CHAIR & MEMBERS
VICTORIA REGIONAL TRANSIT COMMISSION **#9**
September 11, 2012

SUBJECT: VICTORIA REGIONAL TRANSIT SYSTEM SERVICE PERFORMANCE GUIDELINES REPORT

BACKGROUND

The first step of the Victoria Region Service Review is to develop service performance guidelines. The service performance guidelines provide a consistent tool by which BC Transit can evaluate existing services, identify trends in performance and help evaluate service to make evidence based planning recommendations to the Commission on implementing new resources, re-investing existing resources or reducing resources on an annual basis. Transit service performance guidelines form a critical tool for ensuring that resources are used efficiently and effectively. In conjunction with operational data, strategic direction and availability of resources (e.g., service hours, vehicles, infrastructure) the performance guidelines will guide the development and maintenance of a transit system that meets the needs of the Capital Region.

DISCUSSION

The attached report describes how the service performance guidelines will be used in conjunction with other planning information to make service planning recommendations to the Commission. The service performance guidelines set performance targets for the transit system as a whole and also divides bus routes into classes with specific targets for each route class as bus routes have differing levels of resources, ridership and expectations on performance. Once the service performance guidelines are approved, staff will begin the next stage of the service review which is to review and analyze the existing transit services and customer facilities.

RECOMMENDATION

It is recommended that the Victoria Regional Transit Commission **APPROVE** the Victoria Regional Transit System Service Performance Guidelines.

Respectfully,

Manuel Achadinha
President and Chief Executive Officer

VICTORIA REGIONAL TRANSIT SYSTEM

SERVICE PERFORMANCE GUIDELINES

SEPTEMBER 11, 2012

Forward

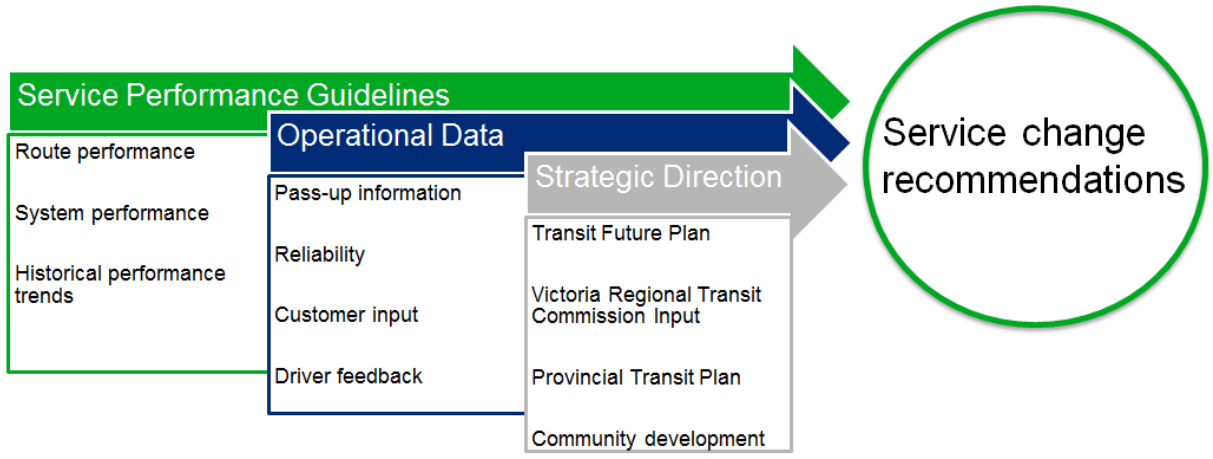
When making investments in resources to improve the transit system it is important to have a means to measure the success of these investments and the performance of the transit system as a whole overtime. The demand for transit service should be balanced with the cost of providing service. To measure the performance and outcomes of investments there is a need to have an agreed upon set of performance guidelines to ensure that resources and investments in new resources are used as best as they can be.

SERVICE PERFORMANCE GUIDELINES

1.0 Introduction

1.1 Three Tiered Service Planning Approach

As part of the ongoing management of the transit network, BC Transit regularly reviews service performance and recommends service changes to the Victoria Regional Transit Commission with the goal of increasing the system's efficiency and effectiveness, but at the same time balancing the need for accessibility and a basic level of service throughout the transit system. Service changes are developed through a three tiered approach which includes considering strategic direction, reviewing operational data and evaluating existing services against a set of service performance guidelines. This process will be used to conduct the Victoria Service Review and will also be employed annually to develop service change recommendations to the Victoria Regional Transit Commission.



This report is focused on the first tier of planning, service performance guidelines. Draft service performance guidelines have been developed for the conventional transit system to measure service performance at the system and route levels on an annual basis. The service performance guidelines provide a consistent tool by which BC Transit can evaluate existing services, identify trends in performance and help evaluate service to make evidence based planning recommendations to the Commission on implementing new resources, re-investing existing resources or reducing resources. Transit service performance guidelines form a critical tool for ensuring that resources are used efficiently and effectively. In conjunction with operational data, strategic direction and availability of resources (e.g., service hours, vehicles, infrastructure) the performance guidelines will guide the development and maintenance of a transit system that meets the needs of the Capital Region.

1.2 Finding the Balance

When planning a transit network, productivity means maximizing return-on-investment. There is a need to balance the ridership a transit route attracts with the cost of providing that service. In order for a service to be efficient and productive, a balance needs to be found somewhere between over-supply and overcrowding. To help establish this equilibrium and ensure transit service is well allocated and productive there are a number of measures that can be recommended such as:

- Implement transit priority
- Alter frequency
- Reduce/increase coverage
- Targeted marketing/Corridor branding
- Change service span
- Change bus stop spacing
- Bus route changes
- Fleet type allocation

When system performance fall below the set guideline, recommendations to the Commission will focus on those tools above that maximize efficiency (e.g., transit priority, service reductions on below standard routes) in order to move towards the system guideline.

Routes that fall below the guideline will be investigated with the goal of improving productivity and routes that fall well above the guideline will be investigated with the goal of increasing service. For both over performing and underperforming routes, a more detailed analysis of route performance will be undertaken such as a break down in performance by time of day and historical performance trends. When combined with operational data, strategic context and community input more comprehensive service change options will be recommended to the Victoria Regional Transit Commission.

2.0 Performance Measures and Guidelines

2.1 Measures

Performance measures have been chosen that measure the effectiveness of service planning investments on a system and route basis. The measurements were determined based on available reporting data, industry standards and their ability to assist in highlighting anomalies in service efficiency. The standards offer a concise set of indicators that lead planning staff to investigate anomalies through a more detailed analysis. These transit service performance measures are distinct from the more extensive list of corporate performance indicators (e.g., cost per ride, cost per service hour) as they are primarily focused on guiding transit service planning.

2.1.1 System

The purpose of system wide analysis is to identify trends in system performance and monitor the overall efficiency of the Victoria Regional Transit System. This analysis is important to measure the overall yield in ridership as it related to the investment in service hours. The measure used for the system guidelines is:

> **Average boardings per revenue hour** - Measures the total volume of ridership as compared to the supply of transit service. It accounts for total passenger activity and considers the length of time a vehicle is on the road. A revenue hour is the amount of time the bus is available for passengers to access the vehicle. It does not include time spent travelling to or from the garage when the bus is not in service to passengers.

2.1.2 Route Level

Analysis on a route-by-route basis gives a detailed indication of how individual components of the transit system are performing. A route-by-route analysis allows observations of the impact of service changes and investments made in the past and identifies future opportunities for strategic investment or re-investment.

More than one measure is required for route analysis as some routes may appear to underperform in one category but are above standard in another (e.g., longer bus routes may perform poorly against boardings per revenue hour standards but strong on average boardings per trip). The measures used for the route level guidelines are:

> **Average boardings per revenue hour** - Measures the total volume of ridership as compared to the supply of transit service. It accounts for total passenger activity and considers the length of time a vehicle is on the road. A revenue hour is the amount of time the bus is available for passengers to access the vehicle. It does not include time spent travelling to or from the garage when the bus is not in service to passengers.

Average boardings per trip - Measures the total number of people that board a vehicle on a specific trip. This figure includes transfers and does not provide detail surrounding length of trip.

Average boardings per route km – Measures the total number of people that board a vehicle in a given trip divided by the total number of kms required to complete the trip. Longer regional services or systems that have spread out urban forms will not perform as well compared to compact urban communities in this productivity measure.

Route level guidelines have been classified to acknowledge different performance expectations based on a route's objective such as fast direct express service, service on a main arterial or service designed to provide local coverage. As routes mature and develop they may move from one category to another based on performance or service changes.

Route Classification	Classification Description	Routes	Percentage of Existing Service Hours
Major Routes	These routes are generally operated by full sized buses and target the built up core residential and commercials corridors	1,2,3,4,6,7,8,10,11,14, 21,22,24,25,26,27,28, 30,31,39,50,61,72,75	82%
Limited Stop Express Routes	Limited stop express routes are designed to move large volumes of passengers between major destinations and stop less often than major or minor routes	70x, 15x, 16x	7%
Targeted Routes	These routes are created to provide targeted service to areas such as schools, universities and/or peak commuter trips	17,18,19,29,33,51,76	1%
Minor Routes	These routes are generally operated with a community bus and serve less densely populated areas with a focus on connections to local centres and more frequent transit routes	12,13,32,35,49,52,53. 54.55,56,57,58,59,63, 64,81,83,85,86,88	10%
Community Coverage Routes	These routes are designed to provide basic access in low density areas. Ridership expectations of these routes is low	No routes at this time	No routes at this time

2.2 The Guidelines

The following are the draft performance guidelines set for the system and route level. As well as monitoring existing performance against these guidelines, historical trends will also be monitored to determine if the system or routes are becoming more or less efficient over time. The guidelines were arrived at by analysing historical productivity of the Victoria Regional Transit System, studying international best practice and using productivity assumptions in the Victoria Transit Future Plan.

If system performance falls below the guideline consideration should be given to reducing less efficient services, focusing service hours in high productivity areas and/or making the system more efficient through investments in transit priority measures.

Performance targets have been established for each of the route classification types and the targets for each route type are shown in the table below. The targets set expectations as to how given routes will perform. Significant variance (+ or – 25%) from the target will place a route on an "action" list for further investigation which will require more detailed analysis across all tiers of the planning system. Routes that fall below the 25% variance will be identified as candidates for corrective action (highlighted in yellow). Routes that fall above the 25% variance (highlighted in blue) will be identified as candidates for service improvement.

------ Investigate for corrective action ------ Investigate for service improvements.

The following chart outlines the performance guidelines at the system and route classification level:

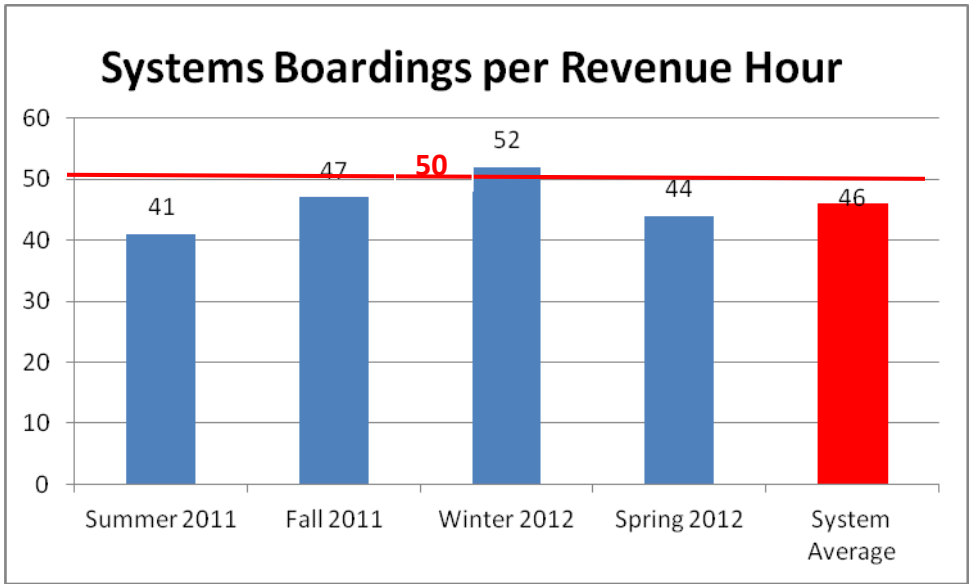
	Boardings per Trip	Boardings per Revenue Hour	Boardings per route Km
System	-	50	-
Major Routes	35	50	2.5
Minor Routes	12	25	1
Limited Stop Express Routes	30	45	1.5
Targeted Routes	40	60	2.5
Community Coverage Routes	5	-	-

For Community Coverage Route, if ridership falls below 5 boardings per trip there is no Green House Gas benefit from providing the route

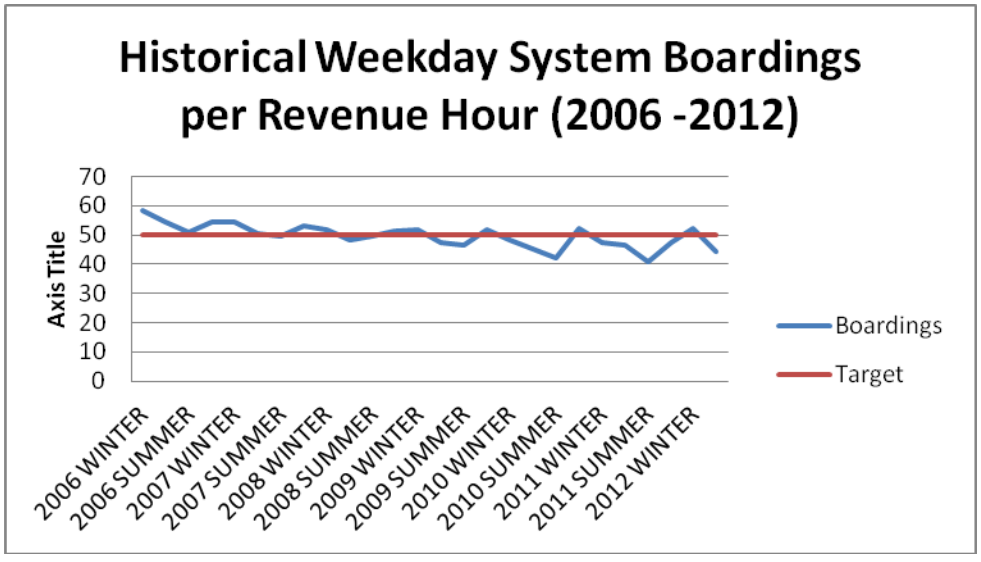
3.0 The Results

3.1 System

3.1.1 Results Against Guideline



3.1.2 Historical trends



*Declining trend indicates that that more resources (service hours) are required to undertake the same amount of trips due to slower travel speeds and that we are carrying fewer passengers per revenue hour

3.2 Route

3.2.1 Result Against Guideline – All route information based off Fall 2011 weekday data

MAJOR ROUTES

MAJOR ROUTES				
	Average Weekday Boardings	Average Boardings Per Trip	Average Boardings Per Revenue Hr	Average Boardings Per Route km
GUIDELINE		35	50	2.5
ROUTE				
01 - Richardson/Downtown	165	6.9	20.5	0.98
02 - Oak Bay/Willows/Downtown	1,817	14.7	41.5	2.18
03 - Gonzales/Beacon Hill	1,613	22.1	39.1	2.45
04 - UVic/Downtown	6,465	34.6	69.0	3.87
06 - Esquimalt/Royal Oak	10,969	47.5	64.6	2.84
07 - Uvic/Downtown	3,338	27.8	54.7	2.46
08 - Interurban/Tillicum	1,494	32.5	42.4	1.97
10 - Jubilee/Dockyard	798	11.9	26.5	1.41
11 - Uvic/Tillicum Mall	6,519	47.6	52.4	2.30
14 - Uvic/Vic Gen	8,993	45.4	52.5	2.37
21 - Interurban/Downtown	2,229	24.2	46.7	2.29
22 - Vic General/Hillside Mall	2,052	27.4	37.0	1.67
24 - Admirals Walk/Cedar Hill	897	20.4	29.8	1.52
25 - Admirals Walk/Maplewood	1,098	26.1	32.6	1.42
26 - Uvic/Dockyard	4,627	51.4	70.1	3.51
27 - Gordon Head/Downtown	8,337	34.1	59.8	2.86
28 - Majestic/Downtown		35.6	63.2	3.10
30 - Royal Oak Exch/James Bay	7,223	34.7	47.8	2.46
31 - Royal Oak Exch/James Bay		43.3	62.3	3.32
39 - Royal Roads/UVIC	1,892	31.5	45.9	1.72
50 - Langford Exch/Downtown	6,883	39.8	54.6	2.20
61 - Sooke/Downtown	1,954	31.0	36.5	0.93
72 - Swartz Bay/Downtown via Fifth	2,661	32.9	29.0	0.94
75 - Saanichton/Royal Oak/Downtown	1,675	22.6	27.1	0.77
Average Total	**83,699**	**33.1**	**48.1**	**2.24**

------ Investigate for corrective action ------ Investigate for service improvements

LIMITED STOP SERVICE ROUTES

LIMITED STOP SERVICE ROUTES	Average Weekday Boardings	Average Boardings per Trip	Average Boardings Per Revenue Hr	Average Boardings Per Route km
GUIDELINE		**30**	**45**	**1.5**
ROUTE				
15 - Downtown/Uvic Express	2,483	20.2	57.6	2.46
16 - Uptown/Uvic Express	1,741	24.9	61.9	2.66
70 - Swartz Bay/Downtown Express	1,726	29.8	32.0	0.83
Average Total	**5,950**	**24.9**	**50.5**	**1.99**

------ Investigate for corrective action ------ Investigate for service improvements

TARGETED ROUTES

TARGETED ROUTES	Average Weekday Boardings	Average Boardings Per Trip	Average Boardings Per Revenue Hr	Average Boardings Per Route km
GUIDELINE		**40**	**60**	**2.5**
ROUTE				
17 - Cedar Hill Sch Special	33	33.0	61.7	2.85
18 - Cedar Hill Sch Special	29	29.0	67.4	3.07
19 - Hillside Mall	69	34.5	74.2	3.78
29 - UVIC	56	28.0	67.5	2.52
33 - UVic	170	34.0	54.5	2.78
51 - Langford Exch/UVIC	539	41.5	59.0	2.27
76 - Swartz Bay/UVic	98	49.0	65.3	1.46
Average Total	**994**	**35.6**	**64.2**	**2.68**

------ Investigate for corrective action ------ Investigate for service improvements

MINOR ROUTES

MINOR ROUTES				
	Average Weekday Boardings	Average Boardings Per Trip	Average Boardings Per Revenue Hr	Average Boardings Per Revenue Hour
GUIDELINE		12	25	10
ROUTE				
12 - University Heights/UVic	529	13.2	58.3	2.06
13 - Cadboro Bay/UVic	119	7.4	30.7	4.31
32 - Cordova Bay	242	7.8	23.5	0.82
35 - Ridge	206	11.4	40.4	1.45
49 - Langford Exchange	21	1.8	15.0	0.57
52 - Colwood	705	11.0	20.5	0.78
53 - Atkins	132	4.9	13.6	0.44
54 - Metchosin	116	11.6	12.3	0.31
55 - Happy Valley	81	11.6	11.9	0.28
56 - Spencer	198	8.6	14.7	0.64
57 - Millstream	295	14.8	19.2	0.80
58 - Langford Meadows	138	6.9	19.9	0.58
59 - Triangle Mountain	192	10.7	19.4	0.74
63 - Otter Point	19	4.8	8.6	0.25
64 - East Sooke	71	7.9	7.2	0.21
81 - Swartz Bay/Brentwood	353	11.0	15.3	0.70
83 - Sidney/Brentwood via Airport	300	14.3	18.4	0.50
85 - North Saanich	73	8.1	12.2	0.36
86 - Deep Cove/McTavish Exch	5	1.3	3.9	--
88 - Sidney/Airport	147	3.6	16.6	0.51
Average Total	**3,942**	**8.6**	**19.1**	**0.86**

------ Investigate for corrective action ------ Investigate for service improvements

COMMUNITY COVERAGE ROUTES

There are no existing routes categorized as community coverage routes but through the service review process some existing Minor routes will not meet the targets for their category and will be reclassified as Community Coverage Routes. It is recognised that some community routes may provide a distinct social benefit to a localised community and consideration will be given to the demographics and underlying reason for the routes existence prior to any recommendations for service removal.

Appendix

Key Assumptions

Data

Ridership information used was collected from the fall of 2011 through automated passenger counters which are in place on more than 140 of the buses assigned to the Victoria Region's conventional fleet. This system counts the number of persons boarding and disembarking from a vehicle. A person may board more than one bus to complete a single trip when transfers are involved.

External Factors

In addition to service changes there are a number of external factors that may affect transit ridership. Some of these include fare increases, changing fuel prices, changing macro-economics and changes in land use.

GLOSSARY

Boardings
The number of times passengers board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination and regardless of whether they pay a fare, use a pass or transfer, ride for free, or pay in some other way. Also called unlinked passenger trips.

Peak Hours
Refers to weekday a.m. and p.m. service during commute hours to carry a maximum number of passengers. An example of commute or peak hours could be defined as time between 6:00 a.m. and 9:00 a.m. in the morning, and between 3:00 p.m. and 6:00 p.m. at night.

Revenue Service
The time when a vehicle is available to the general public and there is an expectation of carrying passengers. These passengers either directly pay fares, are subsidized by public programs, or provide payment through some contractual arrangement. Revenue service includes layover / recovery time. Revenue service excludes deadhead.