Annual Route Performance Report

2010/2011 Operating Data

Prepared for:
Planning & Development Committee

Final Draft

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Spokane Transit

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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 evaluate operating data for the prior two years of service. The current report uses operating data from 2010 and 2011. As a snapshot of the system and individual routes, this report is an essential tool for evaluating and planning for improvements in transit service.

Routes are rated annually against three performance standards: ridership, equivalent energy consumption, and farebox recovery. Each of these standards has a benchmark score which is calculated annually. A route which meets a performance standard's benchmark in either or both of the previous two years is considered to meet that performance standard. (In other words, a single year of substandard performance is not considered a failure in this report.)

For the two-year period from January 1, 2010 through December 31, 2011, which includes routes operating prior to the September 2011 Service Change and after, 26 routes evaluated met all three performance standards, 12 routes failed to meet one of the three performance standards, and 4 failed to meet two standards required by the **Fixed-Route Service Design Guidelines**. Routes 41 (Latah) and 46 (Altamont) failed all three standards over the two-year period. The most common performance standard not met was that of equivalent energy consumption by route, measured by average passenger load factor.

Previous editions of the Annual Route Performance Report have not included any route that did not operate for a full two-year period however, given the comprehensive service change enacted on September 18, 2011, all routes currently in service will be included in this report. Routes 30, 31, 41, 46, 67 and 95 were removed from service as part of the September 2011 Service Change. Significant route modifications included revisions to the Route 22 and 27 to mitigate the loss of the Route 30, the joining of Route 72 and 74 to form the 174 and the creation of the Route 98 with service from the Valley Transit Center to Liberty Lake Park & Ride via Sprague Avenue.

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 annual benchmark scores set for routes similar in service type and/or vehicle types. The service types[1] and performance standards used are explained below.

Any route that performs below the benchmark for two consecutive years for any one of the three performance standards will be considered out of compliance with the **Fixed-Route Service Design Guidelines**.

Performance Standard 1: 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**, one of the best indicators of potential performance is a route's relation to the CBD (Central Business District). A route which serves the CBD has more connectivity than other routes. Consequently, it must meet a higher expectation due to the downtown Plaza's 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. Revenue hours represent the hours the bus is in service. Boardings per revenue hour are calculated by dividing the annual boardings of a route by the annual revenue hours of that same route.

Ridership benchmarks are based upon the average boardings per revenue hour for all basic routes that intersect the CBD.

Ridership benchmarks for specific service types are calculated as follows:

- Basic routes intersecting the CBD must meet a minimum ridership benchmark that is one-half standard deviation below the average of the basic CBD routes. In 2010 that average was 25.51 boardings per revenue hour and in 2011 it was 26.24 boardings per revenue hour. This equates to boardings per revenue hour benchmarks of 21.71 in 2010

[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.

and 21.41 in 2011. Note the benchmark is lower in 2011 due to a larger standard deviation.

- Basic routes NOT intersecting the CBD must meet a minimum ridership benchmark one-half that for basic routes that do intersect the CBD. This equates to boardings per revenue hour benchmarks of 10.85 in 2010 and 10.70 in 2011.
- Commuter Peak routes must meet a minimum ridership benchmark one-half standard deviation above the average of the basic routes. This equates to boardings per revenue hour benchmarks of 29.30 in 2010 and 31.07 in 2011.

Performance Standard 2: Equivalent Energy Consumption

There is great potential 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 benchmark 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 Benchmark Scores

	Average Load Factor Benchmarks			
	Basic Routes		Commuter Peak Routes	
Vehicle Type	2011	2010	2011	2010
Cutaway	3.07	3.00	N/A	4.77
30' Bus	4.76	4.75	N/A	7.55
35' Bus	4.33	4.45	N/A	7.07
40' Bus	4.51	4.65	6.99	7.34
60' Bus	6.34	6.47	9.83	10.29

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, both 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 revenue collected along a route as a percentage of the total cost of operating the route. 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 uses a route's farebox recovery ratio to show the relationship between fares collected versus the operating cost of a route. Farebox recovery ratio is calculated by dividing the annual fare revenue by the annual unallocated cost (the cost of the route and associated support). The benchmark which must be met or exceeded is equal to one-half the system-wide average (for revenue allocated to routes) farebox recovery ratio. The system average was 17.39% in 2010 and increased to 19.96% in 2011, creating benchmarks of 8.69% and 9.98%, respectively. Please note that the system average fare calculated for this measure does not incorporate fare revenue which cannot be confidently allocated to any route.

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 Failing All Three Standards

Table 1.2 – Fixed-Routes That Failed All Three Standards

Route	Route Name	Type
41	Latah	Basic
46	Altamont	Basic

Both Route 41 and 46 were eliminated as part of the September 2011 Service Change and the results of their performance can be seen in the following tables.

Table 1.3 – Route 41 Performance

Performance Standard Failed	2011 Benchmark	2011 Actual	2010 Benchmark	2010 Actual
Ridership	21.41	8.14	21.71	8.14
Energy Consumption	3.07	1.59	3.00	1.54
Fares	9.98%	5.84%	8.69%	5.96%

Table 1.4 – Route 46 Performance

Performance Standard Failed	2011 Benchmark	2011 Actual	2010 Benchmark	2010 Actual
Ridership	21.41	11.86	21.71	12.59
Energy Consumption	4.51	2.49	4.65	2.69
Fares	9.98%	8.67%	8.69%	8.20%

Fixed-Routes Failing Two of Three Standards

Table 1.5 depicts the five routes failing two of the three performance standards for 2010 and 2011.

Table 1.5 Fixed-Routes That Failed Two of Three Standards

Route	Route Name	Type
2	Southside/Medical Shuttle	Basic
60	Airport via Browne's Addition	Basic
95*	Millwood	Basic
124	North Express	Commuter Peak

**Routes were either eliminated, modified or consolidated as part of the September 2011 Service Change*

Route 2 is a Basic Route with access to the CBD. The route serves medical facilities in the vicinity of I-90 and the South Hill. Weekday service is operated at 20-minute frequency, generally using a 30-foot coach. Route 2 failed to meet the Ridership and Energy Consumption standards.

Due to the route's failure to meet two of three standards in 2011 the frequency of the route was increased to 15 minutes with weekend service added in September 2011. However, due to safety concerns and to reduce conflicts with other buses and vehicles, frequency was adjusted back to 20 minutes. This resulted in the previously planned remediation strategies not being implemented for a full two-year period. Proposed revisions to Wall Street may allow for Route 2 to return to 15 minute frequency on weekdays.

Table 1.6 Route 2 Performance

Performance Standard Failed	2011 Benchmark	2011 Actual	2010 Benchmark	2010 Actual
Ridership	21.41	18.48	21.71	15.65
Energy Consumption	4.76	3.77	4.75	3.35

Route 60 is a Basic Route with access to the CBD. The route connects the Plaza to Spokane International Airport via Browne's Addition and the Sunset Hill. Route 60 typically uses a 35' coach and operates seven days a week with 30 minute peak frequency on weekdays and hourly service on nights and weekends. Route 60 failed to meet the Ridership and Energy standards. While the route did fail to meet two of the three standards, it has shown improvement in both areas and overall annual ridership is up just over 8%.

Table 1.7 Route 60 Performance

Performance Standard Failed	2011 Benchmark	2011 Actual	2010 Benchmark	2010 Actual
Ridership	21.41	17.00	21.71	15.63
Energy Consumption	4.33	2.82	4.45	2.71

Route 95 was a Basic Route that connected the City of Millwood with the Valley Transit Center. The route had 30 minute peak frequency on weekdays and hourly service on nights and weekends. As part of the September 2011 Service Change the Route 95 was eliminated. Route 94 now connects the City of Millwood to the Plaza via 5th Avenue.

Table 1.8 Route 95 Performance

Performance Standard Failed	2011 Benchmark	2011 Actual	2010 Benchmark	2010 Actual
Energy	4.76	2.21	4.75	2.20
Fares	9.98%	8.74%	8.69%	8.59%

Route 124 is a Commuter Peak Route with access to the CBD. It serves Hastings Park and Ride via Monroe and Wall Streets. Route 124 provides limited-stop, weekday-only service during peak hours only using a 40-foot coach. Route 124 failed to meet the Ridership and Energy Consumption standards.

Stops were added in 2010 to Route 124 north of Francis to replace the discontinued Hastings branch of Route 23. Frequency was reduced before and after the peak commute periods in September 2011. An additional trip will be eliminated in May 2012. While the route did fail to meet two of the three standards, it has shown improvements in the Ridership and Energy categories.

Table 1.9 Route 124 Performance

Performance Standard Failed	2011 Benchmark	2011 Actual	2010 Benchmark	2010 Actual
Ridership	31.07	17.54	29.30	12.17
Energy Consumption	6.99	6.03	7.34	4.32

Fixed-Routes Failing One of Three Standards

Twelve 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 1.10 Fixed-Routes That Failed One of Three Standards

Route	Route Name	Type	Performance Standard Failed
1	**Plaza/Arena Shuttle**	Basic	Energy
23	**Maple/Ash**	Basic	Energy
30*	**Francis**	Basic	Energy
31*	**Garland**	Basic	Energy
33	**Wellesley**	Basic	Energy
62	**Medical Lake**	Basic	Ridership
67*	**Medical Lake via Geiger**	Basic	Ridership
72*	**Liberty Lake Express**	Commuter Peak	Ridership
74*	**Valley Limited**	Commuter Peak	Ridership
91*	**Mission**	Basic	Ridership
96*	**Pines/Sullivan**	Basic	Energy
97	**South Valley**	Basic	Energy

**Routes were either eliminated, modified or consolidated as part of the September 2011 Service Change*

Fixed-Routes Meeting All Three Standards

Table 1.11 indicates routes that met STA's standards for Ridership, Equivalent Energy Consumption, and Fares for the two year period.

Route 25 Division and Route 90 Sprague combined for over two million boardings in 2011 which accounts for approximately 20% of STA's total ridership. Route 66 Cheney/EWU recorded almost a half million boardings with 495,254 in 2011.

Although a route may meet all three standards, the route may still be a candidate for future revisions.

Table 1.11 Fixed-Routes Meeting 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	Lidgerwood	Basic
27	Hillyard	Basic
28	Nevada	Basic
29	SCC	Basic
32	Trent/Montgomery	Basic
39	Mission	Basic
42	South Adams	Basic
43	Lincoln/37th Avenue	Basic
44	29th Avenue	Basic
45	Regal	Basic
61	Hwy 2 via Browne's Addition	Basic
65	Cheney/EWU	Basic
66	Cheney/EWU	Commuter Peak
68	Cheney Local	Basic
73	VTC Express	Commuter Peak
90	Sprague	Basic
94	East Fifth/Millwood	Basic
98	Liberty Lake via Sprague	Basic
165	Cheney Express	Commuter Peak
173	VTC Express	Commuter Peak
174	Liberty Lake Express	Commuter Peak

Appendix

This section contains three tables that show the past two years' performance for the Ridership, Energy Consumption, and Fares Standards for all routes. Shaded routes failed to meet their performance benchmarks in both 2010 and 2011, thus failing the performance standard.

Appendix A - Performance Standard 1: Ridership

(measured by boardings per revenue hour)

		2010		2011	
Route	Route Name	Benchmark	Actual	Benchmark	Actual
1	Plaza/Arena	21.71	28.37	21.41	28.32
2	Southside Medical Shuttle	21.71	15.65	21.41	18.48
20	SFCC	21.71	40.18	21.41	47.06
21	West Broadway	21.71	33.04	21.41	31.15
22	Northwest Boulevard	21.71	35.22	21.41	30.88
23	Maple/Ash	21.71	21.91	21.41	22.88
24	Monroe	21.71	43.05	21.41	43.33
25	Division	21.71	34.70	21.41	35.32
26	Lidgerwood	21.71	25.83	21.41	26.25
27	Hillyard	21.71	32.82	21.41	35.60
28	Nevada	21.71	25.73	21.41	29.28
29	SCC	21.71	30.81	21.41	32.89
30	Francis	10.85	18.70	10.70	17.64
31	Garland	10.85	15.69	10.70	15.46
32	Trent/Montgomery	10.85	18.85	10.70	21.53
33	Wellesley	10.85	16.73	10.70	18.06
39	Mission	21.71	---	21.41	25.98
*41	Latah	21.71	8.14	21.41	8.14
42	South Adams	21.71	26.14	21.41	27.80
43	Lincoln/37th Avenue	21.71	30.40	21.41	29.87
44	29th Avenue	21.71	34.67	21.41	34.06
45	Regal	21.71	28.40	21.41	30.31
*46	Altamont	21.71	12.59	21.41	11.86
60	Airport via Browne's Addition	21.71	15.63	21.41	17.00
61	Hwy 2 via Browne's Addition	21.71	28.24	21.41	30.00
62	Medical Lake	21.71	11.33	21.41	11.56
65	Cheney/EWU	21.71	21.65	21.41	22.51
66	Cheney/EWU	29.30	34.85	31.07	38.54
*67	Medical Lake via Geiger	21.71	9.84	21.41	10.22
68	Cheney Local	10.85	---	10.70	19.23
*72	Liberty Lake Express	29.30	24.90	31.07	21.23
*73	VTC Express	29.30	29.32	31.07	30.93
*74	Valley Limited	21.71	16.21	21.41	19.26
90	Sprague	21.71	32.10	21.41	34.68
*91	Mission	21.71	20.36	21.41	15.38
94	East Fifth/Millwood	21.71	25.62	21.41	24.69
*95	Millwood	10.85	13.57	10.70	13.24
96	Pines/Sullivan	10.85	14.62	10.70	14.93
97	South Valley	10.85	13.46	10.70	15.23
98	Liberty Lake via Sprague	10.85	---	10.70	19.43
124	North Express	29.30	12.17	31.07	17.54
165	Cheney Express	29.30	---	31.07	67.63
173	VTC Express	29.30	---	31.07	27.43
174	Liberty Lake Express	29.30	---	31.07	28.23

**Routes were eliminated as part of the September 2010 Service Plan*

Appendix B - Performance Standard 2: Equivalent Energy Consumption

(measured by average load factor)

		2010		2011	
Route	Route Name	Benchmark	Actual	Benchmark	Actual
1	Plaza/Arena	4.75	3.41	4.76	3.48
2	Southside Medical Shuttle	4.75	3.35	4.76	3.77
20	SFCC	4.65	8.61	4.51	10.18
21	West Broadway	4.65	5.69	4.51	5.93
22	Northwest Boulevard	4.65	8.09	4.51	7.26
23	Maple/Ash	4.45	3.81	4.33	4.12
24	Monroe	4.65	7.74	4.51	7.85
25	Division	4.65	9.57	4.51	10.04
26	Lidgerwood	4.65	7.75	4.51	7.42
27	Hillyard	4.65	9.96	4.51	9.34
28	Nevada	4.65	7.18	4.51	6.94
29	SCC	4.65	8.48	4.51	9.08
*30	Francis	4.65	3.02	4.51	2.97
*31	Garland	4.75	2.87	4.76	2.98
32	Trent/Montgomery	4.75	5.10	4.76	5.72
33	Wellesley	4.65	3.75	4.51	4.22
39	Mission	4.65	---	4.51	5.96
*41	Latah	3.00	1.54	3.07	1.59
42	South Adams	4.65	4.86	4.51	4.79
43	Lincoln/37th Avenue	4.65	4.99	4.51	4.95
44	29th Avenue	4.65	6.96	4.51	6.75
45	Regal	4.65	6.40	4.51	6.99
*46	Altamont	4.65	2.69	4.51	2.49
60	Airport via Browne's Addition	4.45	2.71	4.33	2.82
61	Hwy 2 via Browne's Addition	4.65	8.66	4.51	9.60
62	Medical Lake	4.65	8.62	4.51	7.91
65	Cheney/EWU	4.65	12.45	4.51	13.10
66	Cheney/EWU	10.29	15.96	9.83	18.88
67	Medical Lake via Geiger	4.65	---	4.51	4.73
68	Cheney Local	4.65	---	4.51	2.41
72	Liberty Lake Express	10.29	8.56	9.83	10.74
73	VTC Express	10.29	10.25	9.83	11.33
74	Valley Limited	4.65	7.32	4.51	8.69
90	Sprague	4.65	10.20	4.51	11.02
91	Mission	4.65	5.42	4.51	4.02
94	East Fifth/Millwood	4.65	5.48	4.51	5.70
95	Millwood	4.75	2.20	4.76	2.21
96	Pines/Sullivan	4.75	2.53	4.76	3.09
97	South Valley	4.75	3.06	4.76	3.58
98	Liberty Lake via Sprague	4.65	---	4.51	3.42
124	North Express	7.34	4.32	6.99	6.03
165	Cheney Express	7.34	---	6.99	31.91
173	VTC Express	7.34	---	6.99	10.30
174	Liberty Lake Express	7.34	---	6.99	11.62

**Routes were eliminated as part of the September 2010 Service Plan*

Appendix C - Performance Standard 3: Fares

(measured by fare recovery ratio)

		2010		2011	
Route	Route Name	Benchmark	Actual	Benchmark	Actual
1	Plaza/Arena	8.69%	29.69%	9.98%	26.23%
2	Southside Medical Shuttle	8.69%	9.81%	9.98%	12.11%
20	SFCC	8.69%	23.92%	9.98%	29.90%
21	West Broadway	8.69%	20.57%	9.98%	20.58%
22	Northwest Boulevard	8.69%	21.72%	9.98%	21.13%
23	Maple/Ash	8.69%	17.59%	9.98%	19.49%
24	Monroe	8.69%	28.62%	9.98%	31.10%
25	Division	8.69%	24.24%	9.98%	27.31%
26	Lidgerwood	8.69%	17.19%	9.98%	19.39%
27	Hillyard	8.69%	22.15%	9.98%	26.53%
28	Nevada	8.69%	18.11%	9.98%	23.30%
29	SCC	8.69%	18.96%	9.98%	21.58%
*30	Francis	8.69%	11.19%	9.98%	11.61%
*31	Garland	8.69%	10.20%	9.98%	11.30%
32	Trent/Montgomery	8.69%	11.32%	9.98%	14.64%
33	Wellesley	8.69%	10.53%	9.98%	12.55%
39	Mission	8.69%	---	9.98%	18.06%
*41	Latah	8.69%	5.96%	9.98%	5.84%
42	South Adams	8.69%	17.11%	9.98%	18.47%
43	Lincoln/37th Avenue	8.69%	19.76%	9.98%	22.12%
44	29th Avenue	8.69%	22.68%	9.98%	24.94%
45	Regal	8.69%	19.39%	9.98%	23.11%
*46	Altamont	8.69%	8.20%	9.98%	8.67%
60	Airport via Browne's Addition	8.69%	9.53%	9.98%	12.40%
61	Hwy 2 via Browne's Addition	8.69%	17.09%	9.98%	21.50%
62	Medical Lake	8.69%	8.12%	9.98%	11.64%
65	Cheney/EWU	8.69%	14.58%	9.98%	16.55%
66	Cheney/EWU	8.69%	23.60%	9.98%	22.15%
67	Medical Lake via Geiger	8.69%	---	9.98%	8.51%
68	Cheney Local	8.69%	---	9.98%	10.32%
72	Liberty Lake Express	8.69%	26.51%	9.98%	25.01%
73	VTC Express	8.69%	24.86%	9.98%	28.87%
74	Valley Limited	8.69%	14.65%	9.98%	19.37%
90	Sprague	8.69%	21.37%	9.98%	24.92%
91	Mission	8.69%	13.03%	9.98%	10.30%
94	East Fifth/Millwood	8.69%	16.26%	9.98%	17.33%
95	Millwood	8.69%	8.59%	9.98%	8.74%
96	Pines/Sullivan	8.69%	9.07%	9.98%	10.57%
97	South Valley	8.69%	8.38%	9.98%	10.96%
98	Liberty Lake via Sprague	8.69%	---	9.98%	13.83%
124	North Express	8.69%	13.84%	9.98%	19.41%
165	Cheney Express	8.69%	---	9.98%	22.40%
173	VTC Express	8.69%	---	9.98%	26.07%
174	Liberty Lake Express	8.69%	--	9.98%	29.66%

**Routes were eliminated as part of the September 2010 Service Plan*

Appendix D – Historical Ridership

Average Weekday Boardings – Post September 2011 Service Change