period were located at the Akisqnuq First Nations Band Hall, Invermere's Petro-Can gas station and the Chamber of Commerce.
- The low to minimal usage of the Akisqnuq First Nations Band Hall and Chamber of Commerce stops was mentioned in comments by a few respondents to the residential and on-board surveys.

## 2. Route 1: Invermere, Fairmont, Canal Flats

## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

Route 1 rideshare:	
2008	62%
2009	59%
2010	73%

### Analysis Summary:

These results indicate that:

- Route 1 was the CVTS's most frequently used route in all three count periods.
- Route 1's rideshare during the 2010 count period was significantly higher than during the 2008 and 2009 count periods.

### Average daily revenue rides

	Daily avg.	Time period distribution			Passenger Type				
		AM Peak	Midday	PM Peak	Adults	Students	Seniors	BC Bus Pass holders	
Rte 1	2008	14	9.3	no service	4.4	7.9	4.0	1.8	0.0
	2009	24	12.2	no service	11.3	18.2	4.5	0.8	0.0
	2010	13	6.5	no service	6.3				

	Daily avg.	Time period distribution			Passenger Type				
		AM Peak	Midday	PM Peak	Adults	Students	Seniors	BC Bus Pass holders	
Rte 1	2008	14	68%	no service	32%	58%	29%	13%	0%
	2009	24	52%	no service	48%	77%	19%	3%	0%
	2010	13	51%	no service	49%				

### Analysis Summary:

- During the 2010 count period, Route 1's daily average ridership was 46% and 7% lower respectively than during the 2009 and 2008 count periods.
- The uneven time-period distribution in the 2008 count period between the morning and afternoon peaks suggests that workers would commute to work by bus but carpool home.
- The even distribution in the 2009 and 2010 count periods between the morning and afternoon peaks suggests that workers now commute by bus both ways.
- The majority of Route 1's passengers during the 2008 and 2009 count periods were adults, with students comprising 20-30% of riders. Depending on the count year, seniors represented low to minimal ridership.

### Productivity and cost

	Daily avg.	Rides/Revenue Hour				Cost/Ride*				
		AM Peak	Midday	PM Peak	Avg.	AM Peak	Midday	PM Peak	Avg.	
Rte 1	2008	14	8.1	n/a	3.5	5.7	\$7.53	n/a	\$17.31	\$10.67
	2009	24	10.6	n/a	9.0	9.8	\$6.96	n/a	\$8.17	\$7.54
	2010	13	5.7	n/a	5.0	5.3	\$17.89	n/a	\$20.06	\$18.96

\* expressed as net cost to RDEK after revenue and municipal administration.  
Does not include portion of costs funded by Kootenay East Regional Hospital District.

### Analysis Summary:

- 2010's count period showed Route 1 averaging fewer passengers per revenue hour than during 2009's and 2008's count periods.
- During the 2010 count, Route 1's productivity was about 50% of 2009's.

## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

- Route 1's morning peak productivity was lowest in the 2010 count period. Its afternoon peak productivity was lowest in the 2008 count period. 2009's count had the highest productivity in both the morning and afternoon peaks.
- During the three count periods, 2010's average cost per ride was higher than 2009's and 2008's. It was approximately:
  - two and a half times higher than 2009's
  - two times higher than 2008's
- This held true for each individual service period, even when productivity was higher (as when comparing 2008's and 2010's afternoon peak), owing to the operating cost increase in 2010-2011.

**2010 Bus Stop Activity Count Results**

Stop Location	Average daily:		Combined
	Boardings	Alightings	Average:
Canal Flats	5.5	5.6	5.6
Fairmont area	3.8	4.3	4.1
Invermere	2.5	1.7	2.1
Black Forest Heights	0.7	0.5	0.6
Windermere	0.3	0.5	0.4
Akisqnuq First Nations Band Hall	0.1	0.1	0.1
Chamber of Commerce	0.0	0.0	0.0

### Analysis Summary:

- Route 1's most frequently used stops during the 2010 count period were in Canal Flats, the Fairmont area, and to a lesser extent, Invermere.
- This reflects the fact that this route is mainly used by residents of Canal Flats commuting to the Fairmont Resort, in particular, and also to Invermere.
- The least frequently used stops were at the Akisqnuq First Nations Band Hall and the Chamber of Commerce, as mentioned by a few residential and on-board survey respondents.

### 3. Route 2: Radium, Edgewater

Route 2 rideshare:	
<b>2008</b>	38%
<b>2009</b>	41%
<b>2010</b>	27%

### Analysis Summary:

Route 2's rideshare results from the two-week counts show that:

- this route was used far less than Route 1
- its rideshare was significantly lower in the 2010 count period than in either 2008's or 2009's



## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

### Average daily revenue rides

	Daily avg.	Time period distribution			Passenger Type				
		AM Peak	Midday	PM Peak	Adults	Students	Seniors	BC Bus Pass holders	
Rte 2	2008	8	7.8	0.6	no service	3.7	4.7	0.0	0.0
	2009	16	9.0	7.4	no service	4.1	9.8	2.5	0.0
	2010	5	3.0	1.8	no service				

	Daily avg.	Time period distribution			Passenger Type				
		AM Peak	Midday	PM Peak	Adults	Students	Seniors	BC Bus Pass holders	
Rte 2	2008	8	93%	7%	no service	44%	56%	0%	0%
	2009	16	55%	45%	no service	25%	60%	15%	0%
	2010	5	63%	37%	no service				

### Analysis Summary:

- The two-week count results show that Route 2's average ridership during the 2010 count period was 71% lower than during 2009's and 44% lower than during 2008's.
- The 2010 count period's morning peak ridership was the lowest of the three years' count periods, around one third lower than 2009's and 2008's.
- Its midday ridership was three times that of 2008's but around one quarter that of 2009's.
- Students comprised the majority of passengers, with adults representing the second biggest passenger category. Depending on the count year, seniors showed zero to low ridership.

### Productivity and cost

	Daily avg.	Rides/Revenue Hour				Cost/Ride*				
		AM Peak	Midday	PM Peak	Avg.	AM Peak	Midday	PM Peak	Avg.	
Rte 2	2008	8	5.1	0.4	n/a	2.8	\$11.85	\$154.02	n/a	\$22.00
	2009	16	5.9	4.9	n/a	5.4	\$12.44	\$15.14	n/a	\$13.66
	2010	5	1.9	1.2	n/a	1.5	\$51.98	\$87.62	n/a	\$65.25

\* expressed as net cost to RDEK after revenue and municipal administration.  
Does not include portion of costs funded by Kootenay East Regional Hospital District.

### Analysis Summary:

- 2010's count period showed Route 2 averaging fewer passengers per revenue hour than during 2009's and 2008's count periods.
  - During the 2010 count, Route 2's productivity was just over 25% of 2009's and just over 50% of 2008's.
  - Route 2's morning peak productivity was lowest, by a considerable margin, in the 2010 count period. Its midday productivity was lowest in the 2008 count period. 2009's count had the highest productivity in both the morning peak and midday periods.
  - During the three count periods, 2010's average cost per ride was higher than 2009's and 2008's. It was approximately:
    - five times higher than 2009's
    - three times higher than 2008's
- While this was due mainly to the decrease in ridership and productivity, the increase in operating costs in 2010-2011 was also a contributing factor.
- In terms of individual service periods, this held true for the morning peak service period, but not for the midday period, when the 2010 count's productivity was three times that of 2008's and its cost per ride was half that of 2008's.

## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

### 2010 Bus Stop Activity Count Results

Stop Location	Average daily:		Combined
	Boardings	Alightings	Average:
Invermere	1.6	3.0	2.3
Radium	2.1	1.3	1.7
Edgewater	0.5	0.4	0.5
Black Forest Heights	0.3	0.2	0.3

#### Analysis Summary:

- Route 2's most frequently used stops during the 2010 count period were in Invermere and, to a lesser extent, Radium.
- This shows that the majority of passengers on this route are travelling between Radium and Invermere.
- The least frequently used stops were in Edgewater and Black Forest Heights.

## 4. On-request Service

### Ridership, productivity and cost comparisons

	On-request service:	Route 1 all periods:	Route 2 all periods:
Avg. daily revenue rides:	10.2	12.8	4.7
Avg. rides/service hr:	3.4	5.3	1.5
Avg. cost/ride:	\$29.88	\$18.96	\$65.25

#### Analysis Summary:

- During the November 2010 stop activity count, the on-request service averaged
  - a daily ridership of 10.2 rides, twice that of Route 2 but 80% that of Route 1
  - a rides-per-hour ratio of 3.4, twice that of Route 2 but 60% that of Route 1
  - a cost per ride of \$29.88, half that of Route 2 but 160% that of Route 1

### 2010 Bus Stop Activity Count Results

Stop Location	Average daily:		Combined
	Boardings	Alightings	Average:
Eileen Madson Elementary	3.5	5.0	4.3
Sunshine Daycare	2.8	1.8	2.3
Windermere Valley Child Care Society	2.2	1.6	1.9
RCMP (Little Badgers Daycare trip)	1.1	0.0	0.6
Little Badgers Daycare	0.0	1.1	0.6
Windermere	0.2	0.0	0.1
Columbia House	0.0	0.2	0.1
Coy Rd	0.2	0.0	0.1
Spring's Natural Foods	0.0	0.2	0.1
Parson	0.2	0.0	0.1
Invermere	0.0	0.1	0.1
Invermere - Tim Hortons	0.0	0.1	0.1

#### Analysis Summary:

The 2010 count results indicated that:

- This service is used primarily as a shuttle service for groups of children travelling between two daycare centres (Windermere Valley Child Care Society and Sunshine Daycare) and Eileen Madsen Elementary School.
- Daycare children comprised 94% of riders during the count period.
- The remaining 6% were individual bookings.

## Appendix D: November 2008, 2009 & 2010 Two-Week Count Analysis Summaries

- All of the individual booking pick-up locations during the stop activity count lay outside of the designated Invermere–Radium service area:
  - 2% were in Windermere.
  - 2% were on the west side of Lake Windermere.
  - 2% were in Parson, 58 kilometres north of the CVTS's service area limit and actually located within the Kicking Horse Country Transit System's service area.
- One of the individual booking drop-off locations lay outside of the designated service area.
- The low number of individual bookings seen during the count period appears to support feedback received from stakeholders that the majority of area residents are unaware that this service exists or unaware that it is open to everyone.

According to the operator, all daycare children using the service are aged 5 or over and are thus paying passengers generating revenue for the CVTS. Each daycare provides a chaperone who travels without charge.

## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

### COLUMBIA VALLEY TRANSIT SYSTEM RIDERSHIP AND PERFORMANCE SUMMARY

Based on two week count done  
Nov. 08

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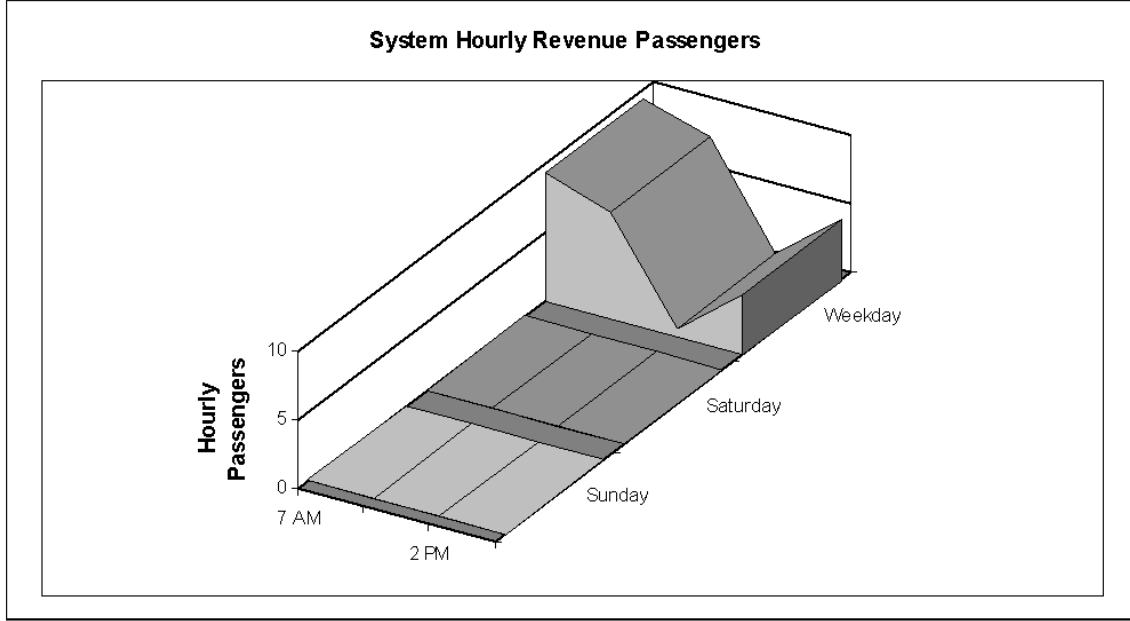
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**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

Columbia Valley Two Week Count - Nov. 08

**1.0 SYSTEM PROFILE**

**1.1 Ridership Overview**



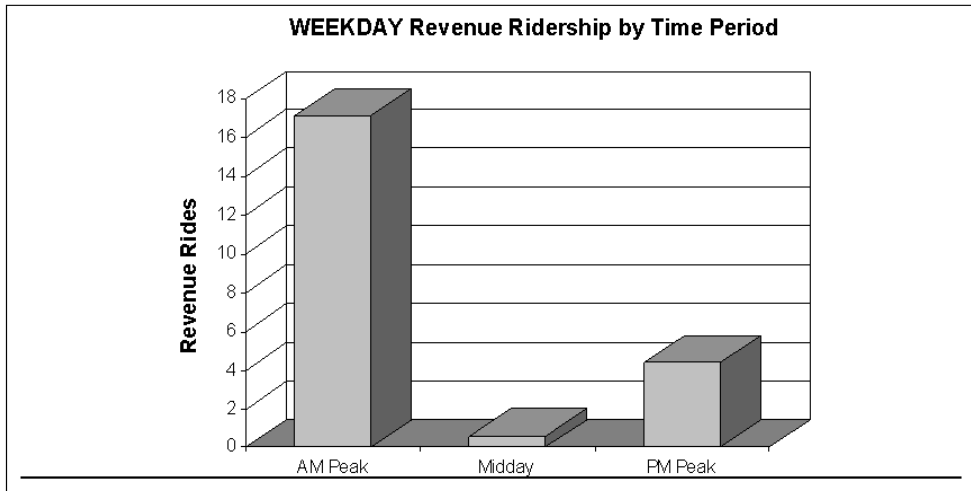
**Hourly Revenue Passengers**

	Mon	Tue	Wed	Thu	Fri	Weekday Average	Sat	Sun
7 am	11	11	19	3	3	9	0	0
8 am	7	9	2	11	11	8	0	0
2 pm	1	1	1	1	0	1	0	0
4 pm	8	4	4	3	4	4	0	0

# Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

## Columbia Valley Two Week Count - Nov. 08

### 1.2 Weekdays

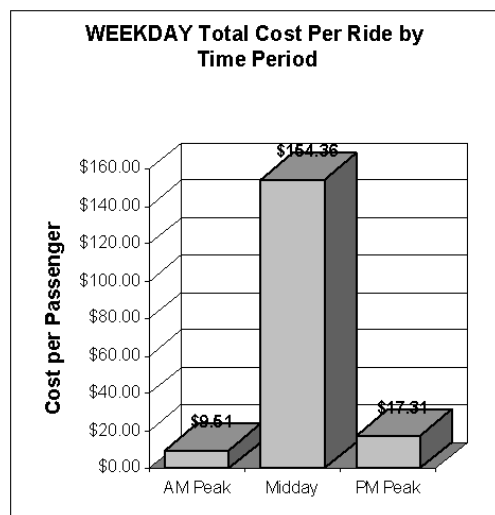
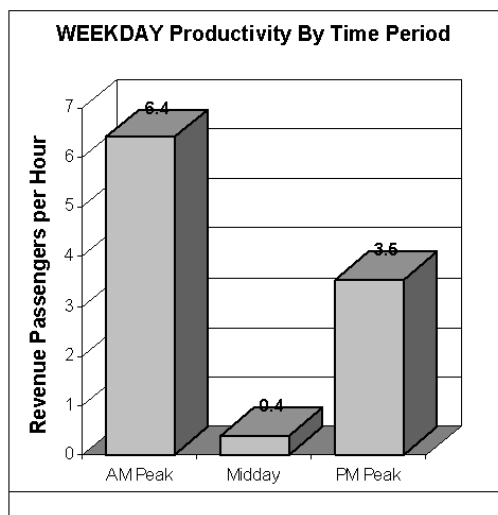


#### Weekday Revenue Ridership by Time Period

	Mon	Tue	Wed	Thu	Fri	Weekday
AM Peak	18	20	21	14	14	17
Midday	1	1	1	1	0	1
PM Peak	8	4	4	3	4	4
<b>Total</b>	<b>26</b>	<b>24</b>	<b>26</b>	<b>18</b>	<b>18</b>	<b>22</b>

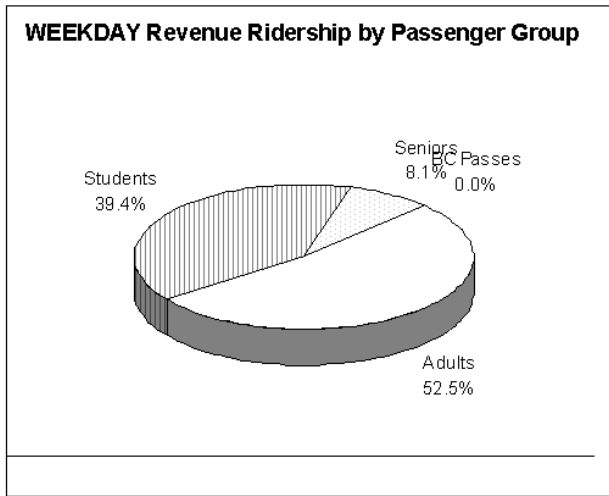
#### Percent Distribution

	Mon	Tue	Wed	Thu	Fri	Weekday
AM Peak	68.6%	83.3%	80.4%	77.8%	77.1%	77.5%
Midday	2.0%	2.1%	3.9%	5.6%	0.0%	2.7%
PM Peak	29.4%	14.6%	15.7%	16.7%	22.9%	19.8%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>



**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

Columbia Valley Two Week Count - Nov. 08



**Weekday Total Ridership by Passenger Group**

Adults	12	52.5%
Students	9	39.4%
Seniors	2	8.1%
BC Passes		
<b>Total Rev. Pass.</b>	<b>22</b>	<b>100.0%</b>

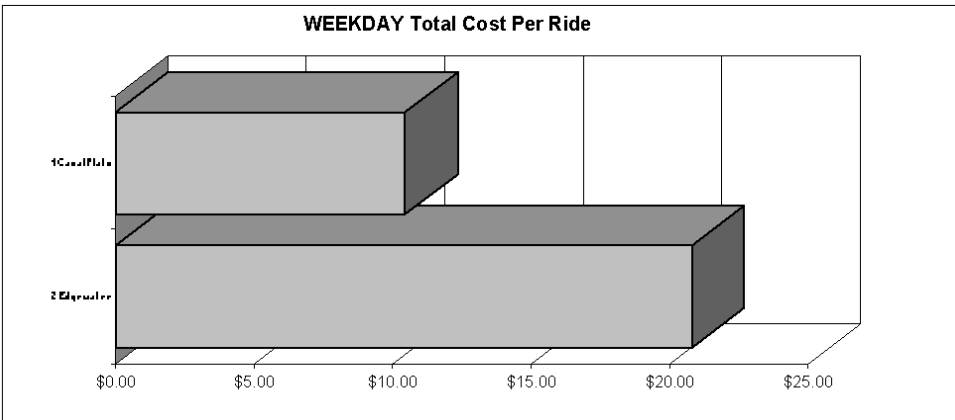
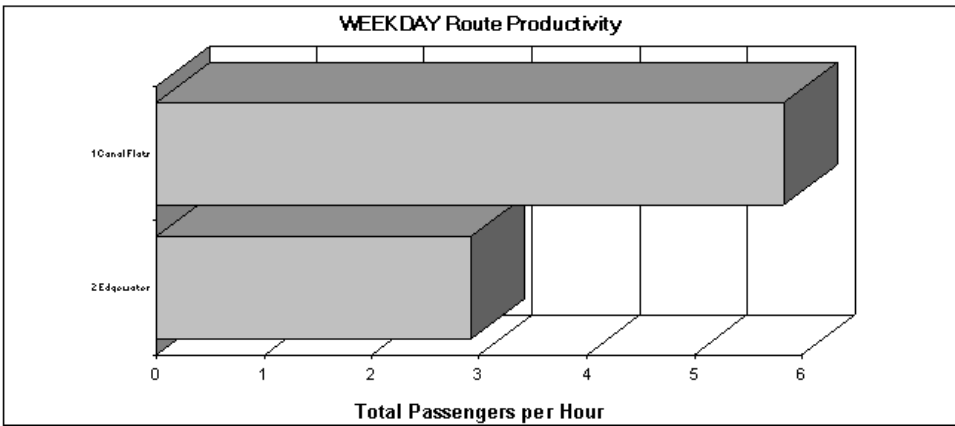
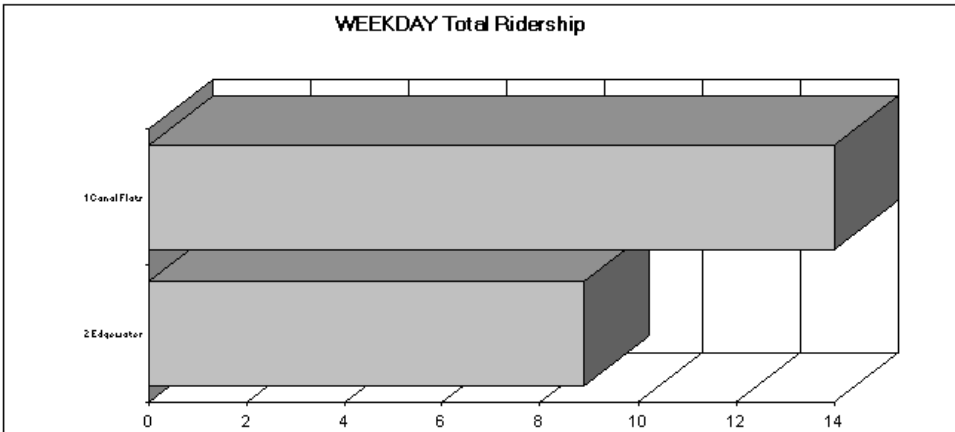
Rev. Passengers	22	96.5%
Transfers	1	3.5%
<b>Total Pass.</b>	<b>23</b>	<b>100.0%</b>

## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

Columbia Valley Two Week Count - Nov. 08

### 2.0 ROUTE PROFILE

#### 2.1 Weekday





## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

### Columbia Valley Two Week Count - Nov. 08

#### Weekday

##### Total Ridership by Route and Time Period

	Late Night	AM Peak	Midday	PM Peak	Evening	Total	% of Total
1 Canal Flats	0	10	0	5	0	14	61.1%
2 Edgewater	0	8	1	0	0	9	38.9%
<b>Total</b>	0	18	1	5	0	23	100.0%

##### Productivity by Route and Time Period (Total Passengers Per Hour)

	Late Night	AM Peak	Midday	PM Peak	Evening	Daily Total
1 Canal Flats	0.0	8.3	0.0	3.6	0.0	5.8
2 Edgewater	0.0	5.4	0.5	0.0	0.0	2.9
<b>Total</b>	0.0	6.6	0.5	3.6	0.0	4.2

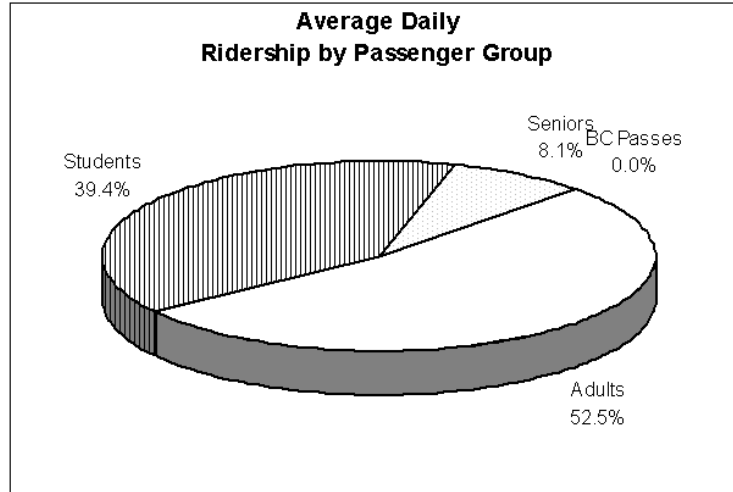
##### Total Cost Per Ride by Route and Time Period

	Late Night	AM Peak	Midday	PM Peak	Evening	Daily Total
1 Canal Flats	\$0.00	\$7.38	\$0.00	\$16.93	\$0.00	\$10.45
2 Edgewater	\$0.00	\$11.29	\$132.31	\$0.00	\$0.00	\$20.81
<b>Total</b>	\$0.00	\$9.19	\$132.31	\$16.93	\$0.00	\$14.47

**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

**Columbia Valley Two Week Count - Nov. 08**

**2.2 Passenger Groups**



**Total Ridership by Route and Passenger Group**

Average Daily

	% of Revenue Passengers				Total Rev. Pass.	Transfers	Total
	Adults	Students	Seniors	BC Passes			
1 Canal Flats	8	4	2	0	14	0	14
2 Edgewater	4	5	0	0	8	1	9
<b>Total</b>	<b>11</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>22</b>	<b>1</b>	<b>23</b>

Percent Distribution

	% of Revenue Passengers				% of Total Passengers		
	Adults	Students	Seniors	BC Passes	Total Rev. Pass.	Transfers	Total
1 Canal Flats	56.2%	29.2%	13.1%	1.5%	97.9%	2.1%	100.0%
2 Edgewater	44.0%	56.0%	0.0%	0.0%	94.4%	5.6%	100.0%
<b>Total</b>	<b>51.6%</b>	<b>39.4%</b>	<b>8.1%</b>	<b>0.9%</b>	<b>96.5%</b>	<b>3.5%</b>	<b>100.0%</b>

## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

Columbia Valley Two Week Count - Nov. 08

### Definitions

<b>Late Night</b>	Period from 12:00 AM to 4:59 AM or 5:59 AM.
<b>AM Peak</b>	Period from 5:00 AM or 6:00 AM to 8:59 AM.
<b>Midday</b>	Period from 9:00 AM to 2:59 PM.
<b>PM Peak</b>	Period from 3:00 PM to 5:59 PM.
<b>Evening</b>	Period from 6:00 PM to End of Service.
<b>Revenue Rides</b>	Ridership excluding transfers.
<b>Total Rides</b>	Ridership including transfers.
<b>Total Cost</b>	Includes both capital and operating costs.
<b>Students</b>	Those in full time attendance up to Grade 12.
<b>Seniors</b>	Those aged 65 and over.
<b>BC Bus Passes</b>	Annual passes administered by the Provincial Government for seniors and persons with disabilities on restricted incomes.

**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

**Bi-Weekly Ridership Count System (BRICS)  
Two Week Ridership Count  
Total Passengers By Route And Time**

Columbia Valley  
Starting Date 11/17/2008

**Route Number 001 1 Canal Flats**

	Mon	Tue	Wed	Thu	Fri	Mon	Tue	Wed	Thu	Fri
Time	17/2008	18/2008	19/2008	20/2008	21/2008	24/2008	25/2008	26/2008	27/2008	28/2008
730	16	4	22	3	5	5	18	18	3	1
1616	16	2	5	5	6	0	5	3	1	2
<b>Totals:</b>	32	6	27	8	11	5	23	21	4	3

**Route Number 002 2 Edgewater**

	Mon	Tue	Wed	Thu	Fri	Mon	Tue	Wed	Thu	Fri
Time	17/2008	18/2008	19/2008	20/2008	21/2008	24/2008	25/2008	26/2008	27/2008	28/2008
839	4	19	4	11	11	10	0	1	12	10
1445	1	1	2	1	0	1	0	0	1	0
<b>Totals:</b>	5	20	6	12	11	11	0	1	13	10

**Bi-Weekly Ridership Count System (BRICS)  
Two Week Ridership Count  
Average Passengers By System And Hour**

Columbia Valley  
Starting Date 11/17/2008

Time	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Average Mon-Fri	Weekly Total
7	0.0	10.5	11.0	20.0	3.0	3.0	0.0	9.5	47.5
8	0.0	7.0	9.5	2.5	11.5	10.5	0.0	8.2	41.0
14	0.0	1.0	0.5	1.0	1.0	0.0	0.0	0.7	3.5
16	0.0	8.0	3.5	4.0	3.0	4.0	0.0	4.5	22.5
<b>Totals</b>	0.0	26.5	24.5	27.5	18.5	17.5	0.0	22.9	114.5
<b>% of Week</b>	0.0%	23.1%	21.4%	24.0%	16.2%	15.3%	0.0%	20.0%	100.0%
<b>AM Peak</b>	0.0	17.5	20.5	22.5	14.5	13.5	0.0	17.7	
<b>% Of Total</b>							0.0%	77.3%	
<b>Midday</b>	0.0	1.0	0.5	1.0	1.0	0.0	0.0	0.7	
<b>% Of Total</b>							0.0%	3.1%	
<b>PM Peak</b>	0.0	8.0	3.5	4.0	3.0	4.0	0.0	4.5	
<b>% Of Total</b>							0.0%	19.7%	

**COLUMBIA VALLEY TRANSIT SYSTEM  
RIDERSHIP AND PERFORMANCE SUMMARY**

**Based on two week count done  
Nov. 09**

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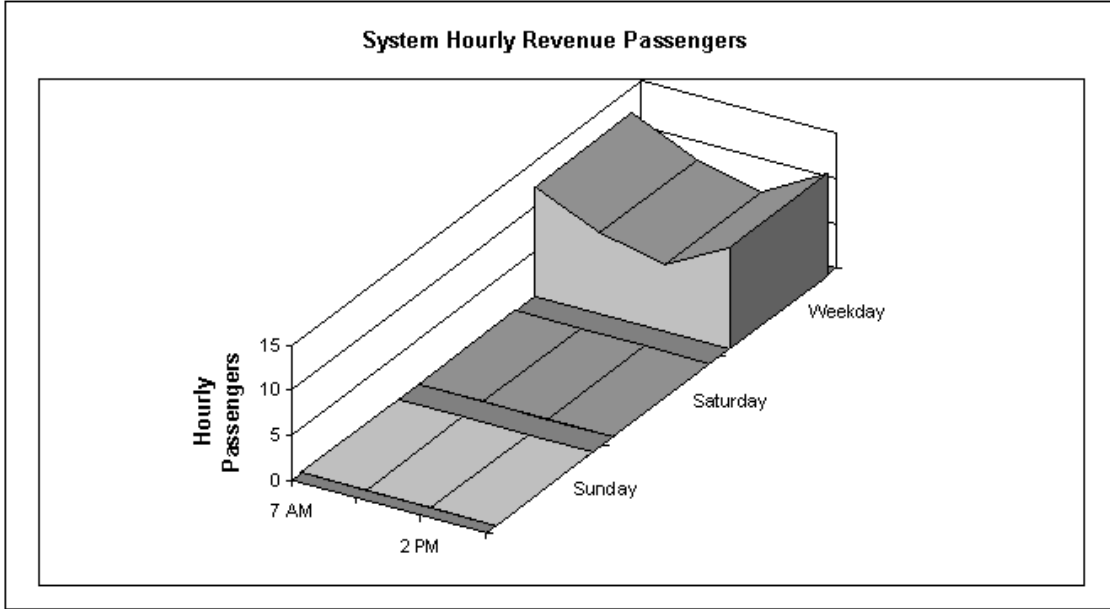
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**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

Columbia Valley Two Week Count - Nov. 09

**1.0 SYSTEM PROFILE**

**1.1 Ridership Overview**



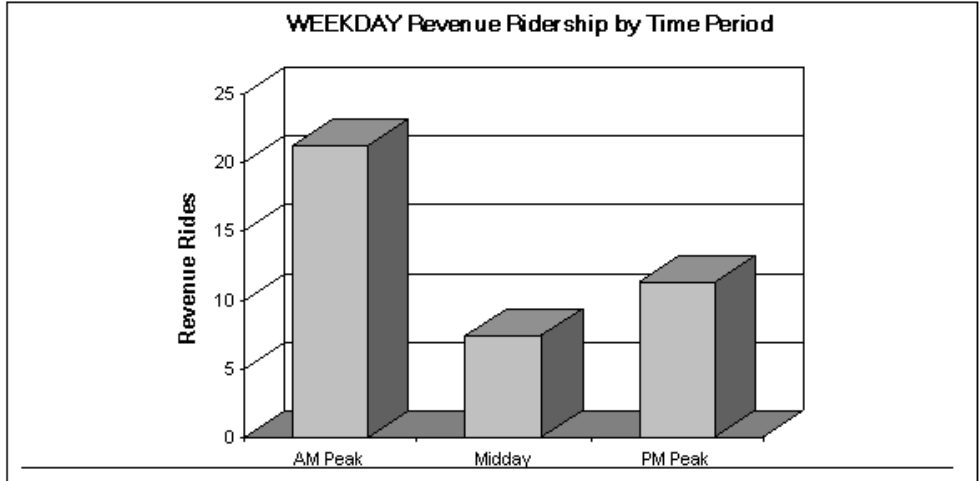
**Hourly Revenue Passengers**

	Mon	Tue	Wed	Thu	Fri	Weekday Average	Sat	Sun
7 am	15	15	13	8	11	12	0	0
8 am	7	6	6	16	12	9	0	0
2 pm	6	5	3	17	7	7	0	0
4 pm	11	15	13	10	9	11	0	0

**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

Columbia Valley Two Week Count - Nov. 09

**1.2 Weekdays**

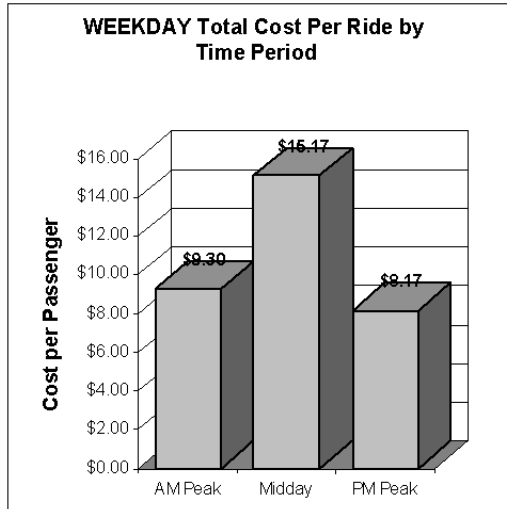
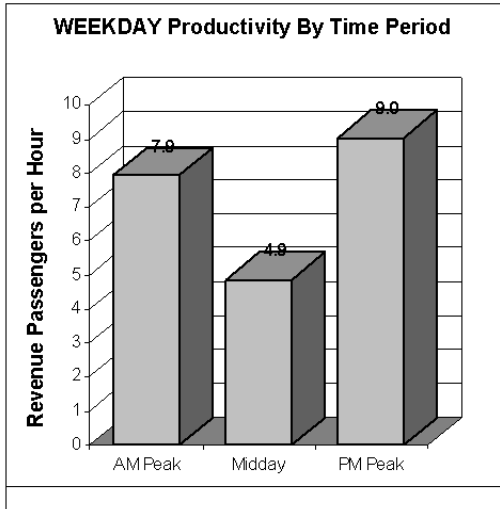


**Weekday Revenue Ridership by Time Period**

	Mon	Tue	Wed	Thu	Fri	Weekday
AM Peak	22	21	18	24	22	21
Midday	6	5	3	17	7	7
PM Peak	11	15	13	10	9	11
<b>Total</b>	<b>38</b>	<b>40</b>	<b>34</b>	<b>51</b>	<b>38</b>	<b>40</b>

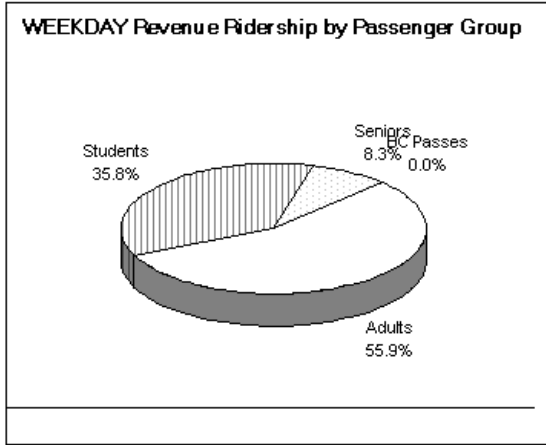
**Percent Distribution**

	Mon	Tue	Wed	Thu	Fri	Weekday
AM Peak	57.3%	51.9%	52.9%	47.5%	57.9%	53.5%
Midday	14.7%	11.4%	8.8%	33.7%	18.4%	17.4%
PM Peak	28.0%	36.7%	38.2%	18.8%	23.7%	29.1%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>



**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

Columbia Valley Two Week Count - Nov. 09



**Weekday Total Ridership by Passenger Group**

Adults	22	55.9%
Students	14	35.8%
Seniors	3	8.3%
BC Passes		
<b>Total Rev. Pass.</b>	<b>40</b>	<b>100.0%</b>

Rev. Passengers	40	95.7%
Transfers	2	4.3%
<b>Total Pass.</b>	<b>42</b>	<b>100.0%</b>

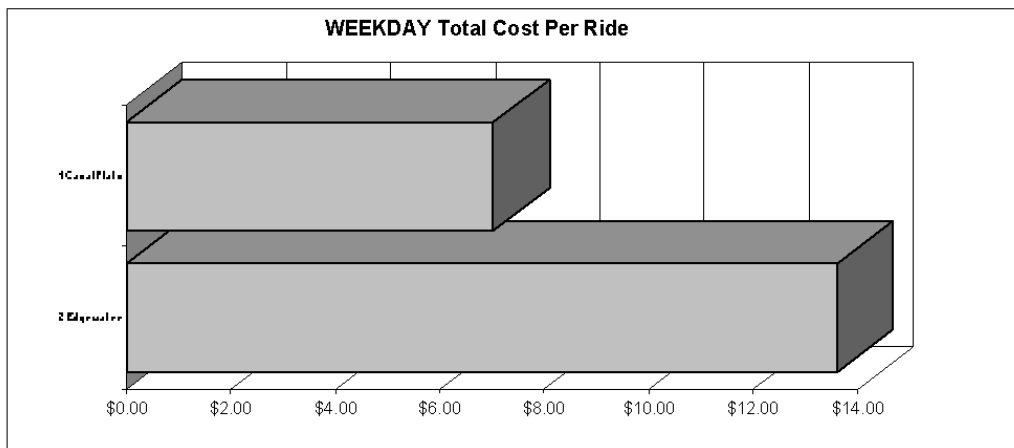
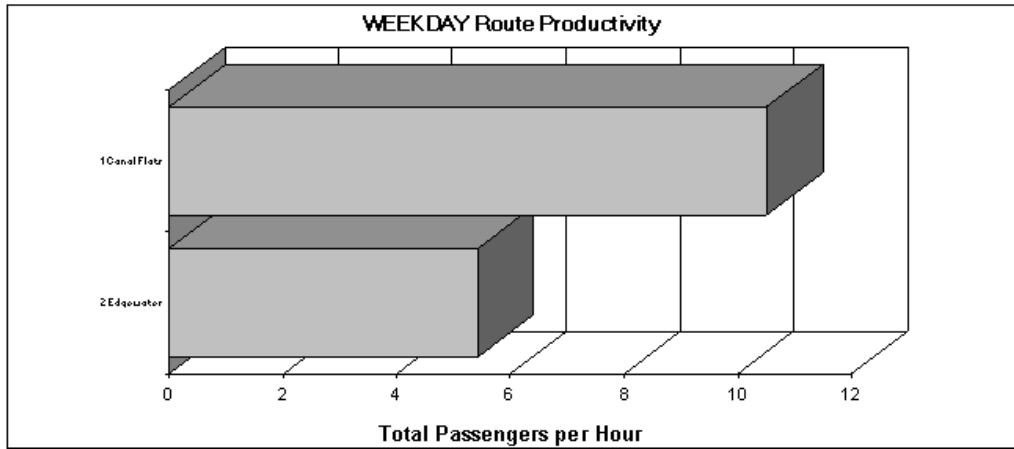
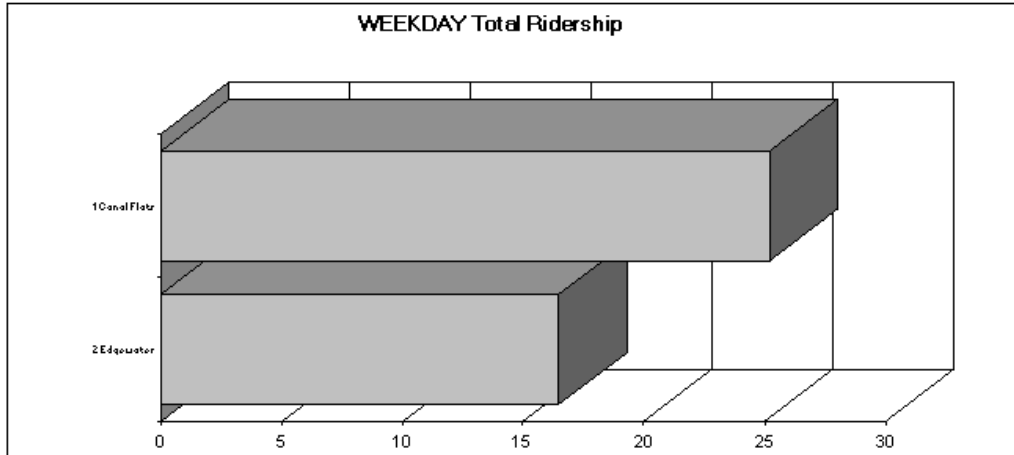


**Appendix E: November 2008 & 2009 Two-Week Passenger Count Results**

Columbia Valley Two Week Count - Nov. 09

**2.0 ROUTE PROFILE**

**2.1 Weekday**



## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

### Columbia Valley Two Week Count - Nov. 09

#### Weekday

##### Total Ridership by Route and Time Period

	Late Night	AM Peak	Midday	PM Peak	Evening	Total	% of Total
1 Canal Flats	0	13	0	12	0	25	60.4%
2 Edgewater	0	9	7	0	0	17	39.6%
<b>Total</b>	0	22	7	12	0	42	100.0%

##### Productivity by Route and Time Period (Total Passengers Per Hour)

	Late Night	AM Peak	Midday	PM Peak	Evening	Daily Total
1 Canal Flats	0.0	11.4	0.0	9.7	0.0	10.5
2 Edgewater	0.0	6.0	4.9	0.0	0.0	5.4
<b>Total</b>	0.0	8.3	4.9	9.7	0.0	7.7

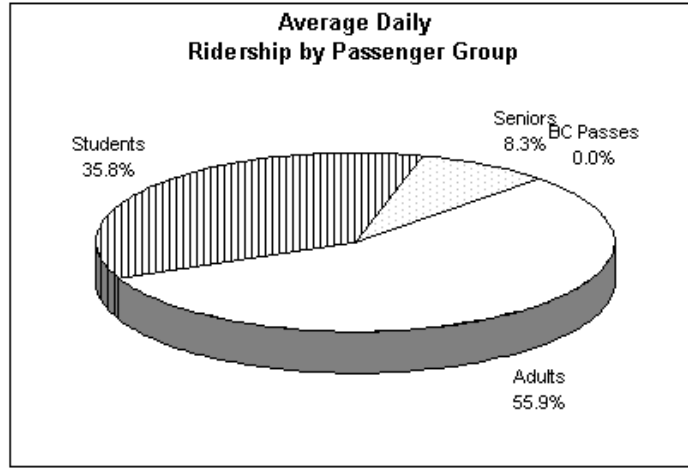
##### Total Cost Per Ride by Route and Time Period

	Late Night	AM Peak	Midday	PM Peak	Evening	Daily Total
1 Canal Flats	\$0.00	\$6.48	\$0.00	\$7.63	\$0.00	\$7.03
2 Edgewater	\$0.00	\$12.34	\$15.17	\$0.00	\$0.00	\$13.61
<b>Total</b>	\$0.00	\$8.88	\$15.17	\$7.63	\$0.00	\$9.63

## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

Columbia Valley Two Week Count - Nov. 09

### 2.2 Passenger Groups



### Total Ridership by Route and Passenger Group

Average Daily

	Adults	Students	Seniors	BC Passes	Total Rev. Pass.	Transfers	Total
1 Canal Flats	18	5	1	0	24	2	25
2 Edgewater	4	10	3	0	16	0	17
<b>Total</b>	22	14	3	0	40	2	42

Percent Distribution

	% of Revenue Passengers				% of Total Passengers		
	Adults	Students	Seniors	BC Passes	Total Rev. Pass.	Transfers	Total
1 Canal Flats	77.4%	19.1%	3.4%	0.0%	93.3%	6.7%	100.0%
2 Edgewater	25.0%	59.8%	15.2%	0.0%	99.4%	0.6%	100.0%
<b>Total</b>	55.9%	35.8%	8.3%	0.0%	95.7%	4.3%	100.0%

## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

Columbia Valley Two Week Count - Nov. 09

### Definitions

<b>Late Night</b>	Period from 12:00 AM to 4:59 AM or 5:59 AM.
<b>AM Peak</b>	Period from 5:00 AM or 6:00 AM to 8:59 AM.
<b>Midday</b>	Period from 9:00 AM to 2:59 PM.
<b>PM Peak</b>	Period from 3:00 PM to 5:59 PM.
<b>Evening</b>	Period from 6:00 PM to End of Service.
<b>Revenue Rides</b>	Ridership excluding transfers.
<b>Total Rides</b>	Ridership including transfers.
<b>Total Cost</b>	Includes both capital and operating costs.
<b>Students</b>	Those in full time attendance up to Grade 12.
<b>Seniors</b>	Those aged 65 and over.
<b>BC Bus Passes</b>	Annual passes administered by the Provincial Government for seniors and persons with disabilities on restricted incomes.

## Appendix E: November 2008 & 2009 Two-Week Passenger Count Results

### Bi-Weekly Ridership Count System (BRICS) Two Week Ridership Count Total Passengers By Route And Time

Columbia Valley  
Starting Date 11/16/2009

#### Route Number 001 1 Canal Flats

	Mon	Tue	Wed	Thu	Fri	Mon	Tue	Wed	Thu	Fri
Time	16/2009	17/2009	18/2009	19/2009	20/2009	23/2009	24/2009	25/2009	26/2009	27/2009
730	21	19	13	11	16	9	12	15	7	8
1616	13	21	11	14	14	8	8	17	9	6
<b>Totals:</b>	34	40	24	25	30	17	20	32	16	14

#### Route Number 002 2 Edgewater

	Mon	Tue	Wed	Thu	Fri	Mon	Tue	Wed	Thu	Fri
Time	16/2009	17/2009	18/2009	19/2009	20/2009	23/2009	24/2009	25/2009	26/2009	27/2009
839	2	3	8	20	9	11	9	3	12	14
1445	1	0	6	22	9	10	9	0	12	5
<b>Totals:</b>	3	3	14	42	18	21	18	3	24	19

### Bi-Weekly Ridership Count System (BRICS) Two Week Ridership Count Average Passengers By System And Hour

Columbia Valley  
Starting Date 11/16/2009

Time	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Average Mon-Fri	Weekly Total
7	0.0	15.0	15.5	14.0	9.0	12.0	0.0	13.1	65.5
8	0.0	6.5	6.0	5.5	16.0	11.5	0.0	9.1	45.5
14	0.0	5.5	4.5	3.0	17.0	7.0	0.0	7.4	37.0
16	0.0	10.5	14.5	14.0	11.5	10.0	0.0	12.1	60.5
<b>Totals</b>	0.0	37.5	40.5	36.5	53.5	40.5	0.0	41.7	208.5
<b>% of Week</b>	0.0%	18.0%	19.4%	17.5%	25.7%	19.4%	0.0%	20.0%	100.0%
<b>AM Peak</b>	0.0	21.5	21.5	19.5	25.0	23.5	0.0	22.2	
<b>% Of Total</b>							0.0%	53.2%	
<b>Midday</b>	0.0	5.5	4.5	3.0	17.0	7.0	0.0	7.4	
<b>% Of Total</b>							0.0%	17.7%	
<b>PM Peak</b>	0.0	10.5	14.5	14.0	11.5	10.0	0.0	12.1	
<b>% Of Total</b>							0.0%	29.0%	

## Appendix F: November 2010 Two-Week Stop Activity Count Results

### Two-week total passenger boardings and alightings - by trip

Route 1 - Canal Flats - A.M. trip			Route 2 - Edgewater - A.M. trip			On-request Service			Route 2 - Edgewater - P.M. trip			Route 1 - Canal Flats - P.M. trip		
Stop Location	ONs	OFFs	Stop Location	ONs	OFFs	Stop Location	ONs	OFFs	Stop Location	ONs	OFFs	Stop Location	ONs	OFFs
Canal Flats - Community Hall	55		Invermere - Hospital	1		Eileen Madson Elementary	35	50	Invermere - Hospital	7		Invermere - Hospital	12	
Hwy 95 & Fairmont Creek	1	2	Invermere - 13th St & 7th Ave			Sunshine Daycare	28	18	Invermere - 13th St & 7th Ave	1		Invermere - 13th St & 7th Ave	4	
Fairmont Lodge	4	34	Invermere - 7th Ave & 9th St	2		WVCCS	22	16	Invermere - 7th Ave & 9th St	4		Invermere - 7th Ave & 9th St	6	
Fairmont Resort Rd. & Hwy 95	1	4	Invermere - Petro Can			RCMP	11		Invermere - Petro Can			Invermere - Sobey's	3	
Akisknuk First Nations Band Hall		1	Black Forest Heights			Little Badgers Daycare		11	Black Forest Heights	1		Invermere - Petro Can		
Windermere - Victoria & Fairmont	1	2	Radium - Main St. East	1		Windermere	2		Radium - Main St. East		13	Black Forest Heights	4	
Chamber of Commerce			Edgewater - Vermillion & Selkirk	4	1	Columbia House		2	Edgewater - Vermillion & Selkirk	1	3	Chamber of Commerce		
Black Forest Heights	3	5	Radium - Main St. West	18		Coy Rd	2		Radium - Main St. West	2		Windermere - Victoria & Fairmont	2	3
Invermere - Petro Can		2	Black Forest Heights	2	2	Spring's Natural Foods		2	Black Forest Heights			Akisknuk First Nations Band Hall	1	
Invermere - Sobey's	6		Invermere - Petro Can			Invermere		1	Invermere - Petro Can			Fairmont Resort Rd. & Hwy 95		1
Invermere - Hospital	4		Invermere - Sobey's	3		Invermere - Tim Hortons		1	Invermere - Sobey's			Fairmont Lodge	32	
Invermere - 13th St & 7th Ave		2	Invermere - Hospital		16	Parson	2		Invermere - Hospital		3	Hwy 95 & Fairmont Creek		2
Invermere - 7th Ave & 9th St		3	Invermere - 13th St & 7th Ave	1	3							Canal Flats - Community Hall		56
			Invermere - 7th Ave & 9th St		5									

### Average daily passenger boardings and alightings - by route

Route 1 - Canal Flats			Route 2 - Edgewater			On-request Service		
Stop Location	ONs	OFFs	Stop Location	ONs	OFFs	Stop Location	ONs	OFFs
Canal Flats - Community Hall	5.5	5.6	Invermere - Hospital	0.8	1.9	Eileen Madson Elementary	3.5	5
Hwy 95 & Fairmont Creek	0.1	0.4	Invermere - 13th St & 7th Ave	0.2	0.3	Sunshine Daycare	2.8	1.8
Fairmont Lodge	3.6	3.4	Invermere - 7th Ave & 9th St	0.6	0.5	WVCCS	2.2	1.6
Fairmont Resort Rd. & Hwy 95	0.1	0.5	Invermere - Petro Can	0	0	RCMP	1.1	0
Akisknuk First Nations Band Hall	0.1	0.1	Invermere - Sobey's	0	0.3	Little Badgers Daycare	0	1.1
Windermere - Victoria & Fairmont	0.3	0.5	Black Forest Heights	0.3	0.2	Windermere	0.2	0
Chamber of Commerce	0	0	Radium - Main St. East	0.1	1.3	Columbia House	0	0.2
Black Forest Heights	0.7	0.5	Radium - Main St. West	2	0	Coy Rd	0.2	0
Invermere - Petro Can	0	0.2	Edgewater - Vermillion & Selkirk	0.5	0.4	Spring's Natural Foods	0	0.2
Invermere - Sobey's	0.3	0.6				Invermere	0	0.1
Invermere - Hospital	1.2	0.4				Invermere - Tim Hortons	0	0.1
Invermere - 13th St & 7th Ave	0.4	0.2				Parson	0.2	0
Invermere - 7th Ave & 9th St	0.6	0.3						

## Appendix G: Public Consultation Methodologies

### 1. Official Stakeholders

In September 2009, BC Transit staff visited the Columbia Valley in order to meet with official stakeholders. Input was received from the RDEK, council representatives from the District of Invermere and the Village of Radium Hot Springs, the directors of electoral areas F and G, the Mayor of Radium, the Columbia Valley Transportation Commission, and operating company staff. The main points of consensus were as follows:

- Introduce service for Radium & Edgewater residents commuting to Invermere
- Replace on-request service with scheduled service
- House the vehicle in Invermere
- Introduce service to Wilmer
- Introduce service to Brisco and Spillimacheen
- Increase service
- Introduce weekend service

### 2. On-Board Passenger Survey

In order to gather input from current users of the CVTS in particular, a passenger survey was conducted on board on October 28-29, 2009. Every passenger who boarded the bus was asked to fill out a survey, unless they had already done so. There were 24 respondents, which is about the number expected, based on daily CVTS ridership numbers and the fact that many would be homeward-bound riders who would have completed a survey card on their outbound journey. When asked how the CVTS could be improved, the following were the most frequent comments:

- Increase service frequency (4 passengers)
- Avoid Route 1 service along Kootenay No. 3 Road (poor surfacing) (3 passengers)
- Have more stops in Canal Flats, or have the bus make a loop around it (3 passengers)
- Introduce weekend service (2 passengers)

It should be noted that nine passengers did not provide any comments.

### 3. Residential Household and Seasonal Employee Surveys

A residential household survey was conducted in March 2010, with survey and reply-paid envelopes delivered to all residential addresses consenting to receive Unaddressed Admail™. They were additionally sent to Panorama Mountain Village, and in July to Radium Hot Springs Resort and Fairmont Hot Springs Resort, for distribution to seasonal employees without residential addresses. The survey was also available online on BC Transit's website to anyone accessing the CVTS webpage, and the mailed residential survey provided this URL for people preferring to complete it online. All the survey respondents were permanent residents of the Columbia Valley. While the Columbia Valley is a major tourist destination, it is unlikely that tourists would use public transit during their stay so their input into the transit system was not considered a priority.

1,050 people from 487 households responded to the survey, with 83% of them replying by mail and 17% replying online. The overall survey response rate was 12.3%, well above the usual rate of 1% to 2%. This high response rate indicates a keen interest on the part of Columbia Valley residents in the CVTS and that the survey results are statistically significant. However, it should be noted that residential survey respondents are self-selecting and the results are not from a random sample, with a consequent voluntary response bias affecting the results.

One section of the survey asked about residents' interest in specific service proposals suggested at previous stakeholder meetings. The results can be summarized as follows:

## Appendix G: Public Consultation Methodologies

	<i>If the following were provided, how often would your household use them?</i>	% Never	% No Response	% Would Use
<b>Q11</b>	Service to Brisco and Spillimacheen	81.3%	10.8%	7.9%
<b>Q12</b>	Service linking to the Kicking Horse Country Transit System to provide access to Golden	68.6%	12.6%	18.8%
<b>Q13</b>	Morning service from Edgewater and Radium, arriving in Invermere by 8:30 a.m.*	77.4%	12.4%	10.3%
<b>Q14</b>	Service to Panorama Mountain Village during the ski season	55.6%	12.7%	31.7%
<b>Q16</b>	Service to Radium Hot Springs pools	60.6%	13.6%	25.8%
<b>Q17</b>	Service to Fairmont Hot Springs pools	61.1%	14.9%	24.0%

*\*Question misphrased: did not specify corresponding trip from Invermere to Edgewater/Radium to suit returning commuters.*

Due to the inherent bias in non-commitment responses, these survey results are not indicative of actual future usage of these hypothetical services. More reliable are self-generated requests that require more effort on the part of the respondent. When asked if they had comments on transit service in their area, 231 (47% of) households responding to the survey provided them, with some households providing up to four or five comments. There were a total of 100 comments requesting various service improvements to the CVTS. These fell into fifteen general categories, with the top five response categories as follows:

- Increase service frequency: more trips per day, shorter wait time in Invermere between trips (30 respondents)
- Improve public awareness of the service, schedules, and stop locations (16 respondents)
- Introduce service for Radium & Edgewater residents commuting to Invermere (9 respondents)
- Introduce service to Panorama Mountain Village (9 respondents)
- Introduce evening and late night service (8 respondents)

### 4. Public Open Houses

Lastly, public open houses were organized as another method of consulting with area residents. Initially, specific community groups identified as having a particular stake in transit were targeted, but due to low uptake, the open houses were then advertised through the local media as being open to the general public. The open houses took place on June 8 and June 9, 2010 with a total of 14 attendees, including political appointees, local employers and business representatives, educators, community association representatives, and interested residents. While public open house participants in general have a self-selecting bias, and the low attendance levels at the Columbia Valley open houses mean that participant opinions may not represent those of area residents as a whole, the key points raised for improving the CVTS showed similarities with some residential survey service requests, as follows:

- Increase frequency of service, with shorter round trips suitable for people running errands
- Improve awareness of the service and how it works, and improve bus stop signage – people don't know where stops are located
- House the vehicle in Invermere
- Replace 3-hour midday on-request service with scheduled service
- Purchase a second vehicle – the system cannot be scheduled to serve both directions (N & S of Invermere) without it

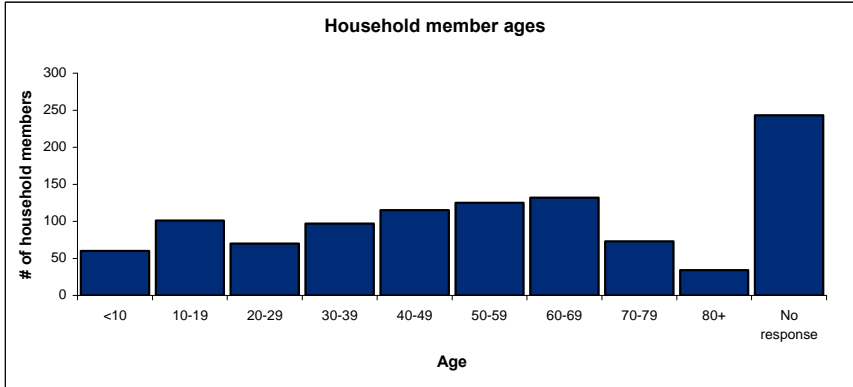


**Appendix H: March-August 2010 Residential Survey Summary**

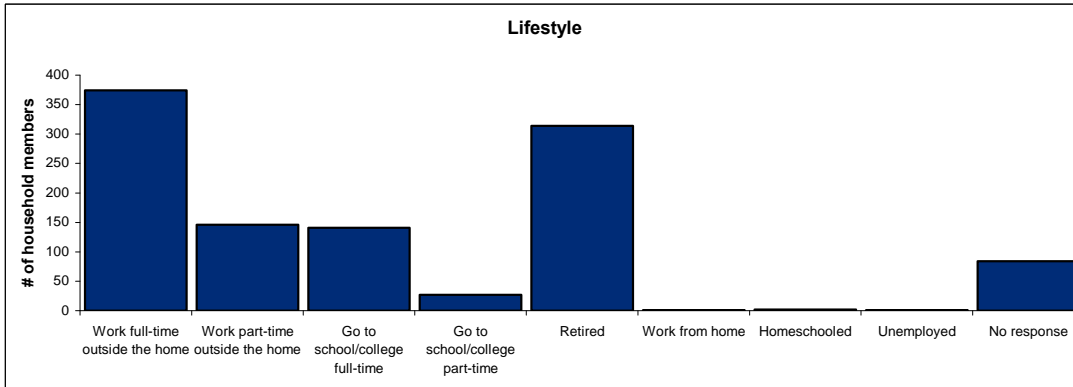
**Columbia Valley Resident Survey  
Conducted: March-August 2010**

Number of household responses: 487  
Number of people responses: 1050

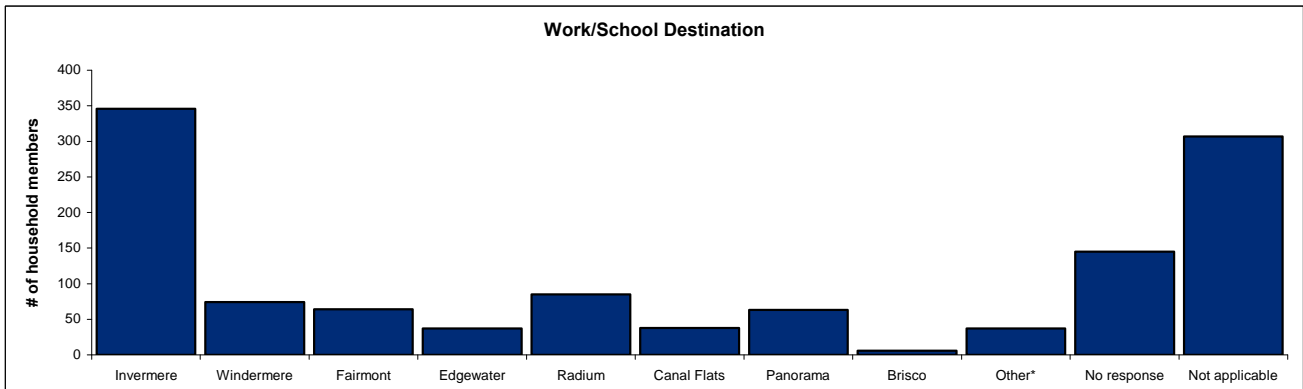
**1. What is their age?**



**2. Lifestyle**

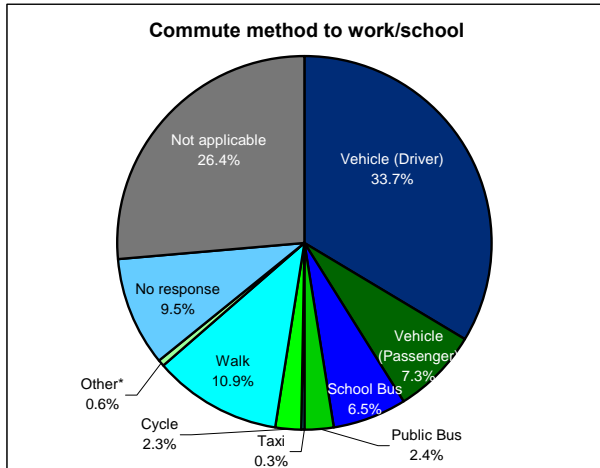


**3. If they go to work/school, where do they go?**

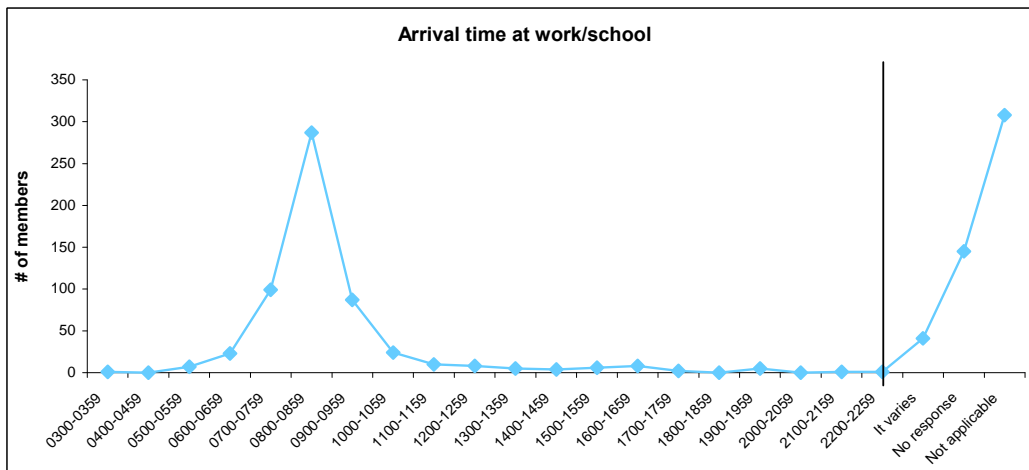


## Appendix H: March-August 2010 Residential Survey Summary

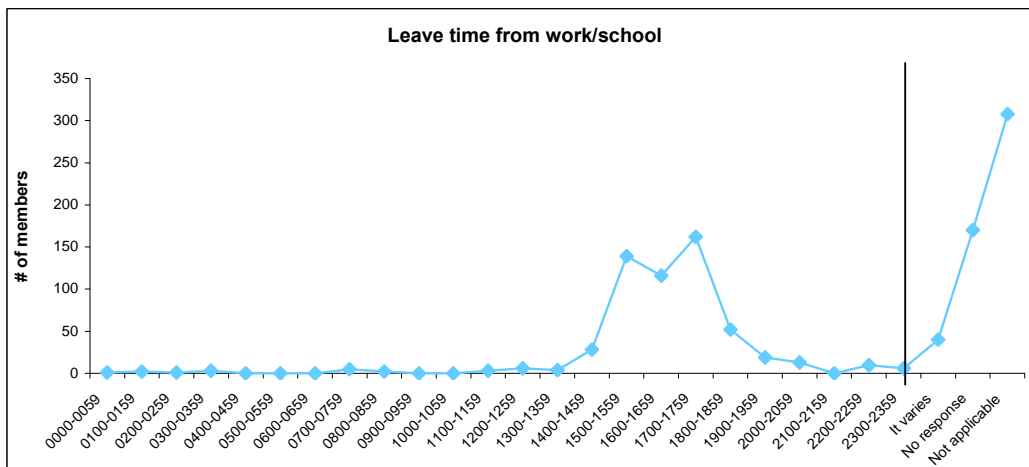
### 4. If they go to work/school, how do they go?



### 5. What time do they arrive at work/school?

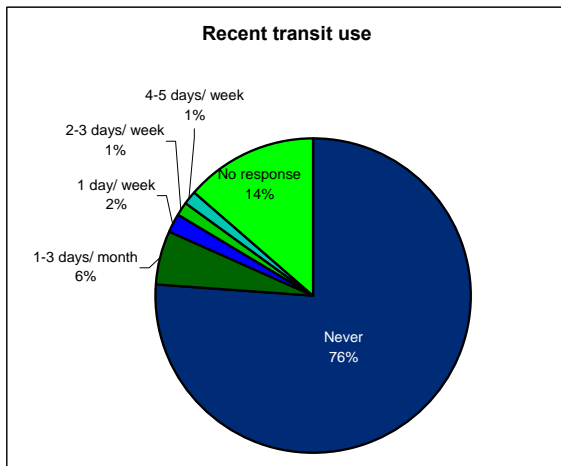


### 6. What time do they leave work/school?

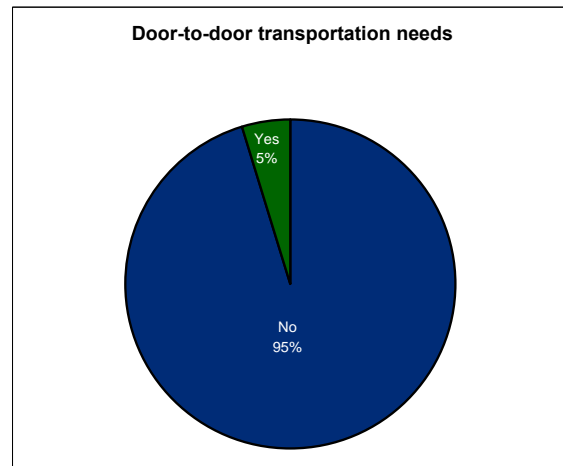


## Appendix H: March-August 2010 Residential Survey Summary

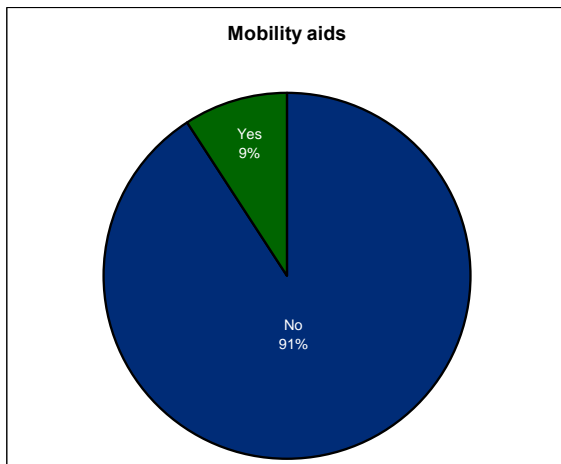
7. In the past 3 months, how often has each person in your household taken a public bus?



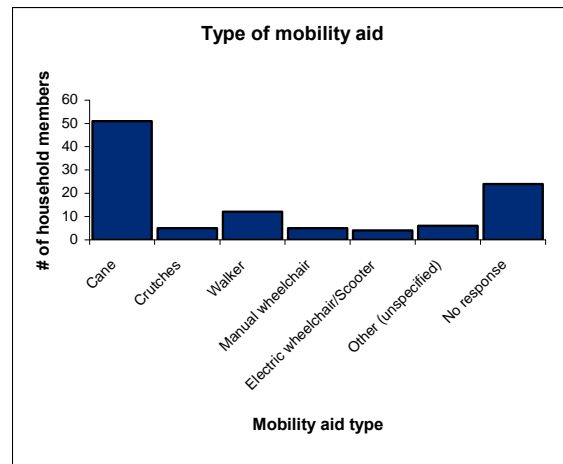
8. Do they need door-to-door transportation because of a disability?



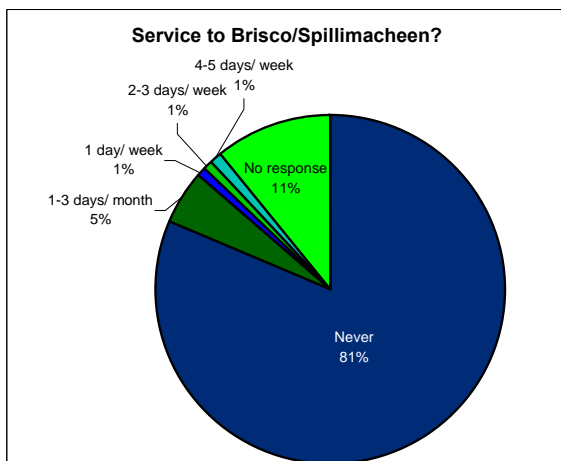
9. Do they use mobility aids?



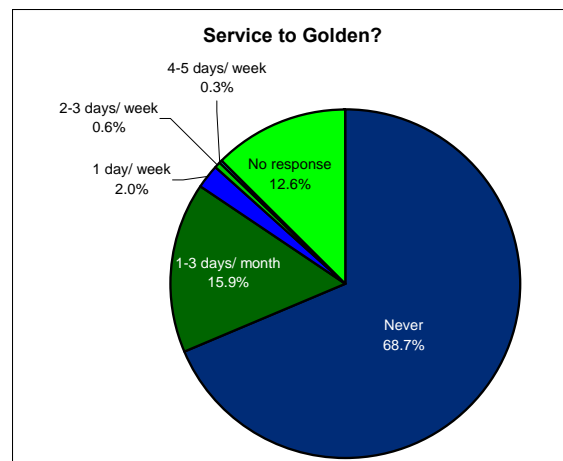
10. If they use mobility aids, do they use...



11. If there was bus service to Brisco and Spillimacheen, how often would they use it?

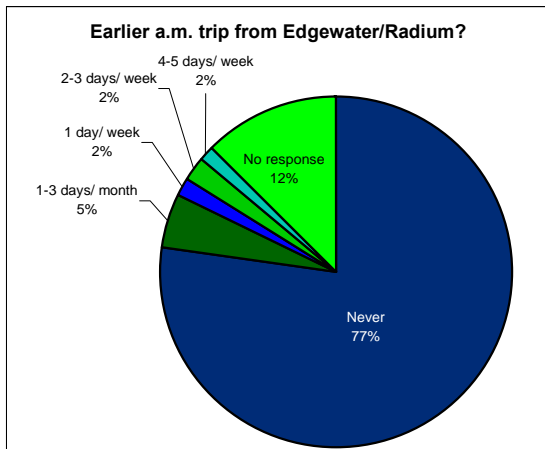


12. If bus service was connected to the Kicking Horse Country bus system and ran north to Golden, how often would they use it?

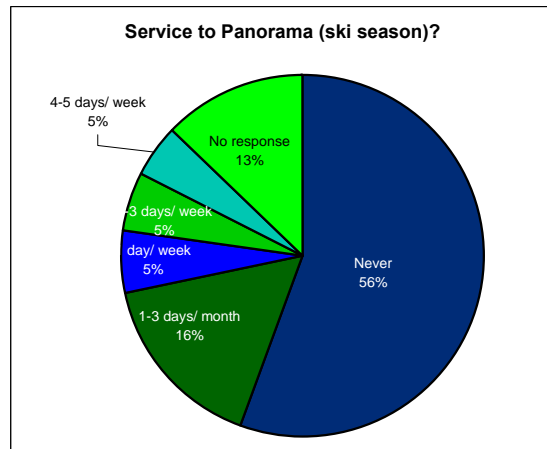


## Appendix H: March-August 2010 Residential Survey Summary

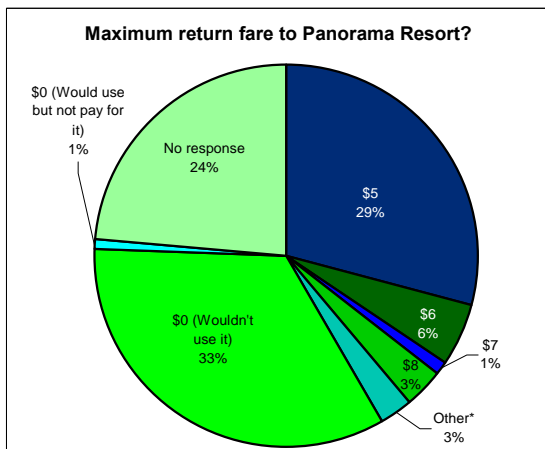
13. If there was a morning bus from Edgewater and Radium that arrived in Invermere by 8:30am, how often would they use it?



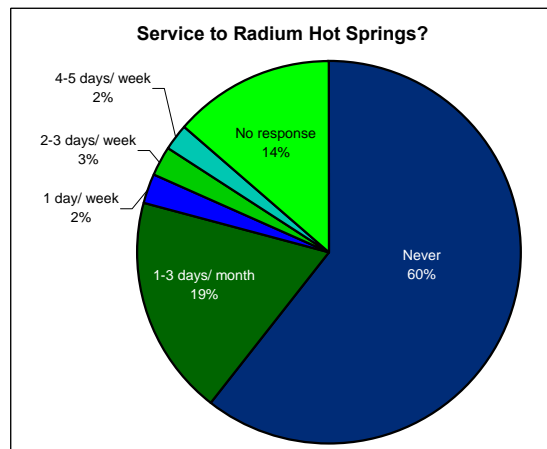
14. If there was a bus to the Panorama Resort during the ski season, how often would they use it?



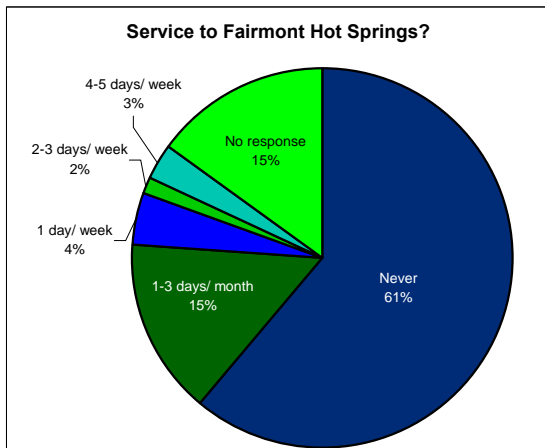
15. What is the maximum they would pay for a return trip to the Panorama Resort?



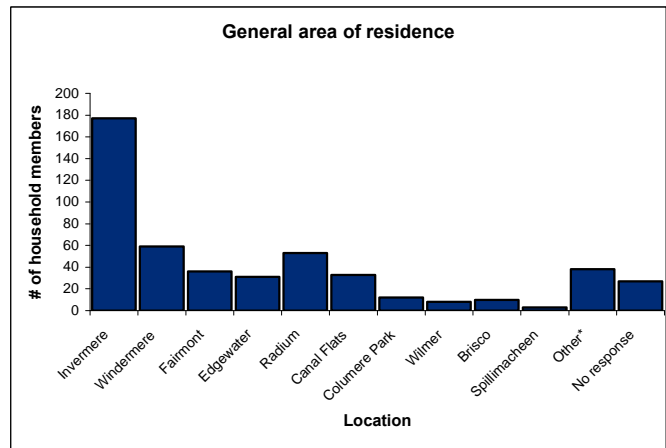
16. If there was a bus to the pools at Radium Hot Springs, how often would they use it?



17. If there was a bus to the pools at Fairmont Hot Springs, how often would they use it?

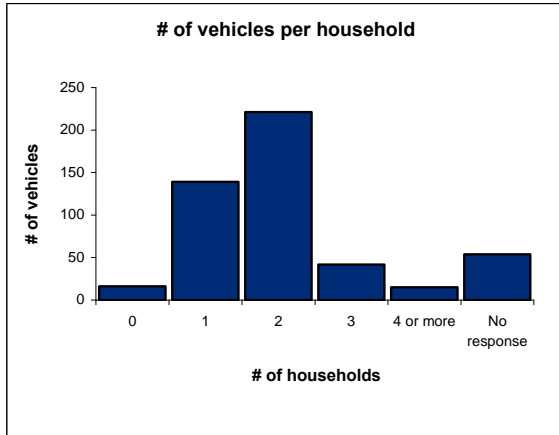


18. What general area do you live in?

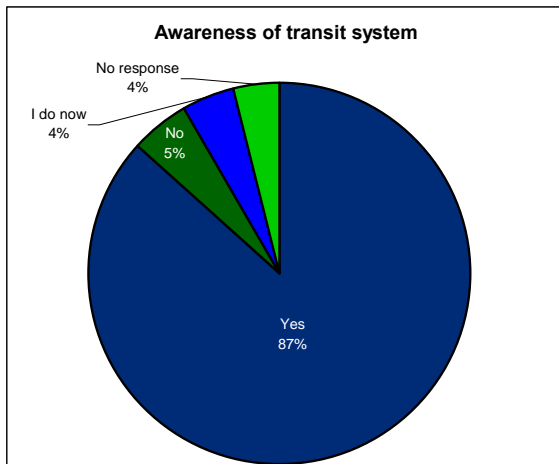


## Appendix H: March-August 2010 Residential Survey Summary

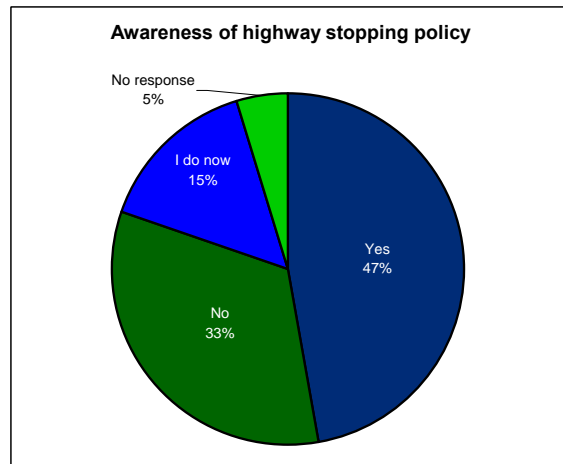
19. How many registered, licensed vehicles does your household have?



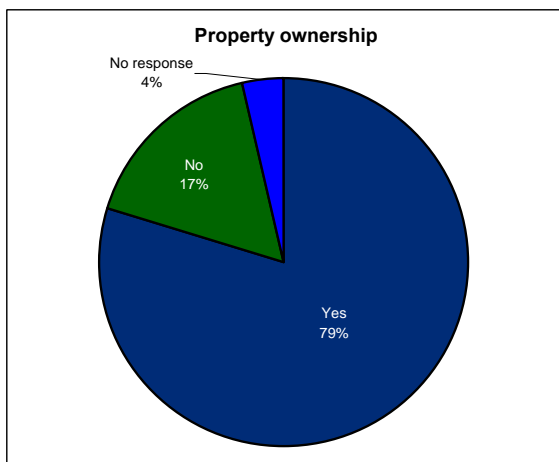
23. Did you already know that Columbia Valley has a public bus system?



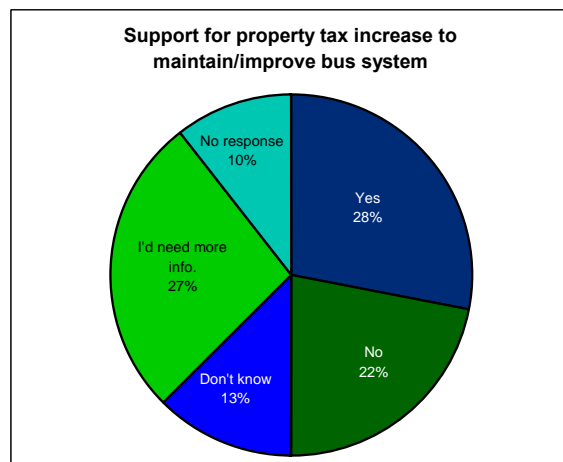
24. The bus can pick you up and let you off in rural areas along Highway 93/95, between Canal Flats and Edgewater, even if there is no bus stop. Did you already know this?



25. Are you a property owner?



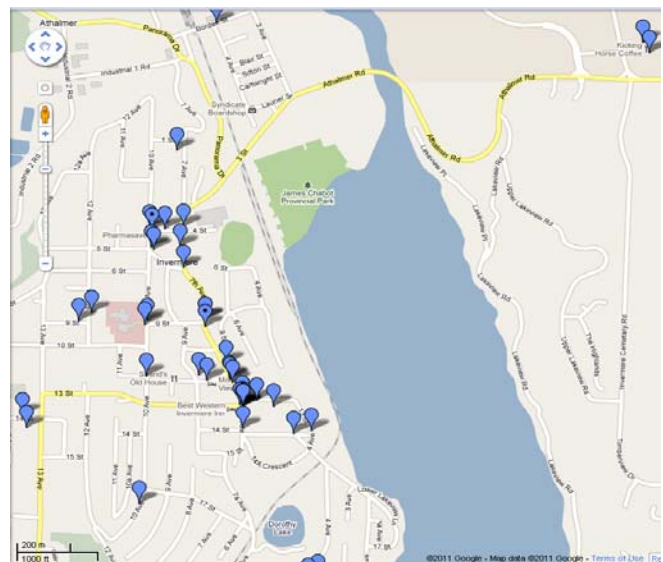
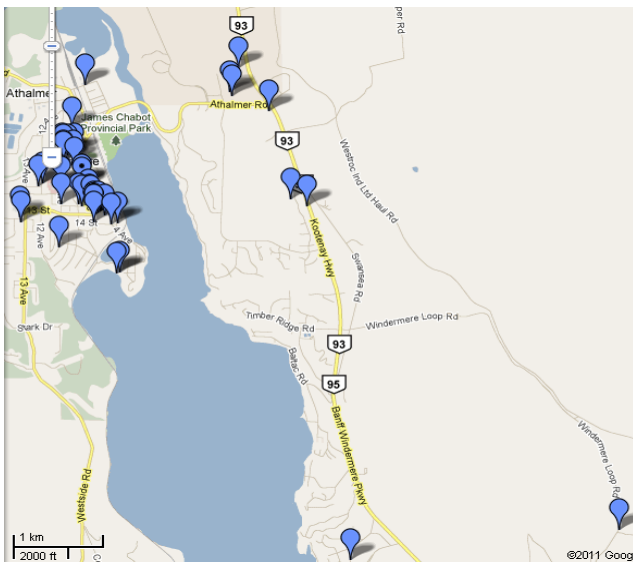
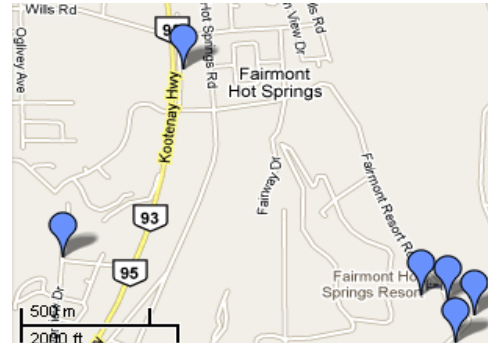
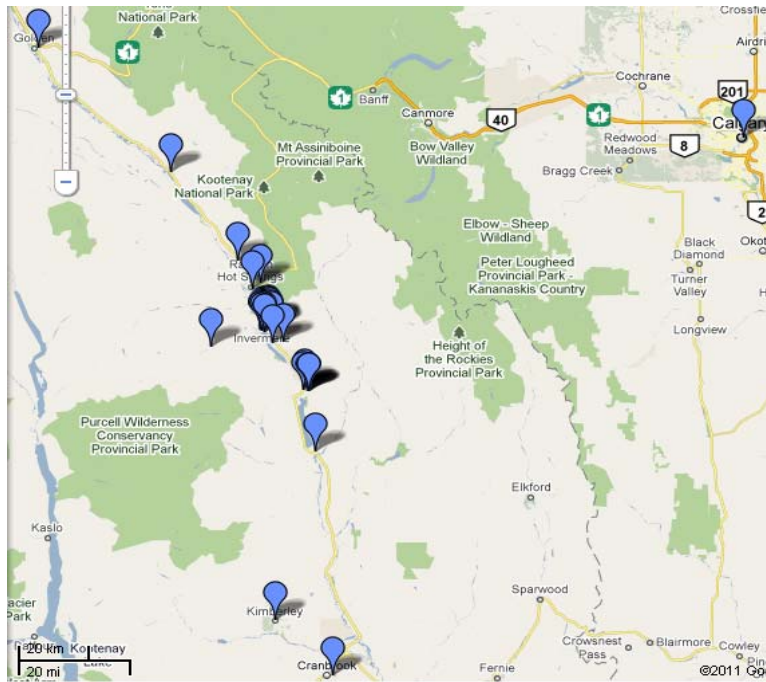
26. A portion of property tax funds your public bus system. Would you support an increase in property tax to maintain or improve your bus system?

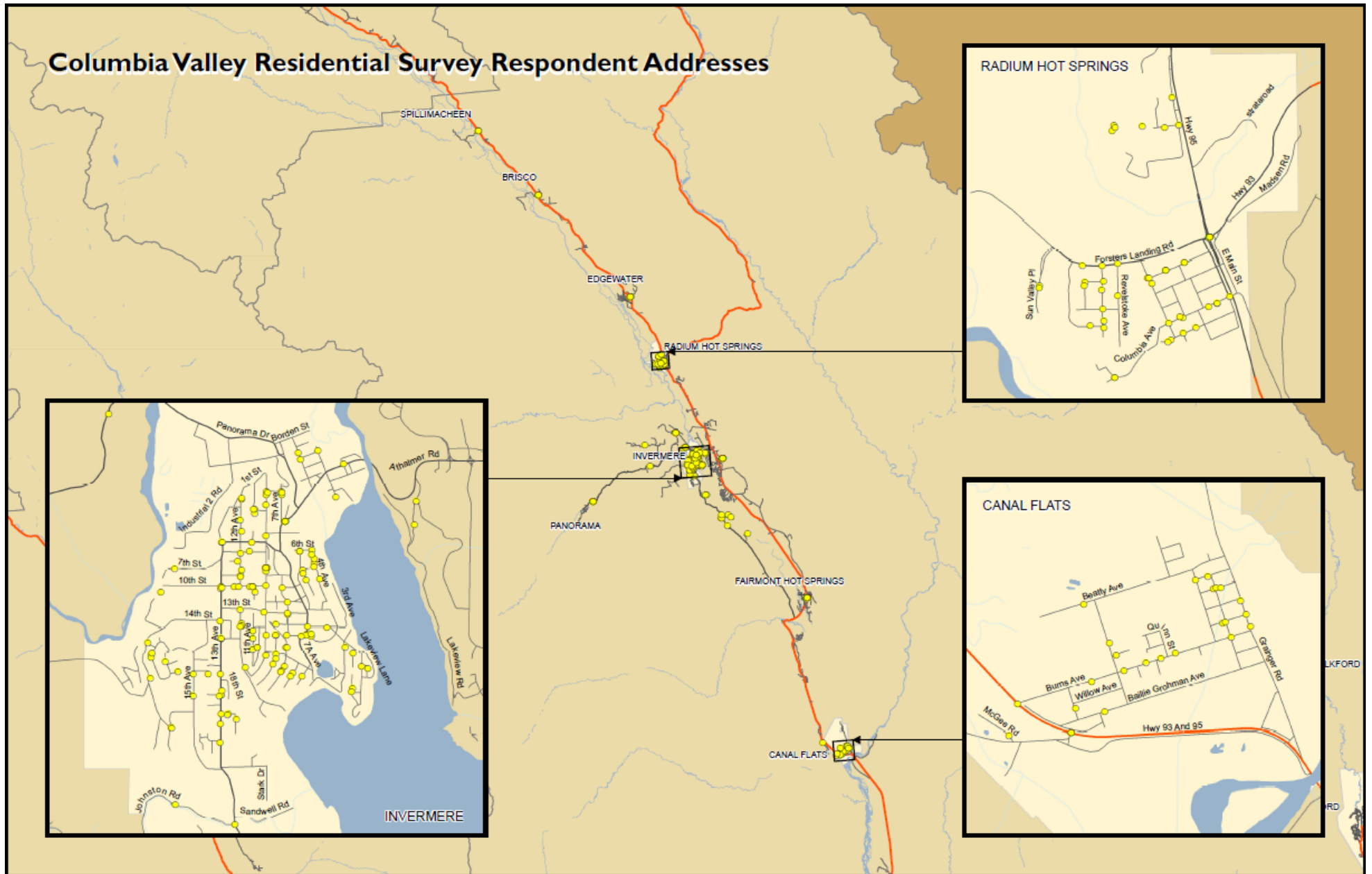


# Appendix H: March-August 2010 Residential Survey Summary

## 20. Which shopping, recreation, or medical facilities does your household go to each week?

Invermere:	76.6%
Radium:	5.3%
Fairmont:	4.2%
Windermere:	0.7%
Canal Flats:	0.4%
Brisco:	0.1%
Edgewater:	0.1%
Panorama:	2.4%
Cranbrook:	4.5%
Golden:	0.7%
Kimberley:	0.4%
Calgary:	0.1%
Other:	0.1%
No response	4.4%





## Appendix H: March-August 2010 Residential Survey Summary

### 27. Do you have any other comments on public transit in your area?

#### Top 10 responses:

1	Transit is valuable/essential for our community / Hope it continues	83	27.7%
2	May need it / Will use it in future	44	14.7%
3	Increase service frequency (>1 round trip/day)	30	10.0%
4	Improve public info., stop signage, and explain how to read/access the Riders C	16	5.3%
5=	Trip times do not match our work schedule	10	3.3%
5=	Should be user-pay / Won't pay more taxes for it / Taxes too high already	10	3.3%
7=	Serve Radium/Edgewater commuters to Invermere	9	3.0%
7=	Introduce service to Panorama	9	3.0%
9=	Evening / Late-night service	8	2.7%
9=	Questions re: cost-effectiveness, ridership	8	2.7%
	<b>Total</b>	<b>227</b>	<b>75.7%</b>

#### Requests for service improvements to the CVTS:

1	Increase service frequency (>1 round trip/day)	30	10.0%
2	Improve public info., stop signage, and explain how to read/access the Riders C	16	5.3%
3=	Serve Radium/Edgewater commuters to Invermere	9	3.0%
3=	Introduce service to Panorama	9	3.0%
5	Evening / Late-night service	8	2.7%
6	Later afternoon run for school/after-school activity end times	6	2.0%
7=	(More) Service to Golden	4	1.3%
7=	Weekend service	4	1.3%
9=	Increase coverage/frequency within Invermere	3	1.0%
9=	More routes (Wilmer, Westside Rd)	3	1.0%
11=	Extend service to Brisco/Spillimacheen	2	0.7%
11=	Put "on-request" hours into scheduled service	2	0.7%
11=	Like the current "on-request" service	2	0.7%
11=	Implement a handyDART-type/off-route pick-up service	2	0.7%
	<b>Total</b>	<b>100</b>	<b>33.3%</b>

#### Responses 11-20:

11=	Later afternoon run for school/after-school activity end times	6	2.0%
11=	Wouldn't use the transit system	6	2.0%
13=	No service in my area (e.g. Wilmer, Brisco, too far from highway etc.)	5	1.7%
13=	Please keep current Canal Flats <-> Invermere schedule	5	1.7%
15=	Transit is a waste of money	4	1.3%
15=	Expanding service a great idea	4	1.3%
15=	Transit should be supported by taxes	4	1.3%
15=	(More) Service to Golden	4	1.3%
15=	Weekend service	4	1.3%
15=	It's more convenient to drive	4	1.3%
	<b>Total</b>	<b>46</b>	<b>15.3%</b>

#### Responses 21-31:

21=	Area is too rural / Too many non-residents to support a transit system	3	1.0%
21=	Increased coverage/frequency within Invermere	3	1.0%
21=	More routes (Wilmer, Westside Rd)	3	1.0%
21=	Query whether buses can accommodate bicycles	3	1.0%
21=	Public transit doesn't meet my needs at this time	3	1.0%
26=	Extend service to Brisco/Spillimacheen	2	0.7%
26=	Implement a handyDART-type/off-route pick-up service	2	0.7%
26=	Like the bike racks	2	0.7%
26=	Bus schedule can't accommodate variable work start times	2	0.7%
26=	Put "on-request" hours into scheduled service	2	0.7%
26=	Like the current "on-request" service	2	0.7%
	<b>Total</b>	<b>27</b>	<b>9.0%</b>



## Appendix I: October 28-29 2009 On-Board Passenger Survey Summary

### 1) What time did you board this bus?

Passenger on deadhead run from Golden through Spillimacheen & Brisco down to Canal Flats for 0730.

6:00 - 6:59	1	4.2%
<b>7:00 - 7:59</b>	<b>8</b>	<b>33.3%</b>
8:00 - 8:59	3	12.5%
9:00 - 9:59	5	20.8%
10:00 - 10:59	2	8.3%
11:00 - 11:59	1	4.2%
12:00 - 12:59	0	0.0%
13:00 - 13:59	0	0.0%
14:00 - 14:59	0	0.0%
15:00 - 15:59	0	0.0%
16:00 - 16:59	4	16.7%
17:00 - 17:59	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### 2) What is the main purpose of this trip?

<b>Work</b>	<b>12</b>	<b>40.0%</b>
Shopping	5	16.7%
Other Personal Errands	3	10.0%
Social / Recreation	2	6.7%
Medical / Dental	2	6.7%
Daycare--Elementary School chaperoning	2	6.7%
Middle / High School	1	3.3%
College / University	1	3.3%
Other	2	6.7%
No response	0	0.0%
<b>Total*</b>	<b>30</b>	<b>100.0%</b>

\* Multiple responses allowed

### 3) Where did you start this trip?

<b>Invermere</b>	<b>8</b>	<b>33.3%</b>
<b>Canal Flats</b>	<b>7</b>	<b>29.2%</b>
Radium	3	12.5%
Edgewater	2	8.3%
Black Forest Heights	2	8.3%
Fairmont Hot Springs	1	4.2%
Brisco	1	4.2%
Windermere	0	0.0%
Spillimacheen	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### 4) On which bus route did you start your trip?

<b>1 Canal Flats, Fairmont, Invermere</b>	<b>17</b>	<b>70.8%</b>
2 Radium, Edgewater	5	20.8%
On-request service	2	8.3%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

## Appendix I: October 28-29 2009 On-Board Passenger Survey Summary

### 5) Where will you end this trip?

<b>Invermere</b>	<b>16</b>	<b>66.7%</b>
Fairmont Hot Springs	3	12.5%
Windermere	2	8.3%
Radium	1	4.2%
Canal Flats	1	4.2%
Spillimacheen	0	0.0%
Edgewater	0	0.0%
Brisco	0	0.0%
No response	1	4.2%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### 6) On average, how frequently do you ride the bus?

<b>Every day</b>	<b>10</b>	<b>41.7%</b>
<b>2-3 days a week</b>	<b>9</b>	<b>37.5%</b>
2-3 times a month	5	20.8%
Less than 2-3 times a month	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### 7) What other transportation options are usually available to you?

<b>Vehicle (Passenger)</b>	<b>8</b>	<b>27.6%</b>
<b>Vehicle (Driver)</b>	<b>6</b>	<b>20.7%</b>
<b>None - bus is my only option</b>	<b>5</b>	<b>17.2%</b>
<b>Hitchhike</b>	<b>4</b>	<b>13.8%</b>
Walk	2	6.9%
Bicycle	2	6.9%
Taxi	1	3.4%
No response	1	3.4%
Other	0	0.0%
<b>Total*</b>	<b>29</b>	<b>100.0%</b>

\* Multiple responses allowed

### 8) If additional service were available, which would you prefer?

<b>Saturday</b>	<b>11</b>	<b>23.4%</b>
<b>Weekday evening</b>	<b>9</b>	<b>19.1%</b>
<b>Weekday daytime</b>	<b>8</b>	<b>17.0%</b>
<b>Sunday</b>	<b>8</b>	<b>17.0%</b>
Weekday early morning	5	10.6%
No response	6	12.8%
<b>Total*</b>	<b>47</b>	<b>100%</b>

\* Multiple responses allowed

## Appendix I: October 28-29 2009 On-Board Passenger Survey Summary

### 9) How satisfied are you with the following:

#### - Frequency of service?

<b>Very satisfied</b>	<b>10</b>	<b>41.7%</b>
Satisfied	5	20.8%
Neutral	5	20.8%
Dissatisfied	2	8.3%
Very dissatisfied	1	4.2%
No response	1	4.2%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

#### - Convenience of routes?

<b>Very satisfied</b>	<b>9</b>	<b>37.5%</b>
Satisfied	6	25.0%
Neutral	4	16.7%
Dissatisfied	3	12.5%
Very dissatisfied	2	8.3%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

#### - Location of stops?

<b>Very satisfied</b>	<b>14</b>	<b>58.3%</b>
Satisfied	7	29.2%
Neutral	0	0.0%
Dissatisfied	1	4.2%
Very dissatisfied	1	4.2%
No response	1	4.2%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

#### - Comfort and cleanliness of buses?

<b>Very satisfied</b>	<b>14</b>	<b>58.3%</b>
Satisfied	9	37.5%
Neutral	1	4.2%
Dissatisfied	0	0.0%
Very dissatisfied	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

#### - Courtesy of drivers?

<b>Very satisfied</b>	<b>15</b>	<b>62.5%</b>
Satisfied	8	33.3%
Neutral	1	4.2%
Dissatisfied	0	0.0%
Very dissatisfied	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

## Appendix I: October 28-29 2009 On-Board Passenger Survey Summary

### - Personal security?

Very satisfied	13	54.2%
Satisfied	10	41.7%
Neutral	1	4.2%
Dissatisfied	0	0.0%
Very dissatisfied	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### - Fares?

Very satisfied	18	75.0%
Satisfied	5	20.8%
Neutral	1	4.2%
Dissatisfied	0	0.0%
Very dissatisfied	0	0.0%
No response	0	0.0%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### - Access to schedule information?

Very satisfied	12	50.0%
Satisfied	6	25.0%
Neutral	3	12.5%
Dissatisfied	1	4.2%
Very dissatisfied	1	4.2%
No response	1	4.2%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### - Overall, how satisfied are you with the transit service?

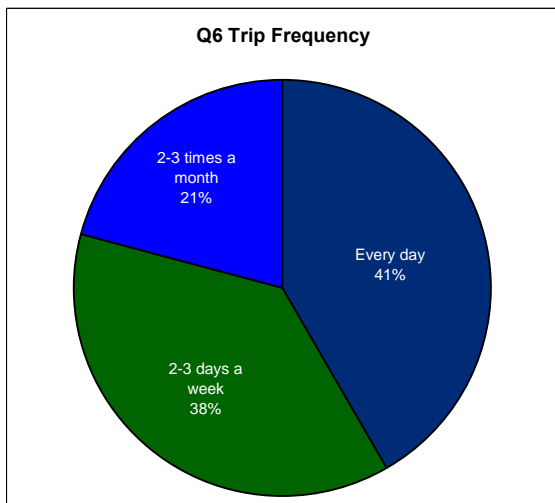
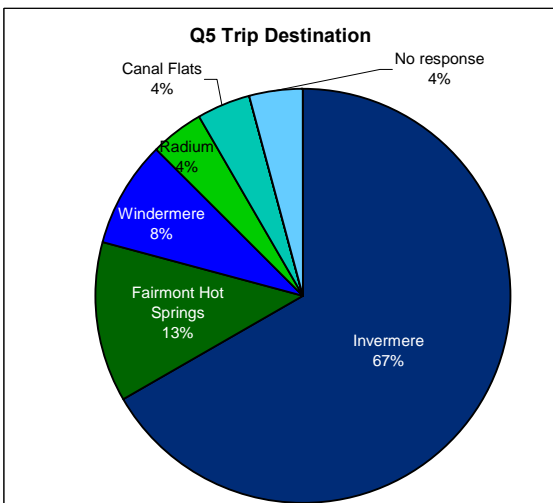
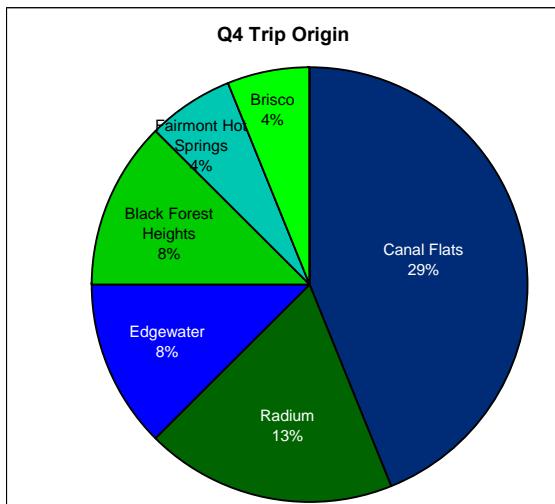
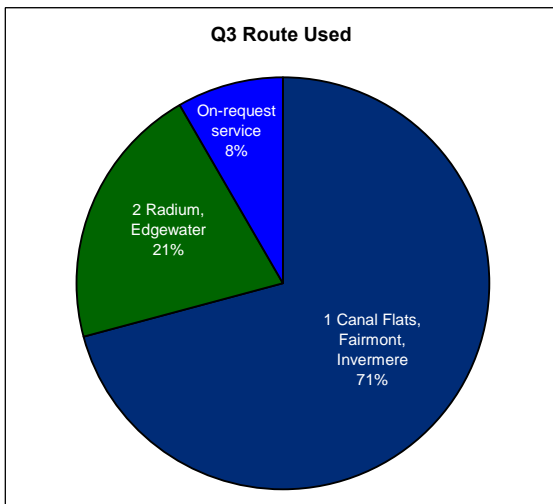
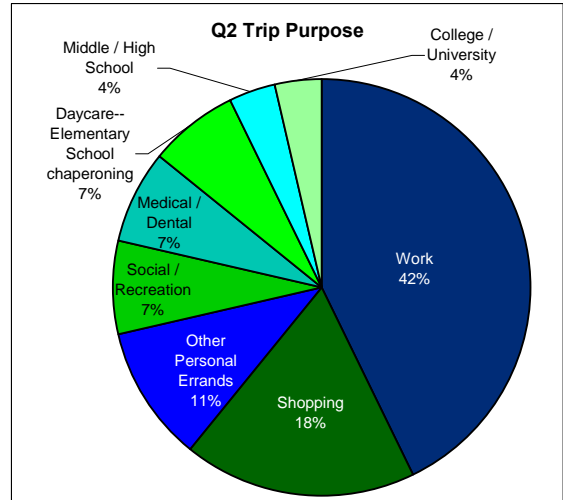
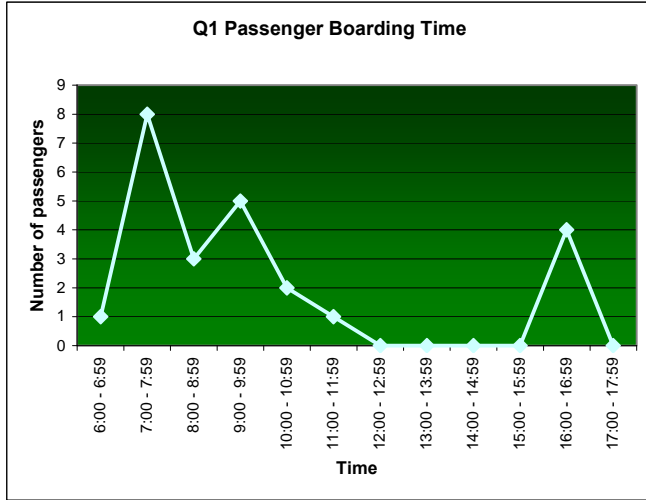
Very satisfied	12	50.0%
Satisfied	8	33.3%
Neutral	2	8.3%
Dissatisfied	0	0.0%
Very dissatisfied	0	0.0%
No response	2	8.3%
<b>Total</b>	<b>24</b>	<b>100.0%</b>

### 10) How can we make the bus service better for you?

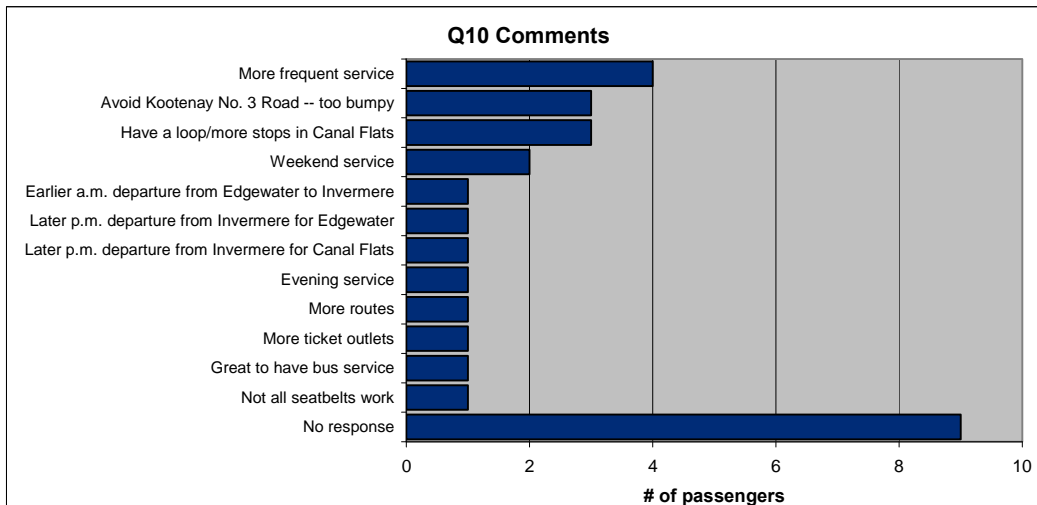
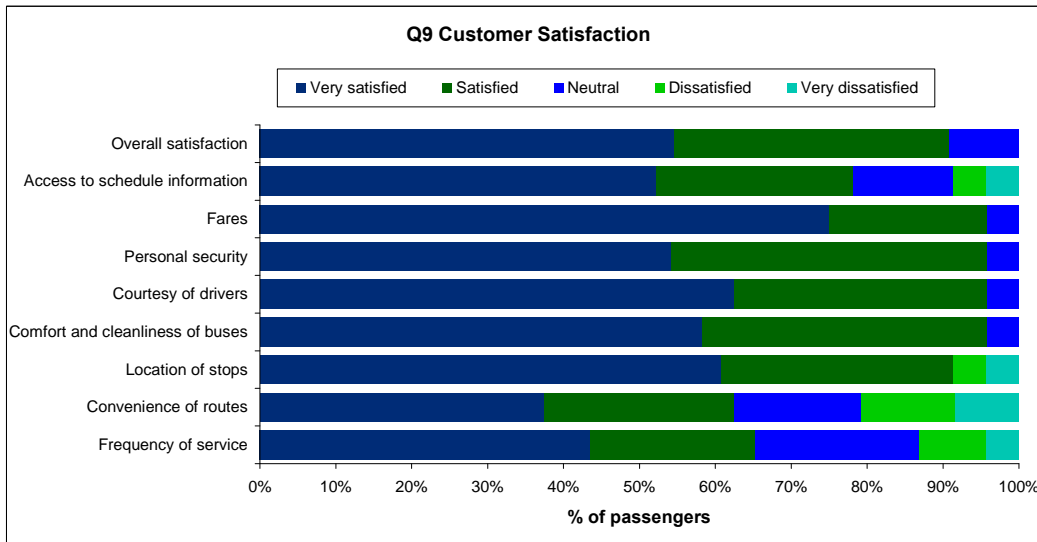
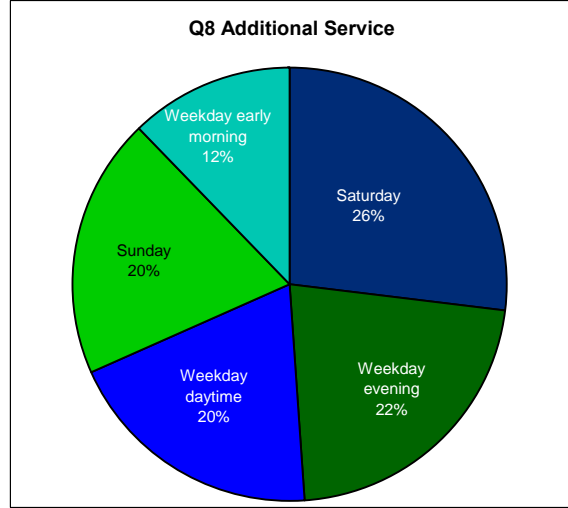
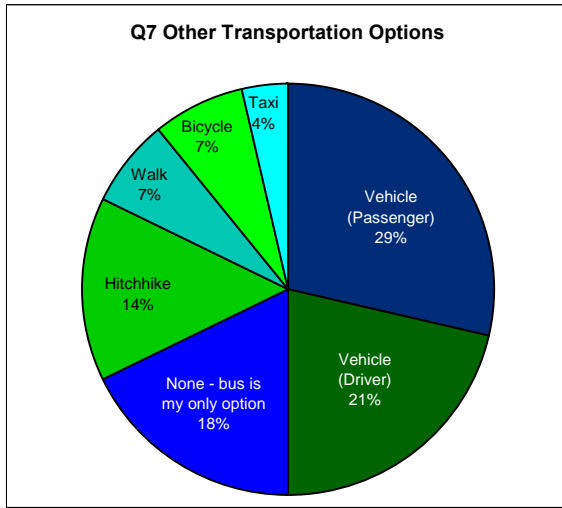
More frequent service	4	13.8%
Avoid Kootenay No. 3 Road -- too bumpy	3	10.3%
Have a loop/more stops in Canal Flats	3	10.3%
Weekend service	2	6.9%
Earlier a.m. departure from Edgewater to Invermere	1	3.4%
Later p.m. departure from Invermere for Edgewater	1	3.4%
Later p.m. departure from Invermere for Canal Flats	1	3.4%
Evening service	1	3.4%
More routes	1	3.4%
More ticket outlets	1	3.4%
Great to have bus service	1	3.4%
Not all seatbelts work	1	3.4%
<b>No response</b>	<b>9</b>	<b>31.0%</b>
<b>Total*</b>	<b>29</b>	<b>100%</b>

\*If respondents made more than one comment, all were included.

**Appendix I: October 28-29 2009 On-Board Passenger Survey Summary**



**Appendix I: October 28-29 2009 On-Board Passenger Survey Summary**



## Appendix J: Fare Structure

### Conventional System

#### Fare Information

Columbia Valley Fare Information		
Cash Fare		
	Local*	Regional*
Everyone age five and over	\$2.00	\$2.50
Child under 5 years	no charge	
Sheet of 10 Tickets		
All Passengers	\$15.00	\$18.00
Monthly Pass (available from bus operator)		
All Passengers		\$42.00

#### Fare Zones

**Local Service:** Radium, Invermere, Windermere, Fairmont

**Regional Service:** Edgewater, Canal Flats

#### Ticket Outlets

Area	Vendor
Akisqnuq Village	Akisqnuq Nation Band Hall
Canal Flats	Family Pantry
Edgewater	Pips General Store
Invermere	AG Valley Foods
Invermere	Invermere City Hall
Invermere	Sobeys
Fairmont	Bigway Foods
Radium	Mountainside Market
Shuswap Village	Shuswap Nation Band Hall
Windermere	Windermere Pantry
Windermere	Windermere Valley Market

### Health Connections Service

#### Fare Information

Health Connections Fare Information	
One-way to Cranbrook	
Cash Fare - all passengers	\$2.50