

Pemberton Valley Transit System

Service Review



December 3, 2010

Final Report

Squamish-Lillooet
Regional District



Pemberton Valley Transit System Service Review

Purpose

This report identifies a number of potential service options to improve the provision of public transit in the Pemberton Valley, as requested by the Squamish-Lillooet Regional District (SLRD), the Village of Pemberton and the Lil'Wat nation.

Two distinct service areas are reviewed:

- regional service to Whistler, and;
- local service to surrounding areas (Mt. Currie and D'Arcy).

Transit Funding

Transit in the Province of BC, outside the lower mainland, is the responsibility of BC Transit in partnership with local governments. The expectations for service, budgets and revenues are established annually in an agreement between BC Transit and the local government partner.

Local governments are responsible for:

- Routes and service levels
- Fares
- Property taxes needed to support the transit deficit
- Bus stop maintenance.

BC Transit is responsible for:

- Planning
- Scheduling
- Vehicle procurement and management
- Marketing
- Delivery of the operation of the transit system (generally through contractors)
- Contract administration.

Legislated funding formulas recognize two services – conventional and custom. Conventional transit is fixed route, fixed schedule service using buses of various sizes. Custom transit is intended for those unable to access a conventional fixed route system due to some form of physical or mental disability (permanent or temporary). It consists of paratransit (fixed route with deviations) and handyDART (BC Transit's brand name for Custom Transit), a demand responsive service. Custom services can be supplemented by Taxi Supplement (used when the transit system is unable to provide service due to excess demand) and Taxi Saver (a coupon system used on a limited basis to provide trips outside of regular operating hours). handyDART services require user registration.

The Province, as per the BC Transit Act and through BC Transit, funds 46.69% of conventional expenses and 66.69% of custom transit services. The local share of funding constitutes 53.31% and 33.31% respectively.

Background

History, Operator and Funding

Established in October 2000, the Pemberton Valley Transit System provides local scheduled trips serving a number of communities in the Pemberton Valley, including the Village of Pemberton and the Lil'Wat Nation communities of Mt. Currie and Xit'olacw. Regional service is offered between the Village of Pemberton and Whistler.

The system is a formal partnership between the SLRD and BC Transit. The service is operated by Whistler Transit Ltd who subcontracts local trips in Pemberton to a local taxi company (Pemberton Taxi).

Currently, the local funding partners cover 51.31% of the total system cost. This represents a blend between the legislated cost sharing amounts for conventional and custom transit. The local share of funding is proportioned as follows: the SLRD (20%), Village of Pemberton (40%) and Lil'wat Nation (40%). The provincial government funds the other 48.69% of the total cost through BC Transit.

Sustainability of Current Operational Model

The current local operator of route 100, Pemberton Taxi, has indicated to BC Transit that the current cost per hour rate for service delivery, is not sufficient to cover all costs relating to the operation of such services. The current rate covers the costs of operating the service and the day-to-day maintenance of their fleet, but does not contribute to costs associated to major repairs or capital costs associated to the acquisition of new vehicles. Their vehicles are approaching their useful lifespan and will require replacement in the short term.

In addition, the intent of service provision using a model such as this is to supplement existing transit services when overloads are experienced or when regular transit is not in operation, as opposed to it providing primary transit services.

Based on the above, it is BC Transit's view that the existing and potential increase in local service using this model is not sustainable, and that a more appropriate model (with its associated cost structure) will be required to ensure longer term sustainability.

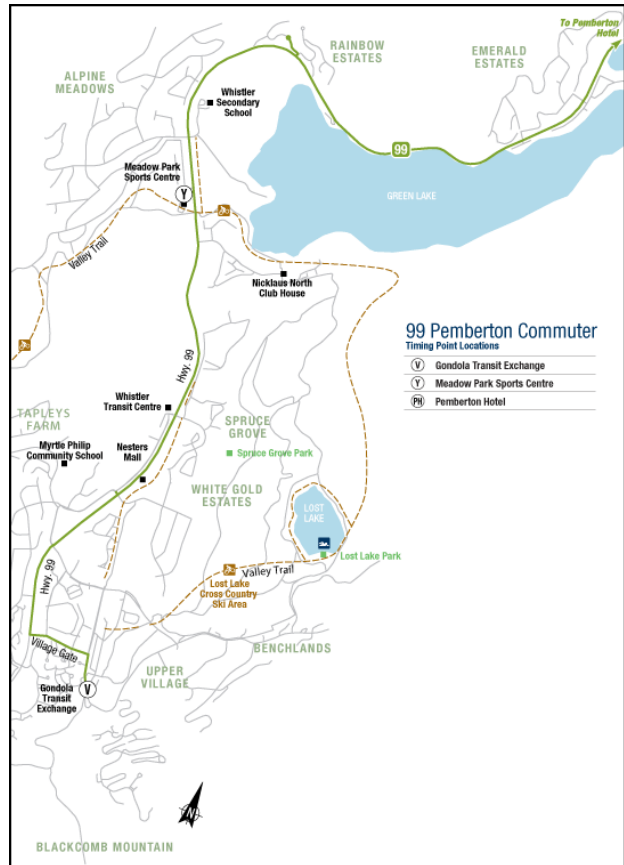
Current Services

There are two current routes in the area, routes 99 and 100.

Route 99

Route 99 is the Pemberton – Whistler commuter service. During the winter, some trips currently travel through Mt. Currie in place of the route 100. This route primarily serves commuters to Whistler. There are some students using the service for recreation trips. There are also people using the bus to access the Whistler Blackcomb ski hill. This is a well used service that is complemented by Greyhound service (see ‘Other Transportation Services’).

In summer there are 10 trips per day in each direction (6 Greyhound, 4 BC Transit). In winter, the number of trips per day increase to 12 (6 Greyhound, 6 BC Transit).



Ridership (2009/2010)

	Total Ridership	Percent Total	
Local (100)	22,400	31%	69%
Commuter (99)	26,100	36%	
Greyhound*	24,000	33%	
Total	72,500	100%	

* - Greyhound trips are included to reflect demand

The majority of customers¹ use the second trip into Whistler in the morning (around 7am) and the first trip out of Whistler in the afternoon (around 4:45 pm). These two trips carry the bulk of the BC Transit passengers on the commuter route (#99).

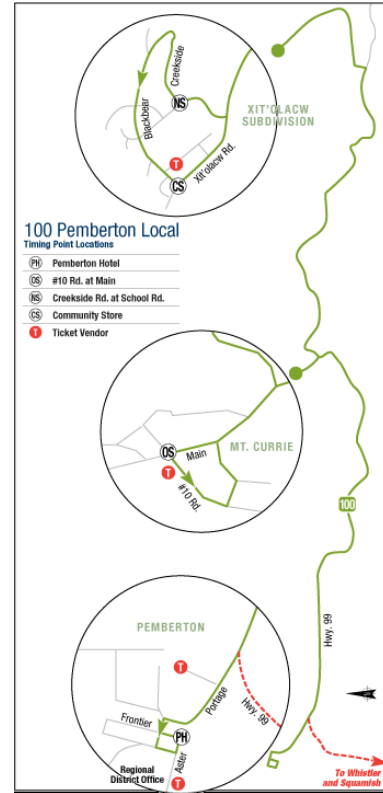
¹ Additional ridership counts were undertaken in December 2009, January 2010 and March 2010.

Route 100

Local service operates as a fixed route, fixed schedule, conventional service to connect the Town of Pemberton with the outlying local areas. There are 7 round trips per day in summer and 10 per day in winter.

Ridership is primarily local residents connecting with the commuter service in Pemberton. There are additional riders using this service to travel between Mt. Currie and the Xit'olacw subdivision. Pemberton is also a destination for shopping and recreation.

This route averages about 2,000 passengers per month. About 5-10 individuals ride this route and transfer to/from route 99 every day.



Other Transportation Services

Greyhound

Greyhound provides 6 round trips per day between Pemberton and Whistler. The SLRD buys tickets from Greyhound and then sells them at a discount price. This reduces the price to the same as the Pemberton Transit System fare. Tickets can be purchased by anyone and are sold at the SLRD and RMOW offices, the Pemberton Recreation Centre and the Pemberton Greyhound Depot.

Lil'Wat Nation Services

The Lil'Wat Nation operates five vehicles for their community: They provide:

- a health shuttle that services the health clinic in the Xit'olacw subdivision, that carries an average of 13 people per day;
- a recreation shuttle that primarily accommodates the youth, to the Recreation Center and other regional destinations, on an as-needed basis; and,
- a worker shuttle to Whistler that provides service to approximately 8 riders in the winter and 17 in the summer.

System Review

Annual ridership (2009/2010) on route 99, 100 and Greyhound is approximately 60,500 trips. Service is provided to a population of about 5,000. Ridership generates approximately \$76,000 in revenue per year. The total actual cost to operate the system was \$332,000 in the 2009/10 fiscal year.

It should be noted that the current Pemberton Transit System is a blend between:

- low-cost local (paratransit style) service provided by a local taxi company, and
- comparative high cost, conventional regional (commuter) service. In this regard, it is characterized by directional demand, low rides per hour and high costs based on distances and running time.

In terms of service hours, local service represents approximately 58% (2,560 hours) of the service and commuter service 42% or 1,880 service hours.

When reviewing the existing Key Performance Indicators (KPI), the current operational arrangements need to be borne in mind:

- At present, the use of a transit vehicle from the Whistler transit system allows for the conventional portion of the service to have a relatively low cost. This is because only a nominal amount for the share of the lease cost of the vehicle is charged to the Pemberton transit system.
- Secondly, local service is provided by a third party at a very low cost per hour. This is financed through a Taxi Supplement provision in the budget.

The table below provides KPI's for the existing Pemberton service as well as those for similar local service and Commuter service transit systems in the province:

Key Performance Indicators and comparable systems:

2009/2010 Actuals	Total cost/hour	Cost/ride	Rides/hour	Cost recovery
Pemberton	\$114	\$6.84	14	29%**
Local transit systems				
Nelson/Slocan Valley	\$76	\$11.30	7	19%
Revelstoke	\$78	\$16.67	4	12%
Quesnel	\$64	\$8.03	8	26%
Tier 3 average	\$72	\$11.37	6	15%
Commuter transit systems				
Cowichan Valley Commuter	\$236	\$18.42	10	25%
Sea to Sky	\$208	\$15.01	12	17%

** - Note that current system costs do not include full cost of leasing buses.

The above information is useful when reviewing the KPI's of service proposals presented in this report.

Service Feedback

As part of the service review, public feedback was sought through a number of means. They include:

- A workshop with the Pemberton Valley Utilities & Services Committee, including representatives from key transit funding partners and stakeholders, on July 12, 2007.
- A passenger survey conducted on board Pemberton Valley Transit trips in February 2008.
- A residents survey distributed in March 2008 to locations throughout the area, including communities and neighbourhoods not currently served by transit such as Birken, D'Arcy and N'Quat'qua.
- A September 17, 2008 stakeholder workshop including representatives from key community groups and transportation providers.
- A petition containing over 2,000 signatures that requested hourly commuter service to Whistler.
- Two public open houses held on May 15, 2010 in Pemberton and Mt. Currie.
- An online survey held May 10-18, 2010.
- Ridership surveys conducted in December 2009 and January and March 2010.
- Ongoing passenger comments and requests received through the transit website (www.bctransit.com).

Through feedback from these sources, the top service improvement requests from residents are:

- An additional morning trip to Whistler arriving at 8am and additional evening service after 6pm from Whistler.
- Increased daily service to Whistler (hourly service being a common request).
- Improved local service between Pemberton and Mt. Currie.

In addition to the public input, individual meetings were held with the Village of Pemberton, Lil'Wat Nation, the SLRD and the RMOW in May 2010. There is a general consensus in the public feedback on improving both the connections between Mt. Currie and Pemberton and between Pemberton and Whistler. Expanding the service to support the existing Mt. Currie service to D'Arcy was a new request that did not rank high in the public feedback (see Appendix A for individual requests).

Potential Service Options

This document presents 4 different transit services. Each service provides 3 different levels of service, namely Gold, Silver and Bronze. Generalized costing is included for each of these service levels.

The four different services include:

- improvements to the two existing services (local service (route 100) and commuter service (route 99), and
- two new transit services: D'Arcy/Pemberton service (referred to as route 101) and handyDART service.

The handyDART proposal addresses the needs of those with disabilities in the community. In the past, small systems were serviced by buses that would deviate off routes for handyDART style service. As service and ridership grow, there is a greater need for two separate services to meet the needs of all customers.

All costing has been calculated based on the premise that the SLRD is responsible for the full burden of its 53.31% of the conventional system and 33.31% of the custom system costs. All costing assumes an independent transit system, thereby including the entire lease cost of vehicles in the Pemberton system. Costs are based on comparable BC Transit systems across the province as well as fixed asset costs. They assume no additional contributions from outside sources (for example Health Authorities, Public Transportation Infrastructure Program).

It should be noted that for the purpose of this analysis, it is assumed that all (local and commuter) services are based out of the Whistler Transit Center (WTC). This is essentially based on the following considerations and assumptions:

- the available spare capacity of the facility in Whistler, the ability to cost share in the expenses and economies of scale for maintenance, tooling, parking, dispatching, environmental controls and other fleet and operational support;
- the ability to accommodate all vehicle types from a management and maintenance perspective at WTC (specifically conventional, commuter-style vehicles);
- the limitation in the current available infrastructure in Pemberton to accommodate and maintain a larger fleet of (local and handyDART-style) vehicles, especially related to requirements associated to future vehicle types. (For example, the production of Ford Polar buses, the BC Transit vehicle of choice for local paratransit-style, as well as handyDART service delivery, has been discontinued and replacement vehicles are currently being tested and sought.

With respect to the local service and handyDART, should the parties be interested in pursuing one of the options identified, it is recommended additional collaboration with local funding partners should be done to consider viable options to support the local service vehicles being stored and maintained in Pemberton to reduce deadheading (non-revenue service) costs from Whistler. By reducing the deadheading, operating costs can be decreased; however, any cost decreases from reducing deadheading would need to be weighed up against additional costs incurred by the duplication of work that could have otherwise been done at the Whistler facility (such as facility improvement and administrative, maintenance, dispatch and security costs).

It should be noted that the services described in following pages would likely assist the Lil'wat Nation in reducing or eliminating the existing buses operated by the Lil'wat Nation where there is a duplication of services. The ability to reduce or eliminate the services they are currently providing on their own would result in both operating and capital cost savings for the Lil'wat Nation.

Assumptions

The following assumptions are made for the costing implications of the 4 service options:

- Existing conventional bus types will be utilized for the commuter service (route 99). No smaller buses (e.g. handyDART) will be considered for this service due to excessive wear, passenger safety considerations, comfort and load requirements during the peak hours/directions and the need to keep total fleet at a minimum. BC Transit is currently reviewing potential alternative vehicles to supplement the provincial fleet which includes smaller scale conventional buses. If this proves to provide feasible alternatives, projected service costs could potentially be reduced;
- Smaller buses will be utilized for the local and D'Arcy routes (routes 100 and 101).
- Small paratransit vehicles will be used for the handyDART service.
- Annual service hours and kilometres are based on a 7 day (daily) schedule.
- As noted above, all vehicles will be based in Whistler (WTC). This is based on the assumption of lack of facilities relating to maintenance, storage and operation of BC Transit buses for the level of services being projected. Fleet requirements have been estimated based on the hours of service and distances travelled in each service option.
 - Buses require maintenance service every 5000 kilometers and spare vehicles are required to cover service for those out of service.
 - Unscheduled maintenance will also take buses off the road. Spares are required to cover uncertainties.
 - As a general guideline, buses are limited to 70,000 km per year or 2,500 service hours. This includes *all* 40 foot buses, Ford Polars, Arboc Mobility, future Vicinity and other current buses.

- With regard to local service, BC Transit does recommend that the feasibility of storing buses in Pemberton is evaluated. This evaluation has not been undertaken for this service review. Should the parties be interested in pursuing one of the local service options, it is recommended that BC Transit and local officials develop a facilities review panel that can review the available facilities to determine if any can meet the fleet maintenance, security and environmental control requirements necessary to accommodate existing and future local service vehicles.
- Facility costs are based on the number of buses required for the Pemberton service. The annual facility cost is pro rated over the total number of buses operated out of the Whistler Transit Center. This ranges between \$43,000 and \$49,000 per vehicle per annum, depending on the number of vehicles. This is a common method to allocate facility costs where the facility is shared by multiple transit systems.
- Ridership is based on current rides per hour in the Pemberton system (for routes 99 and 100) and experience in other systems (for route 101 and handyDART service delivery).
- Service Hours are calculated by adding the amount of time to run the routes, with layover time, driver report time, deadhead time (time not running in service, but to get to the start or from the end of a route), and a scheduling cushion for unforeseen circumstances (weather, congestion, construction delays, etc).
- Service kilometres are based on distance travelled while in service and deadhead.
- Revenue is based on a conservative average fare of \$3 for the commuter and D'Arcy routes. An average fare of \$1.65 is used for the local and \$2 for handyDART service. Average fare is a calculation that considers all types of fare products including cash fares, tickets and monthly passes as well as discount products (student and seniors' fare) to calculate an "average" per ride fare.
- Net municipal share is 53.31% of total costs for conventional service and 33.31% for custom service. This percentage remains the same for all debt service relating to vehicles and facilities.
- Costing is based on the following times and distances:
 - Route 99, the Pemberton – Whistler connector has a round trip time of 75 minutes and covers 68 kilometres.
 - Route 100, the Pemberton, Mt. Currie, and New Site connector has a round trip time of 60 minutes and covers 37 kilometres.
 - The D'Arcy route has a round trip time of 130 minutes and covers 100 kilometres.
 - handyDART has been formalized in all proposals. It is provided on an hourly basis. Distances were based on an average service speed of 15km/h.
- In terms of costs, the following applies:
 - Total Operating Costs includes fixed costs, variable hour and distance costs, vehicle maintenance and insurance.
 - Vehicle Debt Service: the local share is calculated at 53.31% for conventional and 33.31% for custom service.
 - Facility Costs: this includes the local share (53.31%) of facility debt service, facility maintenance, and property tax.

1. Route 99 – Pemberton to Whistler commuter

Based on the public reaction to the improved service levels during the Olympic Winter Games, the proposals are divided into 3 different levels of service:

- **GOLD** – 28 round trips per day between downtown Pemberton and Whistler (Gondola Transit Exchange). This is 24 hours per day service with trips once an hour. Between 6 – 8 am and 4 – 6 pm buses would run every 30 minutes. This service would be complemented by the Greyhound service (6 additional round trips).
- **SILVER** – 14 round trips per day between Pemberton and Whistler. First trip to Whistler at 5am, last trip from Whistler at 2am. This service would be complemented by the Greyhound service.
- **BRONZE** – 8 round trips per day between Pemberton and Whistler. First trip to Whistler at 6am, last trip from Whistler at 1am. This service would be complemented by the Greyhound service.

Service Costing*

Level of Service	GOLD	SILVER	BRONZE
Total Annual Revenue Hours	12,800	6,400	3,650
Deadhead and Contingency Hours**	3,200	1,850	1,350
Total Annual Service Hours	16,000	8,250	5,000
Total Annual Service Kilometres	876,000	451,000	280,000
Total Vehicles Required	7	4	3
Average Fare	\$3.00	\$3.00	\$3.00
Estimated Ridership/year***	179,000	90,000	51,000
Total Operating Costs	\$2,248,000	\$1,159,000	\$705,000
Debt Service (Local Share)			
Vehicle Debt Service	\$237,000	\$136,000	\$102,000
Facility Debt Service	\$230,000	\$142,000	\$110,000
Total Debt Service - Local Share	\$467,000	\$278,000	\$212,000
Total Costs	\$2,715,000	\$1,438,000	\$917,000
Revenue	\$538,000	\$269,000	\$153,000
Net Municipal Share	\$1,128,000	\$627,000	\$434,000

* Costs are rounded to nearest \$1,000

** Contingency hours is calculated at 15% of revenue hours and includes pre-trip inspection, layover and recovery time

*** Ridership estimated at 14 rides per revenue hour

See Appendix B for a summary of cost calculations

Key performance indicators:

Route 99	GOLD	SILVER	BRONZE
Total cost/hour	\$170	\$174	\$183
Total cost/ride	\$15	\$16	\$18
Rides/revenue hour	14	14	14
Cost recovery	20%	19%	17%
For cost recovery of 29%*, average fare must be at least:	\$4.39	\$4.65	\$5.20

* Current cost recovery rate with existing service

These numbers reflect the higher cost of service relating to commuter service.

The normal range of cost per hour of conventional service is between \$100 and \$120. Most transit services, however, operate within built up areas. The higher cost per hour can be attributed to the rural and intercity nature of the regional commuter service. Longer operating distances will increase the hourly costs.

The cost per hour compares well with the average cost of regional commuter services. This is in the order of \$195 per hour.

The cost per ride is high because intercity services have fewer passengers per trip. Public transit normally has a higher turnover on routes as people are constantly boarding and disembarking in both directions. Intercity services see most people board and disembark at the same or few locations. In this case, people are expected to board in Pemberton and alight in downtown Whistler. The cost per passenger is high when compared to Tier 1 conventional systems, but in the ballpark of existing commuter systems.

The rides per hour are low compared to all BC Transit conventional transit services. The averages are 27 rides per hour for Tier 1, 20 rides per hour for Tier 2 and 22 rides per hour for Tier 3 systems. Because of the intercity commuter nature of the service, most people are expected to ride the buses in the peak direction (into Whistler in the morning and into Pemberton in the evening). This means buses will be underutilized for half of their time on the road. Ridership estimates project nearly full buses in the peak directions and nearly empty buses in the non-peak directions. This lowers the rides per hour of service. The calculated rides per hour compares well with the average of 11 rides per hour in commuter services.

Cost recovery for all levels of service is low compared with other traditional conventional transit services. The cost recovery for these systems is between 25% and 35%. For regional commuter systems such as this, the 17% to 20% cost recovery is within the range of regional commuter systems.

In order to cover increased costs, fare and tax increases may need to be considered.

Service requests addressed

Gold Service Level

This service level can address almost all of the issues raised by the various partners. There is more service between Whistler and Pemberton at all times of the day. This includes more trips for people accessing recreation in the middle of the day, more after school trips for students, more opportunities for late night socializing, more trips for work at all times of the day including early morning and late night. The only request that cannot be met at this time, by any of the service levels, is trips to the Callaghan Valley for recreation.

Silver Service Level

This service level addresses the majority of the issues raised by the various partners. There is more service between Whistler and Pemberton, however there would be considerably less late night and early morning service. Budget considerations would force a choice between more midday service for students, shoppers, recreational traveller and seniors/elders, more work trips at peak times or more trips in the early morning or late night. When combined with Greyhound, trips could be hourly from 5am until 2am. Trips could start early enough to get snow shovellers to Whistler for a 6am start.

Bronze Service Level

The bronze level of service requires the most compromises. Service can be targeted at work trips, but very late night and early morning trips cannot be accommodated unless fewer trips are made midday for students, shoppers, recreational travellers and seniors/elders. Greyhound trips can be used to meet some of the needs, but flexibility in their schedule cannot be counted upon.

2. Route 100 – Pemberton Valley Local Service

The following 3 options would improve the local level of service:

- **GOLD** – 44 round trips per day between Pemberton, Mt. Currie and the New Site. This represents 30 minute frequency for 22 hours per day.
- **SILVER** – 27 round trips per day between Pemberton, Mt. Currie and the New Site. Hourly service from 5am to 2am and 30 minute frequency during the peak hours of 6 – 8am and 3 – 6pm.
- **BRONZE** – 17 round trips per day between Pemberton, Mt. Currie and the New Site. Service hours from 5:30am to 1:30am.

As mentioned previously, costs reflect vehicles based out of the Whistler Transit Centre and further discussion and analysis is required to identify the impact of establishing and operating route 100 out of Pemberton.

Service Costing*

Level of Service	GOLD	SILVER	BRONZE
Total Annual Revenue Hours	16,000	9,900	6,200
Deadhead and Contingency Hours**	3,500	2,350	1,300
Total Annual Service Hours	19,500	12,250	7,500
Total Annual Service Kilometres	735,000	470,000	289,500
Vehicles Required	7	5	3
Average Fare	\$1.65	\$1.65	\$1.65
Estimated Ridership/year***	138,000	85,000	53,000
Total Operating Costs	\$2,240,000	\$1,411,000	\$865,000
Debt Service Costs – Local Share	\$175,000	\$125,000	\$75,000
Facility Costs – Local Share	\$230,000	\$173,000	\$110,000
Total Debt Service - Local Share	\$405,000	\$298,000	\$185,000
Total Costs	\$2,645,000	\$1,709,000	\$1,050,000
Revenue	\$227,000	\$140,000	\$88,000
Net Municipal Share	\$1,372,000	\$910,000	\$558,000

* Costs are rounded to nearest \$1,000

** Contingency hours is calculated at 15% of revenue hours and includes pre-trip inspection, layover and recovery time

*** Ridership reflects current Pemberton demand that produces 8.6 rides per revenue hour

See Appendix B for a summary of cost calculations

Key performance indicators:

Route 100	GOLD	SILVER	BRONZE
Total cost/hour	\$136	\$140	\$140
Total cost/ride	\$19	\$20	\$20
Rides/hour	8.6	8.6	8.6
Cost recovery	9%	8%	9%
For cost recovery of 29%, average fare must be:	\$5.57	\$5.82	\$5.71

These numbers indicate a higher cost of service that will require a higher fare structure to help cover the costs. Due to the nature and extent of the service, KPI's should be compared to Conventional Tier 3 transit systems.

The average cost per hour of Tier 3 conventional service is \$120. However, the majority of these transit services operate within higher density built up areas. The rural, small town nature of this service proposal will increase hourly costs because of longer operating distances and a more difficult operating environment in terms of roads and weather.

The cost per ride is high because the service is expected to carry fewer passengers per trip. Public transit normally has a higher turnover on routes as people are constantly boarding and disembarking. Rural/small town services see fewer people boarding and disembarking. The cost per passenger is high when compared to similar sized conventional systems, which produces an average of \$5 per ride.

The rides per hour are low when compared to Tier 3 conventional system average of 22 rides per hour.

Cost recovery is well below Tier 3 conventional transit service average of 21%. The low average fares in Pemberton and the high hourly cost both contribute to a low projected cost recovery.

Service requests addressed**Gold Service Level**

This service level will address most of the needs expressed by the funding partners and the public. More trips and longer service hours should enable schedulers to target transfers to the route 99 in Pemberton, meet the needs of students, seniors/elders, shoppers and those travelling for recreation. This level of service would also be able to target late night establishments. With expanded service hours, new route extensions and changes can be considered without seriously impacting the higher level of service. All levels should provide for trips that are currently being provided by the Lil'wat Nation (except school bus trips). Transfers would likely be required for trips to Whistler at all service levels.

Silver Service Level

This service can still address most of the community needs. Easy transfers should still be possible. Work trips to Pemberton will be well serviced and late night and early morning trips are possible for late night establishments and early work shifts.

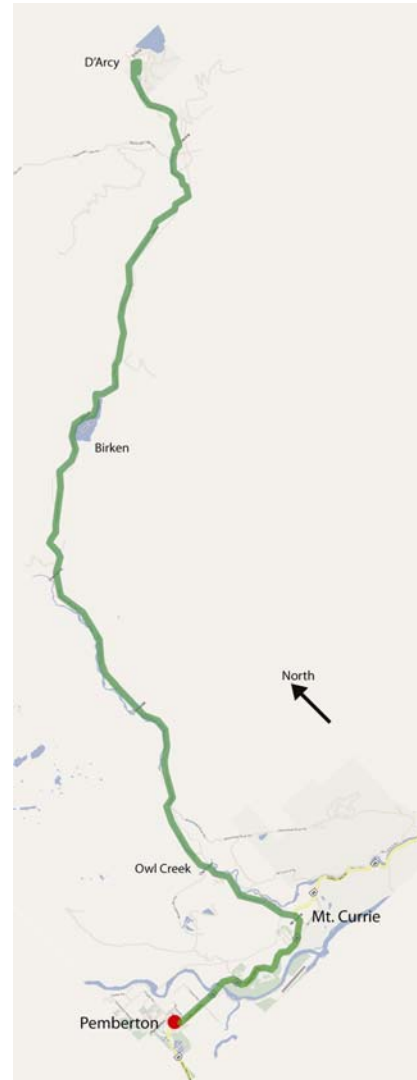
Bronze Service Level

Fewer needs can be met with this service level. While hourly trips are possible for most of the day, the schedule will be less flexible without going to multiple vehicles. Trips can be theoretically scheduled to meet the needs of seniors/elders, workers, students, shoppers and those travelling for recreation. Transfers should be possible to the route 99, depending on the level of service offered for the commuter route. This level of service might not provide early enough service to accommodate early work starts in Whistler.

3. Route 101 - Pemberton/D'Arcy Connector

Service between Pemberton and D'Arcy is under consideration for BC Transit service. After review and analysis, BC Transit does not recommend implementing this service due to the following factors:

- Mt. Currie to D'Arcy spans a distance of 39 kilometres. Therefore, round trips between Pemberton and D'Arcy will travel around 100 kilometers and require 2.5 hours of drive time.
- Because of the long distances involved, multiple vehicles will be required to provide the service each year. To maintain the projected economic life of vehicles, BC Transit limits the mileage on individual vehicles to 70,000 km per year. 3 round trips per day would cover 151,000 km per year necessitating a requirement of 2 buses. Fleet will however allow two buses to go over their 70,000 km requirement by 5000km per year due to the lower impact highway service this route is running. This requirement is to ensure the reliability of service. Buses require maintenance at 5000 km intervals, and trips would be missed if only one vehicle was providing this service.
- The SLRD has indicated there are approximately 1,075 residents that reside between Mt. Currie and D'Arcy. The largest concentration of potential riders is in D'Arcy, the furthest point from Pemberton. About 475 people live in and around D'Arcy.
- Other concentrations of population are in/around the Owl Ridge/Walkerville/Reid Rd and Birken/Gates Lake areas. Each of these concentrations has in the order of 300 residents.
- Based on other small rural bus systems, annual ridership from each of these areas has been estimated based on 4 rides per hour which is somewhat lower than the provincial average of 6.1 rides per hour.
- BC Transit is currently developing minimum ridership standards, and it is likely that this route would not meet those standards for funding eligibility.



- Based on these levels of ridership and cost to provide the service, a high level of subsidy will be required. Equivalent rural services show a cost recovery ranging between 7 to 10%, with a cost per ride in the region of \$33 or more. KPI's for this service proposal indicate a cost per ride in the order of \$47.
- Providing service between Mt. Currie and D'Arcy will siphon service hours (and funding) that could be spent on more commuter or local service.
- Consideration was given to providing service between Owl Ridge/Walkerville/ Reid Rd and Pemberton as a first step. This is also not recommended as these three areas are spread out and most dwellings are not near the highway. Ridership would be low, considering the short distances that residents live from Pemberton. Buses would need to leave the highway at multiple points to bring service within acceptable walking distances to most residences. This would increase the cost of providing the service and would likely result in 1 passenger per trip on average.
- Once plans for Owl Creek/Walkerville/Ried Rd are finalized and development is underway, we recommend that consideration should then be given to implementing a new route in that area.

Route 101 would take 150 minutes round trip and cover 100 kilometres. Service options could include the following:

- **GOLD** – 7 round trips per day between Pemberton and D'Arcy. Three in the morning, one at noon and three in the afternoon/evening.
- **SILVER** – 5 round trips per day between Pemberton and D'Arcy. Two in the morning, one at noon and two in the afternoon/evening.
- **BRONZE** – 3 round trips per day between Pemberton and D'Arcy. Two in the early morning and one in the late afternoon.

Service Costing*

Level of Service	GOLD	SILVER	BRONZE
Total Annual Revenue Hours	6,400	4,600	2,700
Deadhead and Contingency Hours**	1,850	1,550	500
Total Annual Service Hours	8,250	6,150	3,200
Total Annual Service Kilometres	345,000	261,000	151,000
Vehicles Required	4	3	2
Average Fare	\$3	\$3	\$3
Estimated Ridership/year***	26,000	18,000	11,000
Total Operating Costs	\$965,000	\$721,000	\$383,000
Debt Service Costs – Local Share	\$100,000	\$75,000	\$50,000
Facility Costs – Local Share	\$142,000	\$110,000	\$75,000
Total Debt Service - Local Share	\$242,000	\$185,000	\$125,000
Total Costs	\$1,207,000	\$906,000	\$508,000
Revenue	\$77,000	\$55,000	\$32,000
Net Municipal Share	\$680,000	\$514,000	\$297,000

* Costs are rounded to nearest \$1,000

** Contingency hours is calculated at 15% of revenue hours and includes pre-trip inspection, layover and recovery time

*** Ridership is estimated at 4 rides per revenue hour

See Appendix B for a summary of cost calculations

Key performance indicators:

Route 101	GOLD	SILVER	BRONZE
Total cost/hour	\$146	\$147	\$159
Total cost/ride	\$47	\$49	\$47
Rides/hour	4	4	4
Cost recovery	7%	6%	7%
For cost recovery of 29%, average fare must be:	\$13.67	\$14.28	\$13.64

The costing for this route is provided for discussion purposes only. Due to the very high costs and likely low passenger volumes, BC Transit does not recommend this service expansion as a regular service.

Service requests addressed

Gold Service Level

This service level can provide the best level of service for the community. This is the only level of service that can provide some evening trips from Pemberton. The needs of seniors/elders, commuters, students, shoppers and those travelling for recreation can be best met with this service level. Fewer trips per day will require more compromising between competing needs.

Silver Service Level

This level of service provides slightly more possibilities than the bronze level of service. Mid day trips can be added to provide service for shopping, school, and recreation. Work trips can also be provided. Transfers to the routes 99 and 100 can be provided to get riders anywhere the Pemberton system travels.

Bronze Service Level

This service level would only meet the needs of those travelling to Pemberton/Whistler for work. Students may be able to ride in one direction, but this low of a service level must be targeted at one demographic to achieve any level of ridership. Schedules could be designed to ensure transfers to route 99.

4. handyDART

In the recent area transit survey, about 5% of respondents had a member of their family that would require door to door transportation. The Mt. Currie band also informed BC Transit that their health shuttle provides service to 13 people per day, about 6 of which would require door to door transportation. No other data is available to gauge demand for this service.

Service options could include the following:

- **GOLD** – 30 hours of handyDART service per day
- **SILVER** – 20 hours of handyDART service per day
- **BRONZE** – 12 hours of handyDART service per day

Service Costing*

Level of Service	GOLD	SILVER	BRONZE
Annual Revenue Hours	11,000	7,300	4,400
Deadhead and Contingency Hours	2,500	1,700	1,100
Annual Service Hours	13,500	9,000	5,500
Annual Service Kilometres	240,000	151,000	101,000
Vehicles Required	3	2	2
Average Fare	\$2	\$2	\$2
Estimated Ridership/year	36,000	24,000	15,000
Total Operating Costs	\$1,416,000	\$940,000	\$579,000
Debt Service Costs – Local Share	\$47,000	\$31,000	\$31,000
Facility Costs – Local Share	\$69,000	\$47,000	\$47,000
Total Lease Costs - Local Share	\$116,000	\$79,000	\$79,000
Total Costs	\$1,532,000	\$1,018,000	\$657,000
Revenue	\$73,000	\$48,000	\$29,000
Net Municipal Share	\$798,000	\$531,000	\$358,000

* Costs are rounded to nearest \$1,000

** Contingency hours is calculated at 15% of revenue hours and includes pre-trip inspection, layover and recovery time

*** Ridership is estimated at the provincial average of 3.3 rides per revenue hour

See Appendix B for a summary of cost calculations

Key performance indicators:

handyDART	GOLD	SILVER	BRONZE
Total cost/hour	\$113	\$113	\$119
Cost/ride	\$42	\$42	\$45
Rides/hour	3.3	3.3	3.3
Cost recovery	5%	5%	4%
For cost recovery of 29%, average fare must be:	\$12.24	\$12.26	\$13.12

These numbers indicate a cost of service that is higher than other custom transit systems. The normal range per hour of custom service is \$60-70. Most custom transit services, however, operate within higher density, built up areas. The rural, small town nature of this proposal will increase hourly costs due to of long operating distances and a more difficult operating environment in terms of roads and weather.

The cost per ride is high because the service is expected to have fewer passengers per trip. Rural and small town custom services see passengers traveling longer distances. The cost per passenger is high when compared to Tier 3 custom transit systems. The Tier 3 systems average approximately \$25 per ride.

The rides per hour are based on BC Transit custom systems provincial average of 3.31 rides per hour.

Cost recovery is well below Tier 3 custom transit service averages (average cost recovery of approximately 8%).

Service requests addressed

All service levels for handyDART are designed to provide equivalent levels compared to the route100. This is done to provide those who cannot access conventional transit vehicles with a comparable level of access. All levels of service will provide service in place of existing services operated by the Lil'wat Band and Pemberton.

Gold Service Level

This service level would see two vehicles operating in the Pemberton Valley during peak periods and one during off-peak. Service boundaries and eligibility would need to be designed such that costs do not get out of hand.

Silver Service Level

This level will provide service for 20 hours a day. This can include an expanded service day, or a more compact one with two vehicles running at once during the peak periods. Trips can be accommodated at most times of the day, making this the preferred minimum level of service.

Bronze Service Level

This level of service provides an equivalent span of service day to those unable to access the conventional system. The service hours would be provided by one vehicle stretching over 12 hours. Twelve hours of service per day should be considered the bare minimum for providing quality handyDART service.

Summary and Recommendations

The four options listed above are all expansions of the current system. They are based on the results of recent surveys, meetings with local stakeholders, petitions and open houses. The Gold transit service represents the highest level of service requested by local area residents and stakeholders. The Bronze service represents a first step towards that service. The Silver service is an intermediate level of service - mid point between these two levels – that provides an indication of cost implications to achieve an improved level of service. Costs are provided by service in order to have the ability to mix and match service options.

Costs contained in this report are based on knowledge of the local area and current costs of comparable systems. Therefore they provide order-of-magnitude estimations that offer an indication of costs associated to the levels of service identified.

It should be noted that further work needs to be undertaken to evaluate the feasibility and impact of:

- locating and operating local services out of Pemberton as opposed to Whistler Transit Center as is assumed in this evaluation
- the cost implication of fleet alternatives when they become available.

It is recommended that the SLRD, Pemberton and Lil'Wat Nation come to an agreement on the extent of potential funding available for transit. Once this is established, decisions can be made on where to focus financial resources (commuter service or local service). Residents have expressed a strong desire for more commuter service and less so for local service. Expansions are however recommended for both services with an emphasis on the commuter service. handyDART levels of service should complement the commuter service span of day.

It is important to note that this report only provides recommendations for service expansions and is subject to BC Transit securing provincial funding to deliver the expansion. Each year BC Transit develops, or receives, a significant number of expansion proposals that exceed the available provincial funding. Consequently, we cannot guarantee the immediate availability of expansion funding.

Next Steps

This report provides a framework to determine what kinds of service could be considered and an order of the costs involved with these services. Costs provided in this report are based on examples of comparable systems across the province however local conditions and unforeseen issues can make final costs vary greatly by system. Prudence calls for a contingency of 25-30% of the costs contained in this report especially when dealing with commuter services which are inherently costly to operate as they are generally longer distances with point to point traffic. If local funding partners wish to pursue any of the above options, then BC Transit will prepare a detailed implementation plan, schedule and costs.

It is also recommended that local funding partners and BC Transit cooperate to review potential options to store and maintain buses for local and handyDART services within Pemberton. The key considerations for this are finding suitable facilities for secure parking, washing and maintenance (routine and major repairs) with all supporting environmental control systems in place. Additionally, the facilities would likely need to provide some level of accommodation for dispatching and fare collection processing. The ability to accommodate these buses in Pemberton would provide cost savings from a reduction in deadheading to and from Whistler. The cost saving would however need to be weighed up against the costs associated to establishing and operating such a facility.

Appendix A – Service Requests²

Village of Pemberton

Meeting held at the Town Hall on May 14, 2010 with Daniel Sailland.

- More service between Pemberton and Whistler – especially trips late night from Whistler for people seeing movies on weekends and more service at 6:30pm or later during the week.
- Local service to be more responsive to school kids needs:
 - More service for after school activities that let out around 5:30pm
 - More service to and from school around bell times 8:55am and 3pm
 - Service to Whistler for recreational activities
- The senior bus (not BC Transit) to D’Arcy and back is reportedly popular. They would like a continuation/expansion of this service by BC Transit or through other means.
- Service from business that close down around 11pm.
- Need for better advertising for existing routes and expansions.
- Need for creative ways to encourage ridership – including a get on the bus free month.

Lil’wat Nation

Meeting held at the Band Offices on May 13, 2010 with Rolf DeBruin.

- Access is needed to Whistler for band members. They would like to see direct trips with no transfers necessary. Trips need to be early enough in winter for those shoveling snow to get to work on time (between 6 and 7 am).
- More service from all areas of their community to Pemberton for social/shopping trips.
- Will not accept service that forces more than one transfer to anywhere.
- Most of the jobs are in Whistler, there are very few in Pemberton. Service needs to meet as many needs as possible.
- Mid-day service is required for social/shopping trips to Whistler.
- Schedules should show all of the Greyhound service.
- After school trips to Whistler.
- Access to Olympic facilities, including the Callaghan Valley, is needed for youth.

SLRD

Meeting held at the SLRD offices in Pemberton on May 13, 2010 with Peter DeJong.

- Would like to explore viability of transit service to D’Arcy/N’Quatqua;
- Would like to see a Park & Ride facility developed in Pemberton for commuters to Whistler.
- Would like to see Frontier St. re-organized to better accommodate Transit and Greyhound;
- Want combined schedule for PVTs re. Transit and Greyhound as promised numerous times (to be published at least 2x/yr);
- Wish to pursue idea of a combined Transit/Greyhound ticket product;
- Would like to explore viability of handyDart service throughout the Pemberton Valley;

² Comments relating to service requests have been recorded literally.

- Want to see better coordination of Pemberton Commuter trips with Whistler and Sea to Sky transfers;
- Want to explore options for service delivery of local and commuter service and potentially an REI to pursue this as discussed from the outset of this Service Review process in 2008;
- Would like to see doubling of local and commuter service as per previous proposal with local service delivered locally and discussions on how to deliver more commuter service with smaller vehicles; and
- Would like to explore possibility of expanded local routes, depending upon the season.

Internet Survey

An internet survey was conducted between May 10 to 18, 2010. 134 surveys filled out online and at the open houses on May 15th. The result highlights are as follows:

- 49% of respondents have never taken the local transit service (route 100), 10% rode more than 4 days per week, 12% rode 2-3 days per week, 12% rode 2-3 days per month and 15% rode less often than 2 days per month.
- 5% of respondents had a member of the household that would require door to door transportation.
- 70% of respondents would take route 100 if the service was improved enough.
- 24% of respondents have never taken the commuter service (route 99), 13% rode more than 4 days per week, 16% rode 2-3 days per week, 21.5% rode 2-3 days per month and 22% rode less often than 2 days per month.
- 87% of respondents took transit during the Olympics.
 - They most appreciated the convenience of the service, followed by reliability, cost, safety and comfort.
- Most travelers are trying to arrive in Whistler before 9 am and leaving before 6 pm. They are mostly traveling between Whistler and the Village of Pemberton. Most travelers are going for work (82%). Their schedules are consistent throughout the year (83%).
- 94% of respondents would take route 99 if the service was improved enough.
- 35% of respondents would use a park and ride in Pemberton if one was provided.
- 19% of respondents have children under 16 that would potentially need transportation between Whistler and Pemberton (Greyhound does not permit people under the age of 16 to ride unaccompanied).
- 50% of people did not know that discounted Greyhound fares were provided by the local funding partners.
- 70% of respondents would buy a joint pass for BC Transit and Greyhound services.
- 41% of respondents would like to see cost increases covered by fare increases, 5% would like to see them covered by property taxes alone, 40% would like to see them covered by a combination of the two and 14% will not pay more for transit service.

APPENDIX B: Service Options: Cost Summary

COST CALCULATIONS																
		Commuter				Local				D'Arcy				handyDART		
		Gold	Silver	Bronze		Gold	Silver	Bronze		Gold	Silver	Bronze		Gold	Silver	Bronze
Annual Revenue Hours		12,800	6,400	3,650		16,000	9,900	6,200		6,400	4,600	2,700		11,000	7,300	4,400
Contingency Hours (15% of Rev)		1,920	960	548		2,400	1,485	930		960	690	405		1,650	1,095	660
Deadhead Hours	1	1,280	890	803		1,100	865	370		890	860	95		850	605	440
Total DH and Contingency Hours		3,200	1,850	1,350		3,500	2,350	1,300		1,850	1,550	500		2,500	1,700	1,100
Annual Service Hours		16,000	8,250	5,000		19,500	12,250	7,500		8,250	6,150	3,200		13,500	9,000	5,500
Annual Service kms		876,000	451,000	280,000		735,000	470,000	289,500		345,000	261,000	151,000		240,000	151,000	101,000
Vehicles		7	4	3		7	5	3		4	3	2		3	2	2
Ave fare		\$3.00	\$3.00	\$3.00		\$1.65	\$1.65	\$1.65		\$3.00	\$3.00	\$3.00		\$2.00	\$2.00	\$2.00
Rides/hour		14	14	14		8.6	8.6	8.6		4.0	4.0	4.0		3.3	3.3	3.3
Estimated Ridership/year		179,200	89,600	51,100		137,600	85,140	53,320		25,600	18,400	10,800		36,300	24,090	14,520
OPERATING COSTS																
Maintenance unit cost (Provincial ave)	2	0.40	0.40	0.40		0.50	0.50	0.50		0.50	0.50	0.50		0.50	0.50	0.50
Maintenance cost		350,400	180,400	112,000		367,500	235,000	144,750		172,500	130,500	75,500		120,000	75,500	50,500
Operating Cost unit cost (Pem AOA)	3	118.59	118.59	118.59	8	96.00	96.00	96.00		96.00	96.00	96.00		96.00	96.00	96.00
Operating Cost		1,897,491	978,394	592,966		1,872,000	1,176,000	720,000		792,000	590,400	307,200		1,296,000	864,000	528,000
Total Operating Cost		2,247,891	1,158,794	704,966		2,239,500	1,411,000	864,750		964,500	720,900	382,700		1,416,000	939,500	578,500
DEBT SERVICE																
Vehicle Debt Service																
Annual debt service (local share)/bus	4	33,905	33,905	33,905	5	25,000	25,000	25,000	5	25,000	25,000	25,000	5	15,700	15,700	15,700
Total vehicle debt service (local share)		237,336	135,621	101,715		175,000	125,000	75,000		100,000	75,000	50,000		47,100	31,400	31,400
Facility debt service																
Total debt service (WTC)	6	\$ 2,404,597	\$ 2,404,597	\$ 2,404,597		\$ 2,404,597	\$ 2,404,597	\$ 2,404,597		\$ 2,404,597	\$ 2,404,597	\$ 2,404,597		\$ 2,404,597	\$ 2,404,597	\$ 2,404,597
Local share		53.31%	\$ 1,281,890	\$ 1,281,890	53.31%	\$ 1,281,890	\$ 1,281,890	\$ 1,281,890	53.31%	\$ 1,281,890	\$ 1,281,890	\$ 1,281,890	33.31%	\$ 800,971	\$ 800,971	\$ 800,971
Facility fleet accomodation																
Whistler		32	32	32		32	32	32		32	32	32		32	32	32
Pem		7	4	3		7	5	3		4	3	2		3	2	2
Total Fleet		39	36	35		39	37	35		36	35	34		35	34	34
Cost per vehicle		32,869	35,608	36,625		32,869	34,646	36,625		35,608	36,625	37,703		22,885	23,558	23,558
Pemberton Share of debt service		230,083	142,432	109,876		230,083	173,228	109,876		142,432	109,876	75,405		68,655	47,116	47,116
Total Debt Service - Local Share		467,419	278,053	211,592		405,083	298,228	184,876		242,432	184,876	125,405		115,755	78,516	78,516
TOTAL COST		2,715,310	1,436,847	916,558		2,644,583	1,709,228	1,049,626		1,206,932	905,776	508,105		1,531,755	1,018,016	657,016
Revenue		\$537,600	\$268,800	\$153,300		\$227,041	\$140,481	\$87,978		\$76,800	\$55,200	\$32,400		\$72,600	\$48,180	\$29,040
Net Municipal Share	7	1,128,170	627,006	434,109		1,371,919	909,952	557,897		679,807	513,988	297,023		798,024	531,183	357,874
NOTES																
1		Deadhead is estimated based on one round trip per day from WTC.														
2		Provincial Ave of \$0.49 per km - adjusted to reflect highway/higher speed routes														
3		Current Op Cost per hour - excluding Taxi Supplement														
4		Vehicle debt service - current annual debt service (local share) of a Nova Conventional bus amortized over 13 years														
5		Vehicle debt service - current annual debt service (local share) of a Ford Polar amortized over 5 years														
6		Facility debt service has been updated due to a calculation error. It reflects a increase over the amount in previous draft reports.														
7		Increase in Net Municipal share of approx 6% based on facility debt service calculation														
8		Op cost per hour excluding scheduled service														
KEY PERFORMANCE INDICATORS																
Total Cost per Total hours		\$170	\$174	\$183		\$136	\$140	\$140		\$146	\$147	\$159		\$113	\$113	\$119
Total Cost per ride		\$15	\$16	\$18		\$19	\$20	\$20		\$47	\$49	\$47		\$42	\$42	\$45
Rides/ Rev hour		14	14	14		8.6	8.6	8.6		4	4	4		3.3	3.3	3.3
Cost recovery		19.8%	18.7%	16.7%		8.6%	8.2%	8.4%		6.4%	6.1%	6.4%		4.7%	4.7%	4.4%
For 29% cost recovery, fare requires to be...	0.029	\$4.39	\$4.65	\$5.20		\$5.57	\$5.82	\$5.71		\$13.67	\$14.28	\$13.64		\$12.24	\$12.26	\$13.12