

Cowichan Valley Commuter Transit Service Review

June 2011

1. SUMMARY

Between 2008 and 2011, the average number of passengers per month has more than doubled on the Cowichan Valley Commuter or “CVC” (**118% increase**). Ridership has increased from a total of 2,727 passengers in October 2008 to a total of 5,890 passengers by March 2011. The first AM and PM Peak trip represents a large portion of this growth, prompting concerns about the immediate capacity of the service. The purpose of this report is to analyze and discuss potential service options to address the challenges associated with rapid growth in ridership and increased demand for peak period service.

The report has three parts. First is a review of the existing system to provide context, followed by a discussion of proposed service options. These include:

1. Current bus allocation and schedule (status quo)
2. Current bus allocation with modified and improved schedule
3. Current bus allocation and schedule plus extra return trip to the Cowichan Valley using additional bus
4. Current schedule with first 66 trip using double-decker bus
5. Current bus allocation and schedule plus extra return trip using spare bus (for discussion purposes only)

The second part identifies fleet considerations for each of these options, while the third part identifies financial costs associated with each option. Reported work start and end times are included as an appendix.

2. BACKGROUND

In 2006, the Cowichan Valley Regional District (CVRD) and the Victoria Regional Transit Commission (VRTC) endorsed undertaking a feasibility study to examine transit service connecting the Cowichan Valley and Victoria. The Malahat Feasibility Study was completed in November 2006. The Province announced funding for the proposed transit service a year later, and the service was subsequently implemented in October 2008. Funding for the Cowichan Valley Commuter Transit System is currently cost-shared between the CVRD, VRTC and BC Transit. The initial focus of the service was to provide transit for working commuters, and not other groups such as students/seniors. Also, there was no consideration given initially for future service growth or fleet expansion.

2.1 Service Description

The service consists of two routes, the 66 Duncan Commuter and the 99 Shawnigan Lake Commuter. The 66 follows Hwy 1 from Village Green Mall in Duncan to Victoria, while the 99 follows local roads in Shawnigan Lake and Cobble Hill before turning onto Hwy 1 at Mill Bay. Both routes share common stops within Greater Victoria and terminate at Government at Superior.

The Cowichan Valley Commuter service is designed for commuters travelling from the Cowichan Valley to work in Victoria. The service is available Monday through Friday except statutory holidays. The 66 has four outbound trips leaving Duncan in the AM Peak and four inbound trips leaving Victoria in the PM Peak. The 99 has two outbound trips in the AM Peak and two inbound trips in the PM Peak.

3. CURRENT SERVICE REVIEW

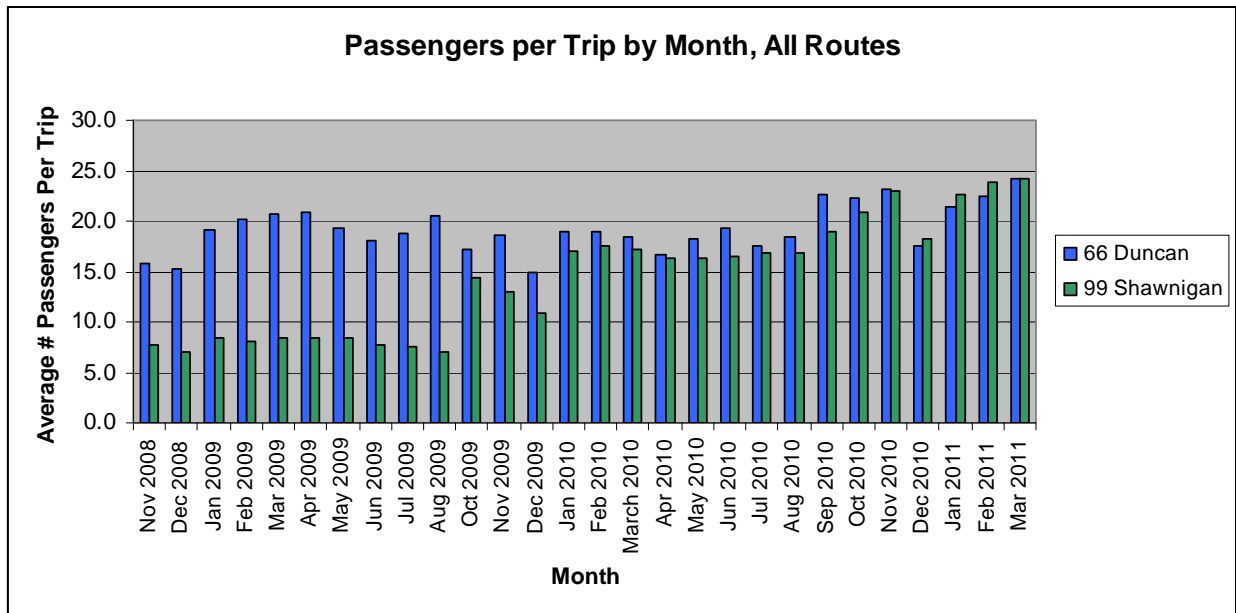
3.1 Ridership

Ridership has increased on both routes since 2008. The service is becoming more and more popular with customers who view it as a cost effective and safe alternative to driving their vehicle. The following table shows the average number of passengers per month for each year, or portion thereof.

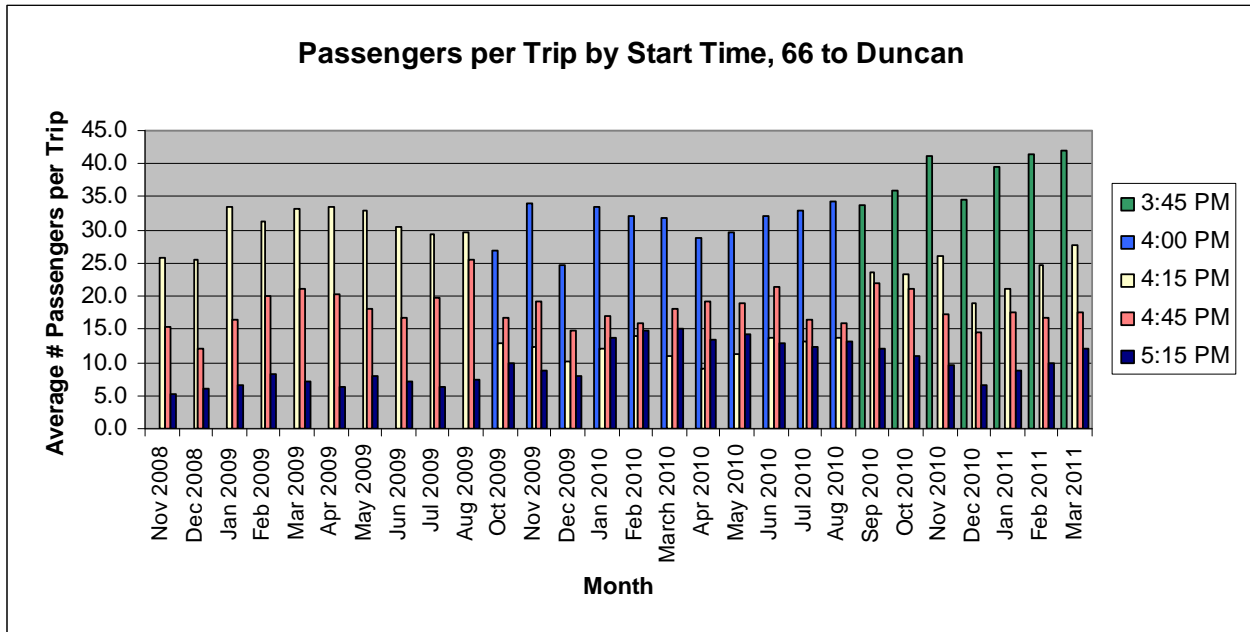
Route	Average Number of Passengers per Month				Growth Rate (Percent Change)		
	2008	2009	2010	2011	2008-2009	2009-2010	2010-2011
66	1,866	2,530	3,155	3,882	36%	25%	23%
99	861	1,011	1,428	2,008	17%	41%	41%
Total	2,727	3,541	4,583	5,890			

Average Passengers per Trip by Month

Route 66 has seen a steady increase over time with minor seasonal variations (e.g. lower ridership in December). The following graph would suggest that Route 99 has experienced strong growth. However, it should be noted that the number of trips per day was reduced from 4 trips to 2 trips; thus it follows that there are more passengers per trip, given fewer trips. With this change since January 2010, the amount of passengers on both routes are virtually the same.



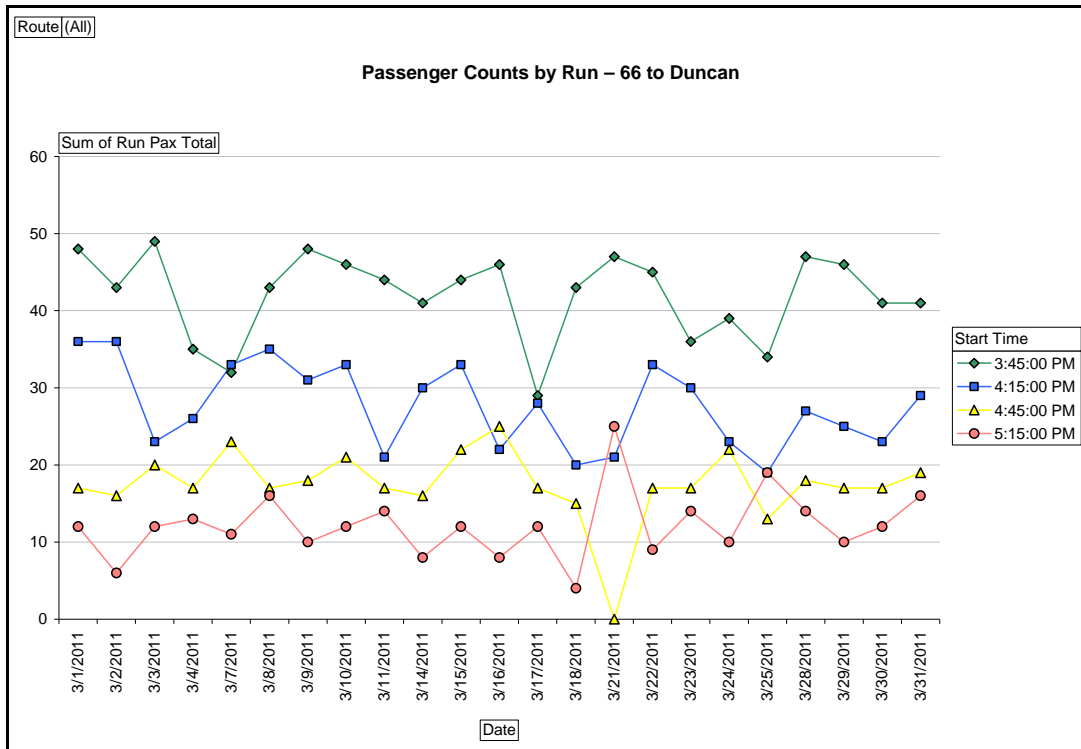
It is also worth noting that the number of passengers per trip varies by start time. The following table, which shows the average number of passengers for each trip time, illustrates the demand for return trips between 3:45 pm and 4:00 pm. For instance, the number of passengers on the 4:15 pm trip drops from 30 to less than 15 passengers when a 4:00 pm trip is introduced in October 2009. Meanwhile, the 5:15 pm trip has the lowest with only 5 to 15 passengers per trip throughout the history of the service.



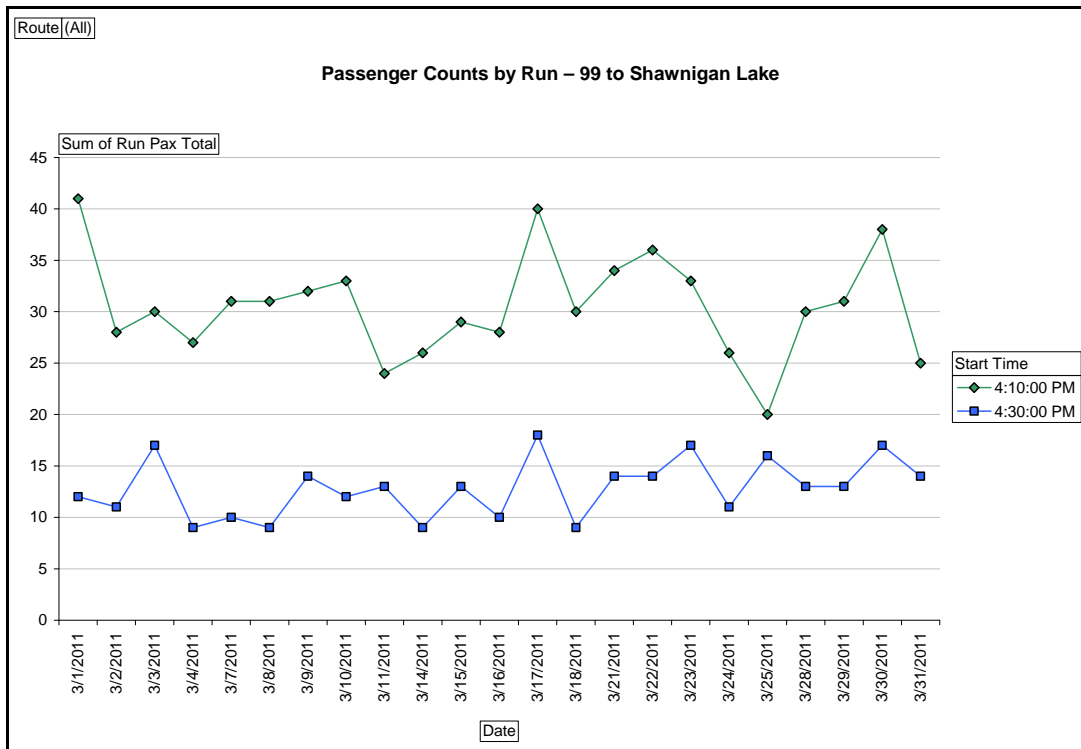
- ***The schedule was adjusted in September 2010 – the 4:00 pm trip was modified to depart earlier at 3:45 based on passenger demand and due to View Royal construction.***

Average Passengers per Trip by Month

Recent passenger counts (March 1-31, 2011) confirm a strong preference for earlier return trips. The 3:45 pm return trip to Duncan has an average of 42 passengers but carries as many as 49 people, including standees. The number of passengers per trip decreases with time. The last trip of the day has the lowest ridership with an average of only 12 passengers per trip, as shown below.



Route 99 also has more riders on the earlier trip (4:10 pm) compared to the later trip (4:30 pm).



3.2 Bus Stop Activity

For the 66 Duncan to Victoria, the majority of riders board at four stops:

- Valleyview (29%); Frayne Park & Ride (28%);
- Central and Cowichan / Duncan Exchange (15%); and
- Hwy 1 at Koksilah Rd (15%).
- Others total (13%)

It is worth noting that Valleyview serves as a formal Park & Ride, hence the higher number of boardings. Valleyview is also a transfer point for both conventional and commuter service. CVC passengers can connect to the 10 South Cowichan Connector, 12 Shawnigan Lake and 15 Mill Bay during the PM Peak period. (Note: Currently, AM Peak service on these conventional routes does not connect with morning CVC trips – service would need to commence well before 7 am, requiring additional service hours). Within the CRD, 88% of passengers alight somewhere on the Douglas Street corridor with the two main stops being Douglas at Fort (23%) and Douglas at Centennial (22%).

3.3 Online Survey (March/April 2011)

The purpose of the survey was to mainly collect work start and end times, in response to reports of overcrowding on certain trips, and to allow riders to voice their thoughts on the overall service. Additional questions touched on place of residence, use of Park & Rides and level of satisfaction. 107 people responded to the Cowichan Valley Commuter survey between March 18 and April 5, 2011, most of whom were existing riders. Of those who responded, almost half said that they commute from Duncan and surrounding areas while the other half reported that they live in Cobble Hill, Shawnigan Lake or Mill Bay.

Place of Residence	Response Count	Response Percent
<i>Chemainus</i>	2	1.9%
<i>Cobble Hill (East of Hwy 1)</i>	11	10.5%
<i>Cobble Hill (West of Hwy 1)</i>	12	11.4%
<i>Cowichan Bay</i>	6	5.7%
<i>Cowichan Station / Sahtlam / Glenora</i>	2	1.9%
<i>Crofton</i>	2	1.9%
<i>Duncan</i>	21	20%
<i>Ladysmith</i>	3	2.9%
<i>Lake Cowichan/ Youbou / Honeymoon Bay</i>	8	7.6%
<i>Maple Bay</i>	9	8.6%
<i>Mill Bay</i>	14	13.3%
<i>Shawnigan Lake</i>	13	12.4%
<i>Other</i>	2	1.9%

Overall, respondents reported a high level of satisfaction with the Cowichan Commuter service. Two-thirds of respondents indicated that the service was either “very good” or “excellent”, 25% rated the service as “average” and only 7% rated the service as “poor or very poor”. Many people commented on the drivers’ professionalism and positive demeanour (e.g. “I think this is a great service for the Cowichan Valley – cost effective, safe for the users and less vehicles on the road. The bus drivers are excellent drivers, knowledgeable and very personable.”)

Changes to the Service Suggested by the Public in the Survey

1. Maintain existing service to retain riders’ confidence in the service. Limit frequency of changes to the schedule when possible.
2. Add additional PM Peak trips between 3:30 pm and 4:15 pm to deal with overcrowding.
3. Consider adding a later AM Peak trip to Victoria and corresponding PM Peak trip to Duncan to accommodate those who start work later (e.g. 8:30 am start time).
4. Review schedule and consider reducing return trip wait times at Millstream. Several people commented that the bus typically sits at Millstream for at least five minutes before continuing on to Duncan.
5. Consider re-instating Hutchinson Rd stop. A number of respondents commented that they used to walk to Hutchinson to catch the bus or make use of the parking lot adjacent to the stop.
6. Replace old bus with a more comfortable model to improve customer experience and address riders’ negative perceptions regarding safety (i.e. concerns about standees).
7. Work towards improving customer amenities at Park & Rides such as bus shelters, adequate lighting and bike racks.

4. SYSTEM PROPOSALS

4.1 Current Bus Allocation and Schedule (Status Quo)

Under this option, the CVC would continue to operate at the current level of service using existing fleet. No changes would be made to the schedule unless there was sufficient evidence. An onboard survey could be used to determine the level of support for moving the 4:10 pm Route 99 trip to 4:00 pm or earlier. Pushing up first 99 pm return trip would help alleviate pressure on the first 66 pm return trip by accommodating those who only want to travel as far as Frayne Rd. (Both the 66 and 99 stop at Frayne). Automated Passenger Count (APC) data indicates that about a third of 99 Shawnigan Lake passengers disembark at Frayne. Likewise, 42% of survey respondents said they parked at Frayne Rd.

Pros	Cons
<ul style="list-style-type: none"> • Cost-neutral: Does not require additional service hours or bus. • Customers only have to wait 15-20 minutes for next return bus to Frayne Rd. About half (44%) of all CVC passengers disembark at this stop. • Does not inconvenience those who are satisfied with current schedule. 	<ul style="list-style-type: none"> • Does not provide a long-term solution to address overloads on the first Route 66 PM return trip. Even if the first 99 left at an earlier time, it would likely reach capacity within a year given the current rate of growth. • Inefficient use of resources: Last trip of the day carries only about 11% of total passengers or an average of 10 passengers per trip (September 2009 - March 2011 data)

4.2 Current Bus Allocation with Modified/Improved Schedule

This option has the same number of trips per day and would use the same number of vehicles. However the schedule would be modified so as to respond to current ridership patterns and work start/end times. The following table compares the current schedule vs work start/end times, as reported by riders via online survey.

Current Schedule Versus Reported Work Start and End Times		
Route	Arrive in Victoria	Reported Start Times
66	7:00 AM	<ul style="list-style-type: none"> • Duncan and Surrounding Areas (66): Generally between 7:00 and 8:00 am, with 7:30 am being the most popular response • Mill Bay / Cobble Hill (66 or 99): Generally between 7:00 and 8:00 am, with 7:30 am being the most popular response. • Shawnigan Lake (99): Between 7:15 and 8:15 am.
99	7:15 AM	
66	7:30 AM	
66	7:45 AM	
66	8:00 AM	
99	8:15 AM	

<i>Route</i>	<i>Depart in Victoria</i>	<i>Reported End Times</i>
66	3:45 PM	<ul style="list-style-type: none"> • Duncan and Surrounding Areas (66): Mostly between 3:30 and 4:00 pm, as well as at 5:00 pm. • Mill Bay / Cobble Hill (66 or 99): Between 3:45 and 5:00 pm, especially at 4:45 and 4:00 pm. • Shawnigan Lake (99): Between 3:30 and 4:15 pm.
99	4:10 PM	
66	4:15 PM	
99	4:30 PM	
66	4:45 PM	
66	5:15 PM	

For this option, the proposed schedule was built around end times since overloads are mainly an issue on PM return trips to Cowichan Valley. Of those living in Duncan and surrounding areas, more than half of the survey respondents indicated that they finish work between 3:30 and 4:00 pm. The proposed schedule would provide an extra Route 66 trip during this period – i.e. 2 trips instead of 1. The 4:45 pm 66 trip is pushed up to 4:30 pm to meet the demand for earlier trips. The last 66 trip of the day is still at 5:15 pm (same as the current schedule) accommodating those who work later. Note that the last 99 trip is at 4:15 instead of 4:30 pm.

	Proposed Schedule To Greater Victoria		Proposed Schedule To Cowichan Valley	
	<i>Depart</i>	<i>Arrive</i>	<i>Depart</i>	<i>Arrive</i>
66 Duncan (90 mins)	5:30 AM	7:00 AM	3:30 PM	5:00 PM
	6:00 AM	7:30 AM	4:00 PM	5:30 PM
	6:30 AM	8:00 AM	4:30 PM	6:00 PM
	7:00 AM	8:30 AM	5:15 PM	6:45 PM
99 Shawnigan Lake (125 mins)	5:50 AM	7:15 AM	3:45 PM	5:10 PM
	6:40 AM	8:15 AM	4:15 PM	5:40 PM

The proposed schedule has minimal impact on the AM Peak schedule to Victoria. The 99 schedule is the same. The first two 66 AM trips are also the same, while the second two trips are pushed back by 15 minutes to create 30 minute headways. This change responds to requests from riders to provide a later AM trip. 6:15 am “regulars” (approximately 15-20 passengers) would need to take either the 6:00 or 6:30 route 66 trips. On the other hand, roughly a quarter of all riders (about 70 passengers) start work between 8:00 and 8:30 am, so the benefits would clearly outweigh the drawbacks.

Pros	Cons
<ul style="list-style-type: none"> • Cost-neutral: Does not require additional service hours or bus. • A more compact PM schedule would mean shorter waiting times between trips. More than 2/3 of survey respondents indicated that they finish work before 4:30 pm. This option provides an extra trip during this period. • Riders simply wanting to travel to Frayne Rd would be able to do so on an earlier trip (3:45 pm instead of 4:10 pm), which could help to even out ridership on the two routes. 	<ul style="list-style-type: none"> • This option may only provide short term relief and not fix the overload problem depending on growth in ridership and may inconvenience a few passengers who prefer the current schedule.

4.3 Current Bus Allocation and Schedule plus Extra Return Trip Using Additional Bus

From a planning perspective, adding an additional full-length trip to either Duncan or Shawnigan Lake is difficult to justify based on current ridership levels. However, we do expect the ridership to increase.

Acquiring an extra vehicle would allow for an additional round trip to and from Duncan. The bus would leave Village Green Mall at 6:30 am, arrive at 8:00 am and return from downtown Victoria at 4:00 pm (currently no trips at these times).

Note: Given that a round trip to/from Duncan takes just under 3 hours, cycling the bus used for the first PM trip is not an option.

Pros	Cons
<ul style="list-style-type: none"> • Would solve overload problem and increase service frequency during period of highest demand. • Does not inconvenience those who are satisfied with current schedule. 	<ul style="list-style-type: none"> • Total incremental costs associated with add'l hours, vehicle debt service, maintenance, gas, drivers' wages, etc. is approximately \$119,000 per year. (See section 4.6 for cost estimates). • Procurement timelines for an add'l commuter style bus is approximately 14 - 18 months

4.4 Current Schedule with First 66 Trip Using Double-Decker Bus

An alternative to adding an additional trip is to add a higher capacity vehicle or double-decker on the busiest 66 inbound and outbound trips – the 6:30 am inbound trip and 3:45 pm outbound trip. Two Alexander Dennis E500’s could be taken from Victoria Transit Centre’s spare ratio to deploy to the CVC. A 2004 E 500 model with high back upholstered seats double-decker can hold 79 people seated. The second double decker would be deployed to the CVC as a spare.

Pros	Cons
<ul style="list-style-type: none"> • Would solve overload problem and provide capacity for future growth. • Does not inconvenience those who are satisfied with current schedule. • Does not require service expansion hours. 	<ul style="list-style-type: none"> • Limited demand for this service relative to the number of seats on an Alexander Dennis E500 double-decker (80). Passenger counts show maximum of 49 riders on 3:45 trip, and significantly fewer riders on the next trip at 4:15 pm. • Vehicles would need to be acquired and/or transferred from the Capital Regional District. Total incremental costs associated with this option would be approximately \$93,000 in the first year, including a spare. This cost includes a one-time (\$30,000) estimated cost for training and tooling to allow operating company to perform preventative maintenance. (See section 4.6 for cost estimates). • Potentially, some passengers may have difficulty boarding the upper deck of the double-decker due to mobility issues. Suggest a pilot test period if this option is desired.

4.5 Current Bus Allocation and Schedule plus Extra Return Trip Using Spare Bus

A fifth option was considered for discussion purposes only. However, using the spare bus to provide an extra return trip is not a viable option due to BC Transit Fleet Maintenance Standards and Requirements.

5. SERVICE COSTING

Costing is based on the following assumptions:

1. Service would operate approximately 250 days per year, Monday to Friday except holidays.
2. Trip distances are: 62 km from Victoria to Cobble Hill Station via Shawnigan Lake and 62 km from Victoria to Duncan.
3. Bus allocation is based one bus for each trip, plus spares as determined by BC Transit Fleet.

	Option 1 <i>Status quo</i>	Option 2 <i>Improved schedule</i>	Option 3 <i>Extra bus for add'l return trip</i>	Option 4 <i>Double-decker bus</i>
One-way trips per day	12	12	14	12
Annual service hours	4,475	4,475	5,100	4,475
Annual service kilometres	186,000	186,000	218,000	186,000
Est. in-service vehicles required	6	6	7	6
Est. spare vehicles required	2	2	2	3
Total vehicles required	8	8	9	9

Total Incremental Costing is provided below.

	Option 2 <i>Improved schedule</i>	Option 3 <i>Extra bus for add'l return trip</i>	Option 4 <i>Double-decker bus</i>
Add'l annual service hours	0	625	0
Add'l annual service kms	0	31,900	0
Add'l vehicles	0	1	0
Incremental operating costs	\$0	\$88,600	\$36,082
Incremental local debt service	\$0	\$30,000	\$21,600
Incremental local equip. debt service (hoist)	\$0	\$0	\$6,000
Total Incremental Costs	\$0	\$118,600	\$63,682**

** Note - the costs shown in option 4 would be \$63,682 annually but \$93,682 in Year 1, which would include a one-time cost of \$30,000 for mechanical training and tooling. The total costs for each option will be subject to cost sharing arrangements between CVRD, VRTC and the Province.

6. CONCLUSION AND RECOMMENDATIONS

BC Transit recommends, as a short-term solution, either cost-neutral Option 1 (4.1) – Maintaining the status quo or cost-neutral Option 2 (4.2) – Modifying/Improving the schedule as an interim measure. Option 1 maintains the status quo and, as noted in the survey, some passengers have adjusted their work schedule to accommodate the current schedule and would prefer no change. Option 2 modifies/improves the schedule to better meet the documented demand for earlier return pm trips to Duncan. If Option 2 is approved, a survey of passengers would be conducted in order to confirm that the new proposed schedule benefits the majority of passengers.

From an operational perspective, overcrowding is more of a scheduling issue and has less to do with overall capacity – for example, less than ½ of the seating capacity is currently filled on the last two #66 Duncan pm trips departing from Victoria. Oversubscription on the first #66 pm trip from Victoria illustrates the demand for more frequent service between 3:30 and 4:00 pm. Shifting PM peak trips to accommodate earlier work end times will help to alleviate pressure on the first outbound trip to Duncan.

The CVRD Transit Future long range plan will comment on commuter expansion options to accommodate future growth and will provide a much more in-depth study beyond the need for the acquisition of one additional bus (as noted in Option 3). The Transit Future plan will also take into account important transit connections and Park and Ride facilities, and is therefore a better forum for planning and implementing major (capital intensive) changes.

Following the endorsement of the CVRD Transit Future plan, it is recommended that discussions be initiated between the CVRD, BC Transit and the Province to review additional infrastructure needs and funding.

APPENDIX

Cowichan Valley Commuter Survey – Work / School Start and End Times

Reported start / end times are grouped into three areas, including Duncan, Mill Bay and Shawnigan Lake. “Duncan and Surrounding Areas” includes Ladysmith, Chemainus, Maple Bay and Lake Cowicham, while “Mill Bay” also includes Cobble Hill.

Common start and end times are shown in red. In addition, a handful of people indicated a degree of flexibility in their schedule – for example, being able to start work between 7:30 and 8:30 AM.

Duncan and Surrounding Areas						
Start Time	Response Count	Response Percent		End Time	Response Count	Response Percent
6:00 AM	0	0%		3:00 PM	1	2%
6:15 AM	0	0%		3:15 PM	1	2%
6:30 AM	0	0%		3:30 PM	9	18%
6:45 AM	1	2%		3:45 PM	10	20%
7:00 AM	7	13%		4:00 PM	7	14%
7:15 AM	11	20%		4:15 PM	3	6%
7:30 AM	7	13%		4:30 PM	3	6%
7:45 AM	7	13%		4:45 PM	2	4%
8:00 AM	7	13%		5:00 PM	6	12%
8:15 AM	0	0%		5:15 PM	0	0%
8:30 AM	7	13%		5:30 PM	1	2%
8:45 AM	1	2%		5:45 PM	0	0%
9:00 AM	2	4%		6:00 PM	1	2%
Other	4	7%		Other	2	4%
Flexible	2	4%		Flexible	3	6%
Total	56	100%		Total	49	100%

Mill Bay / Cobble Hill						
Start Time	Response Count	Response Percent		End Time	Response Count	Response Percent
6:00 AM	0	0%		3:00 PM	4	10%
6:15 AM	0	0%		3:15 PM	0	0%
6:30 AM	5	13%		3:30 PM	4	10%
6:45 AM	1	3%		3:45 PM	8	20%
7:00 AM	5	13%		4:00 PM	6	15%
7:15 AM	3	8%		4:15 PM	3	7%
7:30 AM	7	18%		4:30 PM	4	10%
7:45 AM	4	10%		4:45 PM	4	10%
8:00 AM	5	13%		5:00 PM	4	10%
8:15 AM	1	3%		5:15 PM	0	0%
8:30 AM	4	10%		5:30 PM	1	2%
8:45 AM	1	3%		5:45 PM	0	0%
9:00 AM	1	3%		6:00 PM	1	2%
Other	0	0%		Other	0	0%
Flexible	3	8%		Flexible	2	5%
Total	40	100%		Total	41	100%

Shawnigan Lake						
Start Time	Response Count	Response Percent		End Time	Response Count	Response Percent
6:00 AM	0	0%		3:00 PM	1	10%
6:15 AM	0	0%		3:15 PM	0	0%
6:30 AM	0	0%		3:30 PM	3	30%
6:45 AM	1	11%		3:45 PM	1	10%
7:00 AM	1	11%		4:00 PM	2	20%
7:15 AM	2	22%		4:15 PM	3	30%
7:30 AM	2	22%		4:30 PM	0	0%
7:45 AM	0	0%		4:45 PM	0	0%
8:00 AM	0	0%		5:00 PM	0	0%
8:15 AM	2	22%		5:15 PM	0	0%
8:30 AM	1	11%		5:30 PM	0	0%
8:45 AM	0	0%		5:45 PM	0	0%
9:00 AM	0	0%		6:00 PM	0	0%
Other	0	0%		Other	0	0%
Flexible	0	0%		Flexible	0	0%
Total	9	100%		Total	10	100%