

Annual Route Performance Report

2008/2009 Operating Data

Prepared for:
Board of Directors

Prepared by:
Planning Department

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Note: Minor technical corrections were made after original publication of this report on April 1, 2010. These corrections did not affect the results or analyses.

Executive Summary

In December 2009 the STA Board of Directors adopted the **Fixed-Route Service Design Guidelines** to guide the planning, implementation, and monitoring of fixed-route transit service. An essential part of the required performance monitoring is an annual performance report to be prepared by April of each year to evaluate operating data for the prior two years of service. The current report uses operating data from 2008 and 2009. As a snapshot of the system and individual routes, Spokane Transit intends to make this and subsequent editions of the report an essential tool for evaluating and planning for improvements in transit service.

For the two-year period from January 1, 2008 through December 31, 2009, sixteen routes met all three performance standards. Twenty-one of the 37 routes evaluated failed to meet one or more of the three performance standards required by the **Fixed-Route Service Design Guidelines**. The most common performance standard not met was that of equivalent energy consumption by route, measured by average passenger load factor. Routes 35, 41, and 47 failed all three standards over the two-year period.

This report provides some suggestions of how performance could improve on some of the routes identified as failing on one or more standards. However, it is admittedly incomplete. Spokane Transit is currently finalizing a conceptual service plan that would take into account potential changes and necessary reductions that could take place over the next three years, in order to reconcile expenditures with declining revenues. The conceptual service plan, also known as the sustainable service plan, will attempt to take into account the findings in this report.

Routes 40 Browne's Addition, 60 Airport, 64 Airport via Geiger, 67 Medical Lake, and 124 North Express operated for only part of the evaluation period and, therefore, are not considered in this report. Routes 40 and 64 were eliminated in September 2009. Routes 60, 67, and 124 were service introductions/changes which were not in operation for the full two-year evaluation period. The omission of reporting for these routes is intentional, recognizing that it typically takes 18-36 months for the full effect of a service change to become evident.

Route Performance Standards

The performance standards measure the success of the fixed-route service based upon ridership, energy consumption, and farebox recovery ratio. Routes are compared against routes similar in service type and/or vehicle types. The service types¹ and performance measures used are explained below.

As stated in the **Fixed-Route Service Design Guidelines**, any route that falls below the minimum standard for any one of the three performance standards for two consecutive years will be considered out of compliance with the standards.

Performance Standard I: Ridership

Ridership is a critical metric for evaluating the system's effectiveness to serve people and the places to which they travel. Spokane Transit may desire to serve a particular facility, location, or community, but the route may still fail to attract ridership. In such cases, it is important to identify why the route is not performing well and what steps can be taken to remediate the route.

As stated in the **Fixed-Route Service Design Guidelines**, the best indicator of potential performance is a route's relation to the CBD (Central Business District). A route that ties into the CBD has more connectivity than other routes. Furthermore, it must meet a higher expectation due to the fact that the downtown Plaza has a finite number of bus bays and overall capacity. Accordingly, use of the Plaza's capacity should be focused on routes with a higher level of effectiveness in terms of ridership.

The metric used for ridership is boardings per revenue hour. Boardings per revenue hour are calculated by dividing the annual boardings of a route by the annual revenue hours of that same route. Revenue hours represent the hours the bus is in service.

Ridership standards are based upon the average boardings per revenue hour for all basic routes that intersect the CBD. In 2008 that standard was 26.86 boardings per revenue hour and in 2009 it was 26.70 boardings per revenue hour.

¹ The Service Design Guidelines define the High Performance Transit Network (HTPN). Currently, Spokane Transit has no HTPN service so HTPN performance standards are omitted from this report.

Ridership standards for specific service types are calculated as follows:

- Basic routes intersecting the CBD must meet a minimum ridership standard that is one-half standard deviation below the average of the basic CBD routes. This equates to a boardings per revenue hour standard of 24.24 in 2008 and 22.13 in 2009.
- Basic routes NOT intersecting the CBD must meet a minimum ridership standard that is one-half the standard for basic routes that do intersect the CBD. This equates to a boardings per revenue hour standard of 12.12 in 2008 and 11.06 in 2009.
- Commuter Peak routes must meet a minimum ridership standard that is one-half standard deviation above the average of the basic routes. This equates to a boardings per revenue hour standard of 29.49 in 2008 and 31.26 in 2009.

Performance Standard 2: Equivalent Energy Consumption

For years it has been recognized that there is value in the use of mass transit over the personal automobile to conserve energy and lessen human impact on the environment. Typically, energy consumption is shown by the number of single-occupancy vehicle (SOV) trips reduced by the use of mass transit, but this measure does not take into account that a transit bus is much heavier than a personal vehicle and consumes more energy per vehicle mile.

The Equivalent Energy Consumption standard relates to the duration of a passenger's ride time on a vehicle. As stated in the **Fixed-Route Service Design Guidelines**, a bus route should at minimum perform equally to the private automobile in terms of energy consumed per mile traveled for each passenger. The energy consumption for each passenger mile of a route will vary by the typical vehicle size used for each route. Below is a table that shows typical vehicle types assigned to Spokane Transit for Basic and Commuter Routes and their required minimum average load factor. Basic Routes must meet an average load factor that results in the route being as energy efficient as a typical single occupancy vehicle (SOV). The standard for Commuter Routes is higher than that for Basic Routes and must be as energy efficient as the average-loaded private automobile.

Table 1.1 - Minimum Average Load Factor

Vehicle Type	Minimum Average Load Factor (Basic)	Minimum Average Load Factor (Commuter)
Cutaway	2.84	4.45
30' Bus	5.35	8.39
35' Bus	5.16	8.10
40' Bus	5.48	8.60
60' Bus	6.65	10.45

The average passenger load (load factor) of a route is calculated by dividing the annual passenger miles of a route by the annual platform miles of a route. Passenger miles are the cumulative sum of the distances ridden by each passenger while platform miles represent all miles the vehicle travels (in- and out-of-service).

Performance Standard 3: Fares

Spokane Transit collects fares in the form of cash, passes and institutional pass programs which Spokane Transit administers. Farebox recovery represents the total fixed-route revenue collected as a percentage of the total fixed-route operating cost. Fares per passenger are not the same for every route. Two routes with the same ridership could have very different farebox recovery ratios based on fare media and operating costs.

The Fares performance standard shows the relationship between fares collected versus the operating cost of a route. This standard is calculated by dividing the annual fare revenue by the annual unallocated cost (the cost of the route and associated support). The resulting figure is the farebox recovery ratio. Routes must have a farebox recovery ratio that is no less than one-half the system average. The system average for 2008 was 16.49% and in 2009 was 16.54%, creating standards of 8.25% and 8.27%, respectively.

Summary of Route Performance

The following section outlines the performance of all routes subject to performance monitoring for the past two years. A route will be considered to have failed a performance standard if it is not in compliance for two consecutive years. Please refer to the appendix for a detailed breakdown of each of the three performance standards for all routes for the past two years.

Fixed-Routes That Failed to Meet Any Standard

The three routes listed in Table 1.2 represent routes that failed to meet any of the three performance standards for 2008 and 2009.

Table 1.2 Fixed-Routes That Failed to Meet Any Standard

Route	Route Name	Type
35	Five Mile Park & Ride	Basic
41	Latah	Basic
47	Glenrose	Basic

Route 35 serves the Northwest Terrace area and Five Mile Park & Ride via Francis Avenue. The route offers peak-only service on weekdays with three trips in the morning and three trips in the afternoon. In 2009, Route 35's boarding per revenue hour measure was 3.77 compared to the required standard of 11.06 for Basic routes not entering the CBD. Its average load factor was 0.64, well under the standard of 2.84 for routes using small cutaway vans. Route 35's farebox recovery ratio was 2.11%; 8.27% is the required system-wide standard.

Route 41 serves the Latah area in the vicinity of Highway 195 and a section of the Garden Springs neighborhood near F Street north of Sunset Boulevard. Route 41 offers limited service on weekdays with four trips in the morning and four trips in the afternoon. Route 41's boarding per revenue hour measure was 8.13 compared to the standard of 22.13 for Basic routes entering the CBD. Its average load factor was 1.75 compared to the standard of 2.84 for routes using small cutaway vans. Route 41's farebox recovery ratio was 4.46%; 8.27% is the required system-wide standard.

Route 47 serves the Glenrose area and the South Hill Park & Ride. Route 47 offers peak-only service on weekdays with six trips in the morning and five trips in the afternoon. Route 47's boarding per revenue hour measure was 6.33 compared to the standard of 11.06 for Basic Routes not entering the CBD. Its average load factor was 0.69; well under the standard of 2.84 for routes using small cutaway vans. Route 47's farebox recovery ratio was 3.39%; 8.27% is the required system-wide standard.

Both Route 35 and 47 have been proposed to be eliminated as part of the Preliminary Proposed September 2010 Service Change. Currently, there are no plans to eliminate Route 41, but given two consecutive years of poor performance, there is clearly a need to remediate the poor performance of Route 41 as it exists today.

Fixed-Routes That Failed Two of Three Standards

Table 1.3 depicts four routes that failed two of the three performance standards.

Table 1.3 Fixed-Routes That Failed Two of Three Standards

Route	Route Name	Type
2	Southside/Medical Shuttle	Basic
46	Altamont	Basic
62	Medical Lake Hospitals	Basic
97	South Valley	Basic

Route 2 serves the downtown Plaza and medical facilities in the vicinity of I-90 and the South Hill and offers 20-minute service weekdays only. Route 2 failed to meet the ridership standard with a boarding per revenue hour measure of 16.35 compared to the standard of 22.13 for Basic routes entering the CBD. It also failed to meet the average load factor standard of 5.35 for routes using a 30' bus, instead averaging 3.67.

As part of the Preliminary Proposal for the September 2010 Service Change, Route 2 would increase to 15-minute frequency and undergo a slight routing change which should increase the route's productivity. No additional revenue hours are required for this service improvement.

Route 46 serves the downtown Plaza and the Altamont area of Perry Street, 11th Avenue, and 17th Avenue and offers 60-minute service seven days a week. Route 46 failed to meet the ridership standard with a boarding per revenue hour measure of 13.55 compared to the standard of 22.13 for Basic routes entering the CBD. It also failed to meet the average load factor of 5.48 for routes using a 40' bus, instead averaging 3.08.

Route 46 runs in close proximity to other more frequent routes, including Routes 2, 33, and 45. Given the option, most riders likely choose more frequent service, lowering the productivity of Route 46. Additional analysis is required to determine remediation for this route.

Route 62 serves the downtown Plaza and the state hospitals in Medical Lake and offers select trips seven days a week. Route 62 failed to meet the ridership standard with a boarding per revenue hour measure of 11.50 compared to the standard of 22.13 for Basic routes entering the CBD. Route 62 also failed to meet the fares standard with a 7.92% fare recovery ratio, lower than the required system-wide average of 8.27%.

Route 62's failure to meet two of the three performance standards, along with expectations that Route 67 (in operation since September 2009) will also not perform well, indicates that attempts to connect Medical Lake and downtown Spokane have not worked as designed given the high operational costs and low demand for service. Additional analysis is required to determine remediation for this route.

Route 97 serves the Valley Transit Center and Spokane Valley Mall via 32nd Avenue and Sullivan Road. Route 97 offers 30-minute service on weekdays and 60-minute service on Saturdays and Sundays. Route 97 failed to meet the average load factor of 5.16 for routes using a 35' bus, instead averaging 2.81. Additionally, the route's 7.68% farebox recovery in 2009 failed to meet the system-wide standard of 8.27%. Additional analysis is required to determine remediation for this route.

Fixed-Routes That Failed One of Three Standards

Fourteen routes failed one of the three required performance standards during the past two years. These routes illustrate that a route's design does not always meet all performance standards. It is imperative to ensure continued monitoring of these routes so that steps can be taken, where possible, to improve their performance.

Table 1.4 Fixed-Routes That Failed One of Three Standards

Route	Route Name	Type
1	Plaza/Arena Shuttle	Basic
23	Maple/Ash	Basic
30	Francis	Basic
31	Garland	Basic
32	Trent/Indiana	Basic
33	Wellesley	Basic
42	South Maple	Basic
43	Lincoln – 37 th	Basic
65	Cheney/EWU	Basic
91	Mission	Basic
95	Millwood	Basic
96	Pines	Basic
72	Liberty Lake Express	Commuter Peak
74	Valley Limited	Basic

Fixed-Routes That Met All Three Standards

Although many routes do not meet performance standards there are also routes that perform well. Table 1.5 shows routes that meet the minimum requirements for Ridership, Equivalent Energy Consumption, and Fares.

Routes 25 and 90 continue to be strong performers in the area of total boardings with each route carrying over 1,000,000 passengers annually in 2008 and 2009. Route 24, with over 400,000 annual boardings in 2008 and 2009, continues to outpace all other routes in terms of boardings per revenue hour.

It is important to note that, despite strong performance, a route may still be reviewed for further improvement.

Table 1.5 Fixed-Routes That Met All Three Standards

Route	Route Name	Type
20	SFCC	Basic
21	West Broadway	Basic
22	Northwest Boulevard	Basic
24	Monroe	Basic
25	Division	Basic
26	Addison	Basic
27	Crestline	Basic
28	Nevada	Basic
29	SCC	Basic
44	29 th Avenue	Basic
45	Southeast Boulevard	Basic
90	Sprague	Basic
94	East Fifth	Basic
61	Hwy 2/Browne's Addition	Basic
66	EWU	Commuter Peak
73	VTC Express	Commuter Peak

Appendix

This section contains three tables that show the past two years' performance for the Ridership, Equivalent Energy Consumption, and Fares Standards for all routes. Shading is indicated for route performance that was below the standard.

Appendix A - Performance Standard I: Ridership (boardings per revenue hour)

Route	Route Name	2008		2009	
		Standard	Actual	Standard	Actual
1	Plaza/Arena Shuttle	24.24	32.59	22.13	30.72
2	SS/Medical Shuttle	24.24	16.77	22.13	16.35
20	SFCC	24.24	36.52	22.13	39.25
21	West Broadway	24.24	36.40	22.13	34.29
22	Northwest Boulevard	24.24	33.18	22.13	38.04
23	Maple/Ash	24.24	22.15	22.13	22.14
24	Monroe	24.24	44.17	22.13	43.80
25	Division	24.24	35.80	22.13	35.61
26	Addison	24.24	25.47	22.13	27.00
27	Crestline	24.24	32.45	22.13	31.60
28	Nevada	24.24	28.47	22.13	28.32
29	SCC	24.24	29.41	22.13	29.67
30	Francis	12.12	16.68	11.06	17.96
31	Garland	12.12	12.85	11.06	13.29
32	Trent/Indiana	12.12	19.11	11.06	18.94
33	Wellesley	12.12	20.32	11.06	19.91
35	Five Mile Park & Ride	12.12	3.82	11.06	3.77
41	Latah	24.24	9.53	22.13	8.13
42	South Maple	24.24	26.28	22.13	26.40
43	Lincoln-37 th Avenue	24.24	32.09	22.13	30.90
44	29 th Avenue	24.24	36.90	22.13	36.83
45	Southeast Boulevard	24.24	28.41	22.13	29.33
46	Altamont	24.24	14.52	22.13	13.55
47	Glenrose	12.12	6.63	11.06	6.33
61	Hwy 2/Browne's Addition	24.24	26.13	22.13	25.10
62	Medical Lake Hospitals	24.24	13.20	22.13	11.50
65	Cheney/EWU	24.24	22.97	22.13	21.80
66	EWU	29.49	36.88	31.26	34.35
72	Liberty Lake Express	29.49	22.81	31.26	19.27
73	VTC Express	29.49	34.11	31.26	33.20
74	Valley Limited	24.24	17.19	22.13	15.33
90	Sprague	24.24	33.43	22.13	33.35
91	Mission	24.24	14.97	22.13	20.48
94	East Fifth	24.24	28.35	22.13	27.33
95	Millwood	12.12	15.01	11.06	13.92
96	Pines	12.12	15.02	11.06	15.79
97	South Valley	12.12	13.86	11.06	14.49
124	North Express	29.49	13.10	31.26	13.77

Appendix B - Performance Standard 2: Equivalent Energy Consumption (average load factor)

Route	Route Name	Standard	2008	2009
1	Plaza/Arena Shuttle	5.35	4.10	4.07
2	SS/Medical Shuttle	5.35	3.81	3.67
20	SFCC	5.48	7.65	8.40
21	West Broadway	5.48	6.44	5.96
22	Northwest Boulevard	5.48	7.29	7.96
23	Maple/Ash	5.16	4.40	4.36
24	Monroe	5.48	7.67	7.75
25	Division	5.48	9.38	9.63
26	Addison	5.48	7.01	7.83
27	Crestline	5.48	9.47	9.31
28	Nevada	5.48	7.49	7.72
29	SCC	5.48	8.56	7.87
30	Francis	5.48	2.07	2.41
31	Garland	5.16	2.29	2.45
32	Trent/Indiana	5.35	3.98	4.08
33	Wellesley	5.48	3.97	3.92
35	Five Mile Park & Ride	2.84	0.38	0.65
41	Latah	2.84	1.83	1.75
42	South Maple	5.48	4.77	4.88
43	Lincoln-37 th Avenue	5.48	5.11	4.87
44	29 th Avenue	5.48	6.86	7.05
45	Southeast Boulevard	5.48	6.15	6.00
46	Altamont	5.48	3.15	3.08
47	Glenrose	2.84	0.70	0.69
61	Hwy 2/Browne's Addition	5.48	8.96	8.49
62	Medical Lake Hospitals	5.48	7.63	7.63
65	Cheney/EWU	5.48	13.26	12.58
66	EWU	6.65	17.58	16.23
72	Liberty Lake Express	6.65	11.62	9.92
73	VTC Express	6.65	11.72	11.82
74	Valley Limited	5.48	7.61	6.83
90	Sprague	5.48	10.36	10.45
91	Mission	5.48	4.52	5.67
94	East Fifth	5.48	5.84	5.60
95	Millwood	5.35	2.30	2.24
96	Pines	5.35	2.61	2.77
97	South Valley	5.16	2.82	2.81
124	North Express	6.65	N/A	4.49

Appendix C - Performance Standard 3: Fares (farebox recovery ratio)

Route	Route Name	2008		2009	
		Standard	Actual	Standard	Actual
1	Plaza/Arena Shuttle	8.24%	22.92%	8.27%	27.20%
2	SS/Medical Shuttle	8.24%	9.87%	8.27%	9.17%
20	SFCC	8.24%	22.21%	8.27%	20.34%
21	West Broadway	8.24%	20.66%	8.27%	18.85%
22	Northwest Boulevard	8.24%	21.85%	8.27%	20.99%
23	Maple/Ash	8.24%	15.51%	8.27%	22.04%
24	Monroe	8.24%	27.23%	8.27%	27.50%
25	Division	8.24%	20.99%	8.27%	21.24%
26	Addison	8.24%	12.70%	8.27%	15.57%
27	Crestline	8.24%	19.17%	8.27%	18.61%
28	Nevada	8.24%	18.04%	8.27%	17.11%
29	SCC	8.24%	19.18%	8.27%	16.83%
30	Francis	8.24%	8.16%	8.27%	9.70%
31	Garland	8.24%	9.00%	8.27%	7.47%
32	Trent/Indiana	8.24%	10.85%	8.27%	9.63%
33	Wellesley	8.24%	12.90%	8.27%	11.16%
35	Five Mile Park & Ride	8.24%	1.79%	8.27%	2.11%
41	Latah	8.24%	5.10%	8.27%	4.46%
42	South Maple	8.24%	16.31%	8.27%	14.93%
43	Lincoln-37 th Avenue	8.24%	19.13%	8.27%	18.17%
44	29 th Avenue	8.24%	21.68%	8.27%	27.49%
45	Southeast Boulevard	8.24%	18.29%	8.27%	25.71%
46	Altamont	8.24%	8.66%	8.27%	7.44%
47	Glenrose	8.24%	3.77%	8.27%	3.39%
61	Hwy 2/Browne's Addition	8.24%	16.22%	8.27%	14.55%
62	Medical Lake Hospitals	8.24%	6.97%	8.27%	7.92%
65	Cheney/EWU	8.24%	16.60%	8.27%	13.92%
66	EWU	8.24%	36.95%	8.27%	23.78%
72	Liberty Lake Express	8.24%	15.35%	8.27%	17.88%
73	VTC Express	8.24%	24.65%	8.27%	24.46%
74	Valley Limited	8.24%	12.36%	8.27%	13.11%
90	Sprague	8.24%	20.63%	8.27%	19.20%
91	Mission	8.24%	9.54%	8.27%	11.18%
94	East Fifth	8.24%	17.25%	8.27%	15.02%
95	Millwood	8.24%	9.97%	8.27%	7.35%
96	Pines	8.24%	10.16%	8.27%	8.39%
97	South Valley	8.24%	8.23%	8.27%	7.68%
124	North Express	8.24%	N\A	8.27%	15.48%