



2015

DRAFT

Service Implementation Plan

October 10, 2014

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EXECUTIVE SUMMARY

The number of customers boarding Sound Transit trains and buses increased steadily during 2013 and the first half of 2014. Over 30 million boardings took place in 2013, an increase of 8 percent over 2012. During the first half of 2014, total Sound Transit ridership was up almost 9 percent compared with the same period in 2013. This trend is occurring against a backdrop of regional economic growth and increased public awareness of transit as an attractive option for a wide variety of trips. The expanding market for transit is evidenced by greatly increased special event ridership on all Sound Transit modes, particularly light rail. More transit riders also reinforces the need for expanded Sounder and Link light rail service that Sound Transit is developing as part of the voter-approved ST2 Program.

Until the expanded light rail network begins to replace segments of ST Express routes, Sound Transit faces challenges in meeting the existing demand for bus service. ST Express bus ridership grew by 7.6 percent between 2012 and 2013, while service hours increased by less than 2 percent. Since the express bus network connects major employment centers throughout the region, ST Express is more commuter oriented than most transit systems. An expanding economy means increased commuter demand during peak time periods, particularly in those centers where employee parking is limited and expensive.

Beginning in fall 2014, meeting the demand for ST Express bus service will become even more of a challenge since funding shortfalls are forcing King County Metro to reduce service in three major travel corridors, SR 520, SR 522 and Interstate 90. Sound Transit shares responsibility with Metro for providing service in these corridors, and the reductions may shift more riders to ST Express.

In early 2014, the Sound Transit Board adopted updated Service Standards and Performance Measures that include new passenger load guidelines for ST Express. The guidelines recognize that standing passengers during peak hours are an ongoing reality, and lists priorities for corrective action based on the severity of overcrowding and the amount of time passengers have to stand. Sound Transit staff continually monitors service and uses several service management tools to reduce overcrowding, including schedule adjustments to balance loads, assigning larger buses and adding extra bus trips if the budget allows.

Increased Transit Integration

In June 2014, King County Executive and Sound Transit Board Chair Dow Constantine announced a new initiative to better integrate the projects and services of the region's transit agencies. In particular, the Executive recommended that Sound Transit and King County Metro take immediate steps to provide transit options for riders affected by impending cutbacks in Metro service. To accomplish this, Metro and Sound Transit have partnered to increase coordination of service changes, share detailed information on ridership and operations, and exchange ideas for increasing transit capacity and quality of service. The higher level of coordination extends to phasing strategies for major service changes, joint public outreach and identifying efficiencies that can be used to offset the impacts of service reductions. Sound Transit and King County Metro are also jointly applying for grants that would fund service additions and expand bus system capacity in corridors where the agencies share responsibilities for providing service.

While the initial focus is on increased integration between King County Metro and Sound Transit services, ongoing work will bring in additional transportation partners including other transit agencies, private transportation providers, the state Department of Transportation and local cities in the Central Puget Sound region.

Service Implementation Plan Amendment

The extension of Link light rail from downtown Seattle to Capitol Hill and the University of Washington is scheduled for early 2016. To improve service integration and generate operational efficiencies, King County Metro and Sound Transit will develop proposals for an integrated bus-rail service network in this corridor that enhances overall mobility while making optimum use of the large investment in the U Link project. The deadline for final approval of these proposals occurs well before Board action can be scheduled on the 2016 Service Implementation Plan (SIP). As a result, staff is developing an amendment to the 2015 SIP that will be presented to the Board during the May-June 2015 timeframe. The SIP Amendment will include Link service levels with the UW extension and proposed changes to ST Express bus service that will integrate with light rail. These changes will be coordinated with King County Metro service proposals and the agencies will conduct a joint public outreach process to reach transit riders and community stakeholders.

Quick Guide to the 2015 SIP

The 2015 SIP includes a detailed performance analysis of each bus and rail route, along with performance objectives for the coming year and an updated 5-year ridership forecast. Ridership and operating data for the last full calendar year (2013) is used in the analysis to eliminate the effect of seasonal variations.

Only one major service change is proposed for 2015, a new ST Express bus route connecting Lakewood with Puyallup Station. The new Route 580 would operate during weekday peak periods only, making timed connections with Sounder trains at Puyallup. A full description of this proposed new service is included in Chapter 2. Chapter 3 includes a Title VI evaluation of the proposed Route 580.

Chapter 4 includes a look into preliminary plans for Sound Transit service between 2016 and 2020. During this period, Link light rail extensions will be under construction in three regional corridors, and three additional Sounder round trips will be implemented on the South Line. Construction impacts of the Link extensions on current bus service will be discussed in this section.

Chapter 5 includes ridership forecasts through 2020, both system-wide and by mode, together with projected fare revenue and operations costs. The appendices provide information on Sound Transit operations, including platform hours and miles, fleet plans, passenger boarding data, and detailed information on the performance of each Sound Transit route.

CHAPTER ONE: INTRODUCTION

Agency Overview

Our Mission

Sound Transit plans, builds and operates regional transit systems and services to improve mobility for Central Puget Sound.

History

In 1996, voters in Central Puget Sound approved the Sound Move plan. Our mandate: build a mass transit system that connects major urban centers in Snohomish, King, and Pierce counties. The Sound Transit district makes up of these three counties and covers nearly 1,100 square miles, linking business districts to various residential regions.

About the Service Implementation Plan

Each year, Sound Transit documents the development of its express bus, commuter rail, and light rail services through its Service Implementation Plan (SIP). The SIP describes service changes planned for the year and preliminary service proposals and financial projection for the following five years. A detailed report on the status of each bus and rail route is also included, along with performance objectives for the coming year.

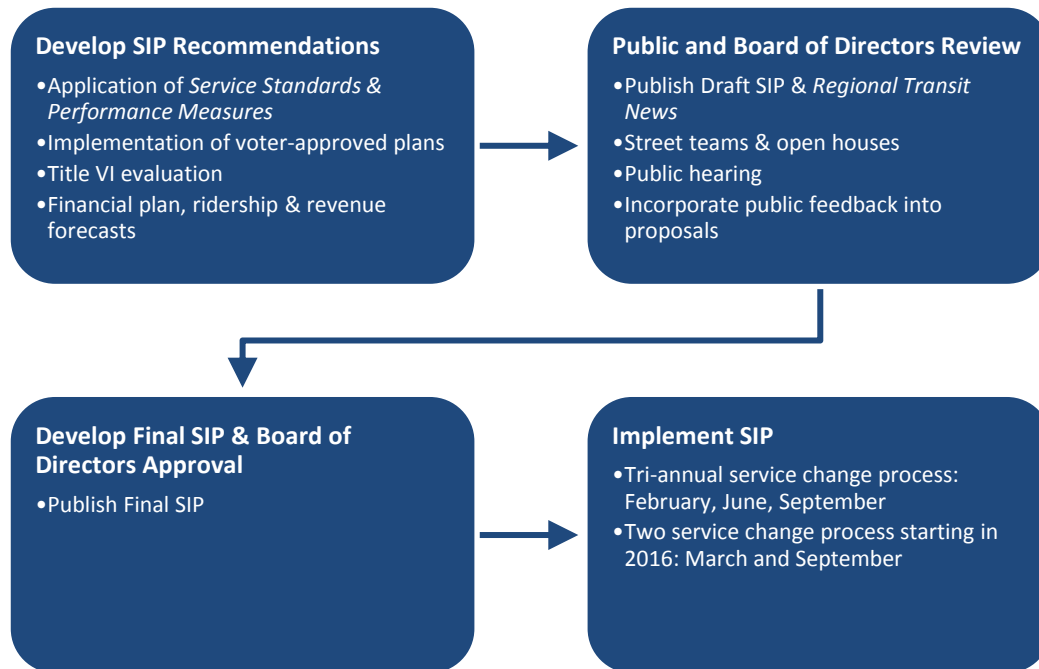
Figure 1 Sound Move and ST2 Projects



SIP Process

The SIP process includes four key activities outlined in the diagram below and explained in detail in the following section.

Figure 2: SIP Process Chart

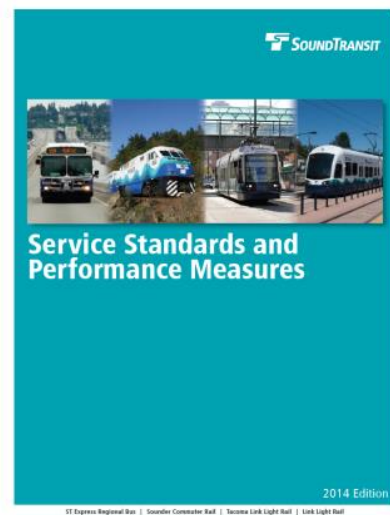


Service Change Proposals

There are two primary guides for proposals included in the SIP, Voter-approved plans (i.e. *Sound Move, ST2*) and proposals based on evaluation of route performance, ridership patterns, trends and customer input. Each Sound Transit route and line is evaluated against three or more key performance indicators as described in Sound Transit’s *Service Standards and Performance Measures*, developed in 1998 and updated in 2006, 2010, and 2014. ST Express bus routes are compared to the system average by day type (weekday, Saturday, and Sunday), while the rail modes are generally compared to the system average by time of day. Additional details on the evaluation process are available in the *Service Standards and Performance Measures*.

Staff develops the proposals for major service additions and changes in the SIP following a comprehensive review of the service performance, and coordination with other Sound Transit departments and partner transit agencies.

Figure 3 Service Standards and Performance Measures 2014



Public Outreach

Upon the public release of the Draft SIP, Sound Transit begins the public outreach process. A key element of the SIP outreach is the *Regional Transit News* (RTN), a newsletter that describes the proposed service changes and the anticipated impacts to various communities and rider groups. Sound Transit distributes the RTN to customers at key locations where the proposed changes are likely to have the greatest impact. The agency also stocks the RTN at public locations including transit centers. In addition, the RTN is posted on Sound Transit's website and a link to the on-line content is emailed to passengers who subscribe to Sound Transit service planning news, a general agency mailing list and regional Commute Trip Reduction groups. Besides explanations and maps of proposed service changes, the RTN also announces open house-style public meetings in the areas most directly affected by the proposed service changes. Members of the public are invited to comment through email or letter, via telephone, or at an open house. A special email address used only for SIP Comments (fastride@soundtransit.org) is actively monitored during the public input phase of the SIP process so comments can be tracked and support/opposition measured.

Board of Directors Process

Sound Transit's Board of Directors is involved throughout the SIP process. During the proposal development phase, Sound Transit staff briefs Board members of changes proposed in their respective jurisdictions. Staff also keeps the Board apprised of comments received throughout the public outreach phase. Staff formally presents the Draft SIP to the Operations and Administration Committee of the Board of Directors and a public hearing is held the month prior to the Board's vote on the final SIP. The Board votes not only on a "decision package" of specific changes to be implemented in the following year, but also on the financial and ridership projections to be used for planning purposes over the subsequent five years.

Changes that are not defined as "major service changes" according to the Service Standards and Performance Measures can be made administratively, that is, without Board approval. For example, when schedules are adjusted to address overcrowding at the highest demand time, these changes are not part of a Board decision package and may not be included in the SIP. This allows Sound Transit staff to be responsive in addressing service issues as they arise.

Implementing the SIP

The SIP is implemented through the thrice-yearly service change process. These times correspond to the service change dates when transit operators change work assignments. Staff prepares detailed instructions for the operating partners as well as internal staff responsible for carrying out rider communications (e.g., rider alert messages, schedule publication) and small capital tasks (e.g., changes to signage) associated with the service changes. One to two weeks prior to a major service change, staff generally "street-team" on-location to notify customers face-to-face about upcoming changes. Immediately after service changes are implemented, staff works closely with the operating partners to resolve any unanticipated operational issues. In addition, street teams continue into the first week of the service change to assist customers in locating their service.

Quick Guide to the 2015 SIP

The 2015 SIP includes a detailed performance analysis of each bus and rail route, along with performance objectives for the coming year and an updated 5-year ridership forecast. Ridership and operating data for the last full calendar year (2013) is used in the analysis to eliminate the effect of seasonal variations.

Only one major service change is proposed for 2015, a new ST Express bus route connecting Lakewood with Puyallup Station. The new Route 580 would operate during weekday peak periods only, making timed connections with Sounder trains at Puyallup. A full description this proposed new service begins is included in Chapter 2. Chapter 3 includes a Title VI evaluation of the proposed Route 580.

Chapter 4 includes a look into preliminary plans for Sound Transit service between 2016 and 2020. During this period, Link light rail extensions will be under construction in three regional corridors, and three additional Sounder round trips will be implemented on the South Line. Construction impacts of the Link extensions on current bus service will be discussed in this section.

Chapter 5 includes ridership forecasts through 2020, both system-wide and by mode, together with projected fare revenue and operations costs. The appendices provide information on Sound Transit operations, including platform hours and miles, fleet plans, passenger boarding data, and detailed information on the performance of each Sound Transit route.

CHAPTER TWO: SERVICE ANALYSIS

Introduction

Chapter 2 provides an assessment of service performance both at the system level and in detail for each rail and bus line. Results from the analysis specified in the *Service Standards and Performance Measures* are also included. The analysis discusses trends in performance, results of service restructures, and highlights specific areas of focus for planning staff in the upcoming year. Chapter 2 is organized by mode, starting with commuter rail and followed by light rail and bus.

Service Description

Sound Transit currently operates two light rail lines, two commuter rail lines, and 26 express bus routes. The First Hill Streetcar, a ST2-funded project scheduled to open in 2015, will be operated by King County Metro for the City of Seattle as part of the Seattle Streetcar network. Table 1 displays Sound Transit's current service network and provides basic operating information about each Sound Transit line and route, including days of operation, span of service (start and end time), frequency, service start date, and the date of the most recent major service change.

System Performance

The number of customers boarding Sound Transit trains and buses increased steadily during 2013 and the first half of 2014. Over 30 million boardings took place in 2013, an increase of 8 percent over 2012. During the first half of 2014, total Sound Transit ridership was up almost 9 percent compared with the same period in 2013.

Table 2 shows various 2013 performance metrics for each Sound Transit bus route and rail line, including boardings, platform hours and miles, operating costs, and the four key performance metrics that the agency uses to evaluate its services: boardings per platform hour, boardings per trip, subsidy per boarding, and passenger miles per platform vehicle mile. These metrics are explained in greater detail in Sound Transit's *Service Standards and Performance Measures*, and each term is also defined in the glossary at the end of this document.

Following the system-level operating and performance information, each route and line of Sound Transit service is described in greater detail.

Draft 2015 Service Implementation Plan

Table 1 - Existing System Service Levels

Route/Line	Start Date	Days Operated	Weekday Span	Weekday Frequency (minutes)	Saturday Span	Saturday Frequency (minutes)	Sunday Span	Sunday Frequency (minutes)	Last Major Change Date
Link Light Rail									
Tacoma Link	2003	M-F, Sa, Su	5:00 am - 10:12 pm	12-24	7:48 am - 10:12 pm	12	9:48 am - 6:00 pm	24	Sep-11
Central Link	2009	M-F, Sa, Su	4:23 am - 1:15 am	7.5-15	4:21 am - 1:15 am	10-15	5:33 am - 12:15 am	10-15	Dec-09
Sounder Commuter Rail									
Sounder North Line	2003	M-F	5:45 am - 6:34 pm ¹	30	-	-	-	-	Sep-08
Sounder South Line	2000	M-F	4:41 am - 7:25 pm ¹	20-35	-	-	-	-	Sep-13
ST Express									
510 Everett-Seattle	1999	M-F	4:11 am - 7:51 pm ¹	10-20	-	-	-	-	Sep-13
511 Lynnwood-Seattle	1999	M-F	4:21 am - 7:47 pm ¹	15-20	-	-	-	-	Sep-13
512 Everett-Seattle	2011	M-F, Sa, Su	5:23 am - 1:13 am	10-30	5:30 am - 1:05 am	15-30	5:30 am - 1:05 am	30	Sep-13
513 Evergreen-Seattle	1999	M-F	5:03 am - 7:19 pm ¹	15-40	-	-	-	-	Sep-13
522 Woodinville-Seattle	2002	M-F, Sa, Su	4:45 am - 12:31 am	10-60	5:39 am - 12:26 am	30-60	5:39 am - 12:26 am	30-60	Oct-11
532 Everett-Bellevue	1999	M-F	4:30 am - 7:42 pm ¹	10-30	-	-	-	-	Mar-11
535 Lynnwood-Bellevue	1999	M-F, Sa	4:48 am - 11:02 pm	30-60	7:18 am - 11:01 pm	60	-	-	Jun-11
540 Kirkland-U. District	2000	M-F	6:11 am - 7:16 pm ¹	22-30	-	-	-	-	Sep-13
542 Redmond-U. District	2010	M-F	5:25 am - 7:23 pm ¹	15	-	-	-	-	-
545 Redmond-Seattle	2000	M-F, Sa, Su	5:04 am - 12:36 am	5-60	6:19 am - 12:01 am	30-60	6:19 am - 12:01 am	30-60	Feb-08
550 Bellevue-Seattle	1999	M-F, Sa, Su	5:00 am - 12:50 am	5-30	6:09 am - 12:50 am	15-30	6:09 am - 12:50 am	30	Sep-13
554 Issaquah-Seattle	2001	M-F, Sa, Su	4:27 am - 12:46 am	20-60	6:25 am - 12:07 am	30-60	6:25 am - 12:07 am	30-60	Jun-11
555 Northgate-Issaquah	2001	M-F	5:44 am - 7:12 pm ¹	23-50	-	-	-	-	Jun-09
556 Issaquah-Northgate	2005	M-F	5:18 am - 7:12 pm ¹	23-30	-	-	-	-	Jun-09
560 W Seattle-Bellevue	2003 ²	M-F, Sa, Su	4:34 am - 11:52 pm	30-60	5:25 am - 11:51 pm	60	5:25 am - 11:51 pm	60	Jun-13
566 Auburn-Overlake	2010 ²	M-F	4:45 am - 11:09 pm	12-60	-	-	-	-	Jun-13
567 Kent-Overlake	2013	M-F	5:32 am - 6:23 pm ¹	20-35	-	-	-	-	Sep-13
574 Lakewood-SeaTac	1999	M-F, Sa, Su	2:15 am - 12:38 am	15-60	2:15 am - 12:37 am	30-60	2:15 am - 12:37 am	30-60	Feb-10
577 Federal Way-Seattle	2006	M-F, Sa, Su	5:00 am - 6:37 pm ¹	12-40	6:15 am - 10:20 pm	60	6:15 am - 8:20 pm	60	Feb-10
578 Puyallup-Seattle	2009	M-F, Sa, Su	5:00 am - 12:16 am	30-120	6:01 am - 11:29 pm	60	6:01 am - 11:29 pm	60	Jun-12
586 Tacoma-U. District	2002	M-F	5:44 am - 7:14 pm ¹	15-60	-	-	-	-	Sep-12
590 Tacoma-Seattle	1999	M-F	4:10 am - 7:46 pm ¹	5-30	-	-	-	-	Sep-12
592 DuPont-Seattle	1999	M-F	4:05 am - 8:14 pm ¹	15	-	-	-	-	Sep-13
594 Lakewood-Seattle	1999	M-F, Sa, Su	6:45 am - 12:56 am	15-30	5:00 am - 1:08 am	30-60	5:00 am - 1:08 am	30-60	Sep-08
595 Gig Harbor-Seattle	1999	M-F	4:50 am - 6:52 pm ¹	22-35	-	-	-	-	-
596 Bonney Lake-Sumner	2012	M-F	4:55 am - 7:09 pm ¹	20-35	-	-	-	-	Sep-13

¹ Service operates during a.m. and p.m. peak periods only (no midday service).

² Predecessor route(s) may have started earlier; year of start is given for route in current or near current configuration.

Table 2 - Key System Performance Metrics (2013)

Route/Line	Total Boardings	Annual Platform Hours	Annual Coach/ Train Platform Miles	O&M Cost (\$)	Boardings per Revenue Hour	Boardings per Trip	Subsidy per Boarding
Link Light Rail							
Central Link	9,681,432	75,578 ¹	1,302,523	\$ 53,867,385	135.34	107.73	\$ 4.03
Tacoma Link	1,000,316	9,969 ¹	76,278	\$ 3,987,194	101.71	20.34	\$ 3.99
Sounder							
North Line	308,136	2,688 ¹	69,115	\$ 10,429,329	111.63	156.73	\$ 17.17
South Line	2,726,717	6,776 ¹	213,121	\$ 26,554,108	445.05	577.08	\$ 6.65
Total Sounder	3,034,853	9,464¹	282,236	\$ 36,983,437	341.49	453.57	\$ 7.71
ST Express Bus							
510 Everett-Seattle	777,318	37,215	912,924	\$ 4,882,546	33.05	35.48	\$ 3.49
511 Lynnwood-Seattle	1,026,131	38,224	828,515	\$ 5,016,602	45.01	35.58	\$ 2.19
512 Everett-Seattle	383,514	19,634	483,815	\$ 2,575,857	28.31	30.24	\$ 4.19
513 Evergreen-Seattle	111,351	6,884	186,250	\$ 909,204	30.17	32.68	\$ 5.14
522 Woodinville-Seattle	1,399,410	52,797	904,169	\$ 8,400,038	30.55	43.47	\$ 4.41
532 Everett-Bellevue	469,990	17,898	464,327	\$ 2,354,632	44.49	44.86	\$ 2.45
535 Lynnwood-Bellevue	457,738	23,295	500,804	\$ 3,060,704	29.28	25.13	\$ 4.37
540 Kirkland-U. District	144,626	9,985	159,251	\$ 1,588,620	18.34	14.09	\$ 9.23
542 Redmond-U. District	386,885	18,933	316,535	\$ 3,012,253	26.38	25.41	\$ 5.94
545 Redmond-Seattle	2,417,557	70,389	1,173,869	\$ 11,198,937	38.88	48.73	\$ 2.92
550 Bellevue-Seattle	2,713,527	53,680	801,328	\$ 13,917,158	57.17	49.55	\$ 3.50
554 Issaquah-Seattle	1,003,454	33,606	638,332	\$ 5,346,737	31.91	36.83	\$ 3.71
555 Northgate-Issaquah	148,394	5,893	121,099	\$ 937,580	30.26	44.94	\$ 4.44
556 Issaquah-Northgate	213,950	8,462	175,835	\$ 1,346,310	34.40	49.98	\$ 4.52
560 W Seattle-Bellevue ²	385,791	26,427	479,243	\$ 4,211,077	15.86	24.66	\$ 9.42
560 Westwood Village -Bellevue ²	138,940	9,728	247,593	\$ 1,046,767	17.64	26.23	\$ 6.05
566 Auburn-Overlake	522,902	32,933	884,057	\$ 4,066,873	23.11	30.66	\$ 6.08
567 Kent-Overlake	72,552	5,124	181,325	\$ 630,032	34.29	34.29	\$ 7.00
574 Lakewood-SeaTac	751,549	43,833	1,010,501	\$ 5,984,427	19.80	28.49	\$ 5.90
577 Federal Way-Seattle	447,451	16,453	506,725	\$ 2,024,420	43.78	35.68	\$ 2.56
578 Puyallup-Seattle	542,830	29,290	746,422	\$ 4,002,516	19.86	33.55	\$ 5.72
586 Tacoma-U. District	148,298	10,534	360,792	\$ 1,437,451	30.40	32.97	\$ 7.14
590 Tacoma-Seattle	767,678	50,758	1,363,583	\$ 6,950,175	22.59	31.04	\$ 6.46
592 DuPont-Seattle	241,487	22,507	681,335	\$ 3,086,908	15.61	26.86	\$ 10.27
594 Lakewood-Seattle	717,147	48,565	1,113,559	\$ 6,329,824	16.74	31.36	\$ 6.66
595 Gig Harbor-Seattle	102,954	7,661	219,616	\$ 699,105	21.78	40.37	\$ 4.05
596 Bonney Lake-Sumner	91,321	2,852	69,869	\$ 350,468	58.65	24.68	\$ 2.29
Total ST Express	16,605,299	705,028	15,546,478	\$ 105,367,222	30.37	36.41	\$ 4.38
Paratransit	61,692	27,006	443,690	\$ 1,566,770	2.28	1.52	\$ 25.40
Sound Transit Total	30,383,593	827,046	17,651,205	\$ 201,772,008	45.75	47.30	\$ 4.77

¹ Train Platform Hours. ²Route 560 operated by KCM until September 2013, operation switched to PT in September 2013.

Sounder Commuter Rail

Description – Sounder North Line

The Sounder North Line began operation in December 2003 with one peak period round trip operating along Burlington Northern Santa Fe (BNSF) Railway tracks between Everett and Seattle with an intermediate stop in Edmonds. Mukilteo Station opened in 2008, and additional round trips were implemented in 2005, 2007, and 2008, bringing North Line commuter service to its maximum level of four round trips under Sound Transit’s operating agreement with BNSF Railway. In September 2013, two of the four trainsets used on the line were converted from three cars to two cars, since two cars provide ample capacity for the current ridership. No changes were made to service levels. The two Sounder cars made available from this change were shifted to the South Line.

Performance Assessment – Sounder North Line

Sounder North connects Everett to Seattle via the BNSF mainline along the Puget Sound. The train also stops at Edmonds and Mukilteo. The only service change in 2013 was removing 1 rail car from trains 1700, 1702, 1705, and 1707.

- There are about half dozen days when ridership dropped under 800 riders per weekday. The largest drops in ridership occur on minor holidays and the last week of the year.
- Other than the last two weeks of the year, ridership increases slightly during the fall and early winter, when Sounder North carries about 150 more passengers a day on average.
- The busiest trains throughout the day are trains 1707, which departs at 7:15 AM from Everett with about 180 passengers and Train 1704, which departs Seattle at 5:05 PM.
- Ridership on Fridays averages approximately 240 less passengers than an average Wednesday.
- Sunday Mariners ridership averaged around 930 a game.
- Sunday Seahawks ridership averaged around 2,800 on any given Sunday.

Figure 5 - Sounder North Line Average Daily Ridership (Weekdays)

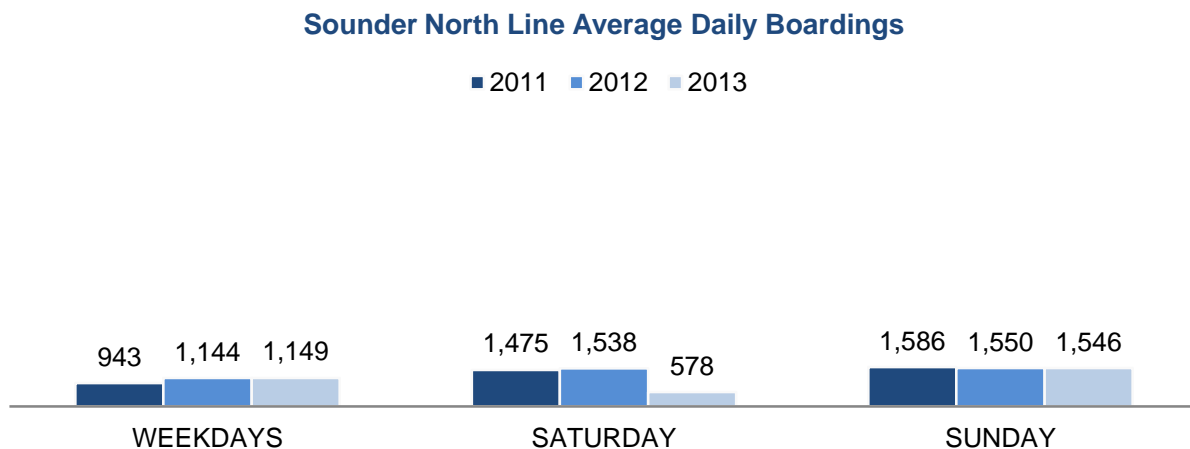
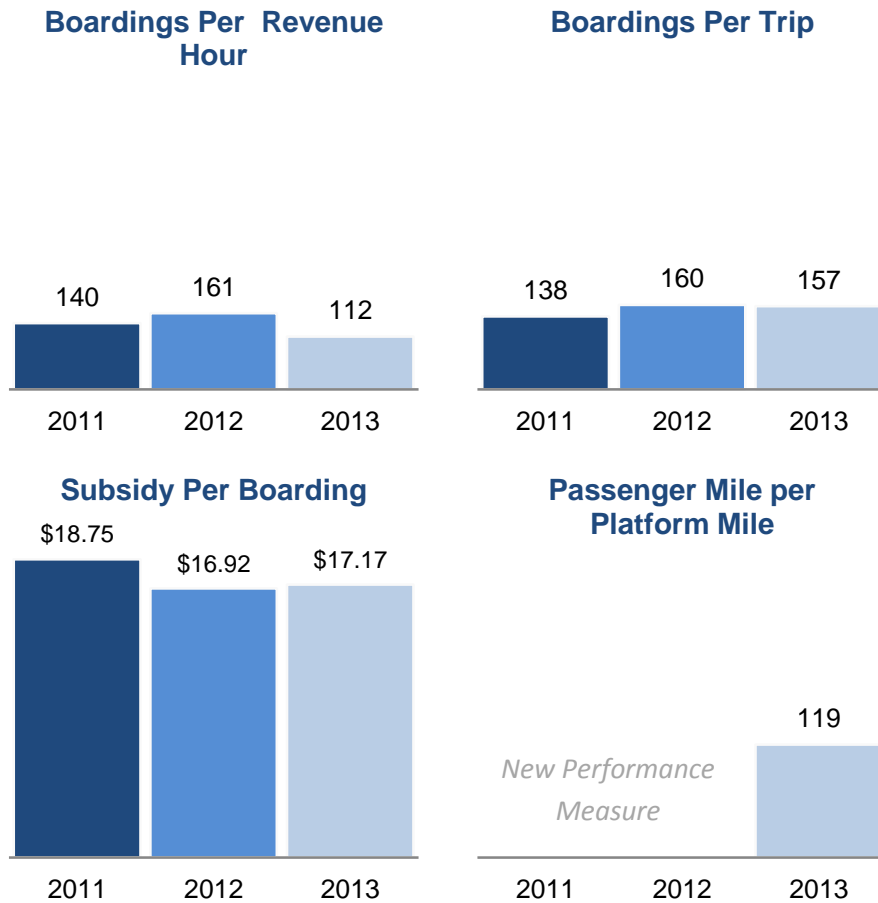


Figure 6 - Sounder North Line Performance Measures



Description – Sounder South Line

The Sounder South Line began operation in September 2000 with two peak period round trips operating northbound in the morning to Seattle and southbound in the afternoon to Tacoma. Starting in 2000, Sound Transit worked closely with BNSF to gradually ramp up service levels as Sound Transit-funded track and signal improvements were constructed along the line. With the start-up of the ninth South Line round trip in June 2009, Sound Transit completed implementation of the full service levels called for in the 1996 Sound Move Plan.

In October 2012, Sound Transit completed the long-planned extension of the South Line to South Tacoma and Lakewood. Four round trips continued to start and end at Tacoma Dome Station due to fleet and track limitations. In September 2013, Sound Transit added a tenth round trip serving the entire length of the line. The addition of this round trip was made possible by shifting Sounder cars from the North Line. With this change, trains operate every 20 minutes during the peak one hour of the morning and afternoon when demand is heaviest.

Trains use BNSF Railway and Tacoma Rail tracks between Tacoma Dome Station and Seattle, and Sound Transit-owned tracks between Tacoma Dome Station and Lakewood Station. There are intermediate station stops at South Tacoma, Tacoma Dome Station, Puyallup, Sumner, Auburn, Kent and Tukwila.

Performance Assessment – Sounder South Line

The Sounder South line connects Lakewood to Seattle via the BNSF mainline and the cities of Tacoma, Puyallup, Sumner, Auburn, Kent, and Tukwila. The line had one additional round trip added in September 2013.

- The busiest weekday trains throughout the year are trains 1506 from Lakewood to Seattle (6:11am Jan-Sep, 6:06am Oct-Dec) with 930 passengers on average, and Train 1509 from Seattle to Lakewood (4:20pm Jan-Sep, 4:12pm Oct-Dec) carries about 1,000 passengers on average.
- Ridership on Fridays is about 1,880 less passengers than a typical Wednesday.
- Ridership dips by about 1,500 passengers a day during late June to August.
- Peak ridership months are during the fall, with about 1,000 more passengers a day over the annual average.
- Minor holidays and the days before and after also have drops in ridership that are equivalent to about half a typical day’s ridership.
- Sunday Mariners ridership averaged around 980 per game.
- Sunday Seahawks ridership averaged around 6,400 on any given Sunday

Figure 7 - Sounder South Line Average Daily Boardings (Weekday)

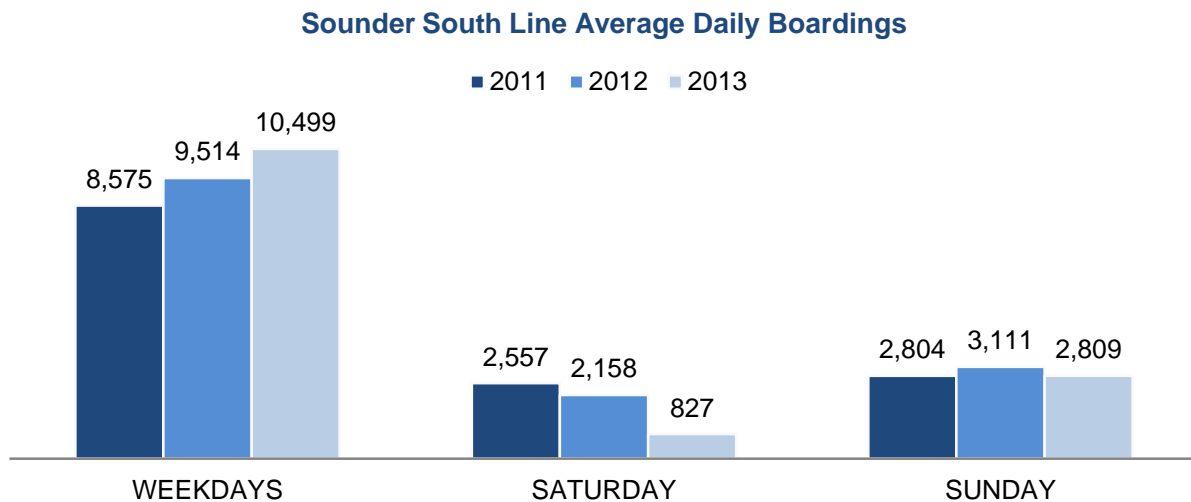


Figure 8 - Sounder South Line Performance Measures

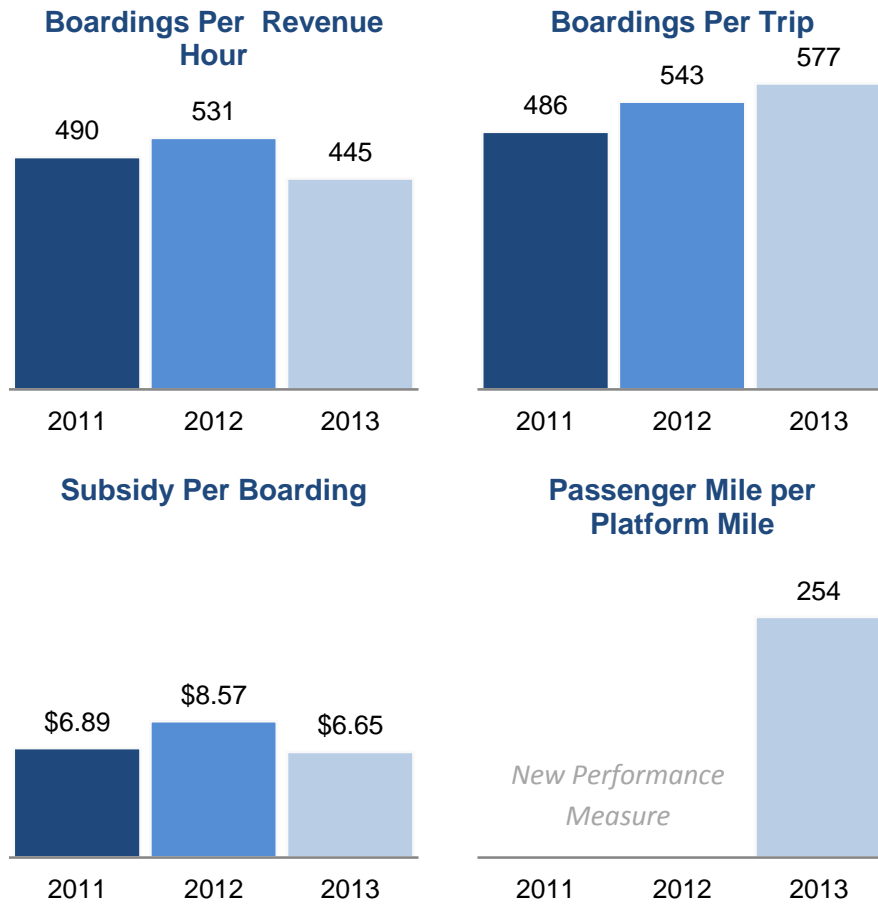


Table 3 - Sounder Peer Review (2012 National Transit Database Data)

Performance Indicator	Sounder System (WA)	Sounder North Line (WA)	Sounder South Line (WA)	Virginia Railway Express (VA)	Tri-Rail (FL)	North Star (MN)	Coaster (CA)
Passenger Miles per Platform Mile	41.0	N/A	N/A	63.6	37.7	34.1	30.1
Passengers per Revenue Hour	73.1	160.6	530.7	72.5	41.2	49.4	46.5
Boardings per Trip	429.7	159.5	542.8	N/A	N/A	N/A	N/A
Subsidy per boarding (2012 NTD)	\$9.73	\$16.92	\$8.57	\$ 5.71	\$ 10.90	\$ 19.78	\$ 6.56

Tacoma Link

Description

Tacoma Link, opened in 2003, is a 1.6-mile light rail line connecting the Tacoma Dome and the Theater District in downtown Tacoma. There are four intermediate stations at S. 25th Street, Union Station, Convention Center and Commerce Street. A maximum of two light rail cars are usually scheduled, with a third car available as a spare. The Tacoma Link alignment is approximately half double-track and half single-track. The scheduled end-to-end running time is approximately 10 minutes each way and is synchronized with the City of Tacoma’s traffic signal timing system. Service is currently provided free of charge.

Performance Assessment

Tacoma Link connects the Tacoma Dome to the Theater District within the city limits of Tacoma in Pierce County. No service changes occurred in 2013 besides a different schedule of events served by extra late night service.

- Weekday ridership drops by about 12% in the summer, possibly due to less student ridership when school is not in session.
- There are about 500 more riders on an average Wednesday that on an average Friday.
- Saturday is slightly higher in the summer, with peak ridership of over 3,500
- Sunday ridership is mostly flat throughout the year with little variation. However, on Martin Luther King Day in 2013, there were 1,400 passengers, or more than double the Sunday average. Only one train is pulled out in Sunday service and the span is also much shorter.

Figure 9 - Tacoma Link Average Daily Boardings (Weekday)

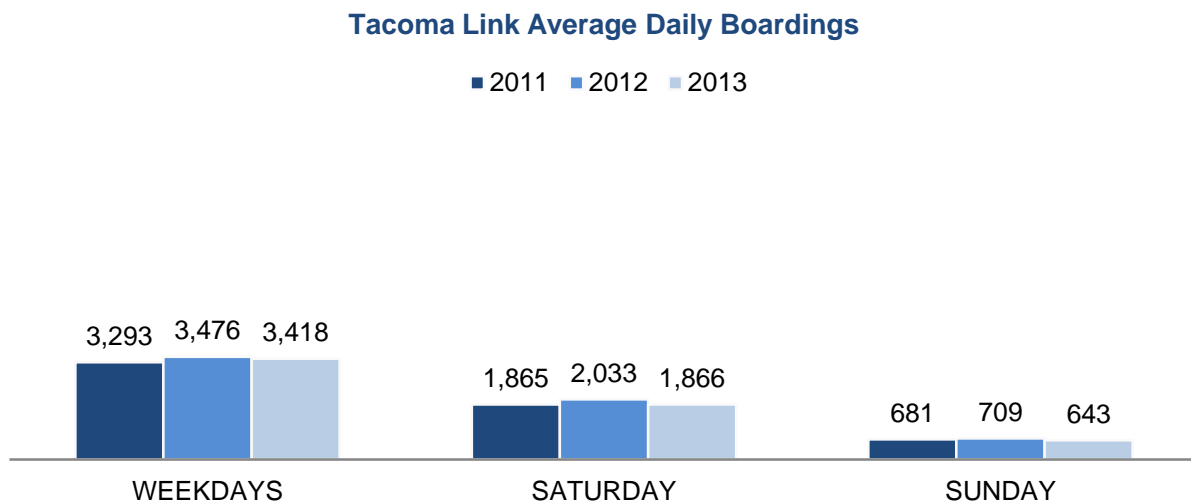


Figure 10 - Tacoma Link Performance Measures

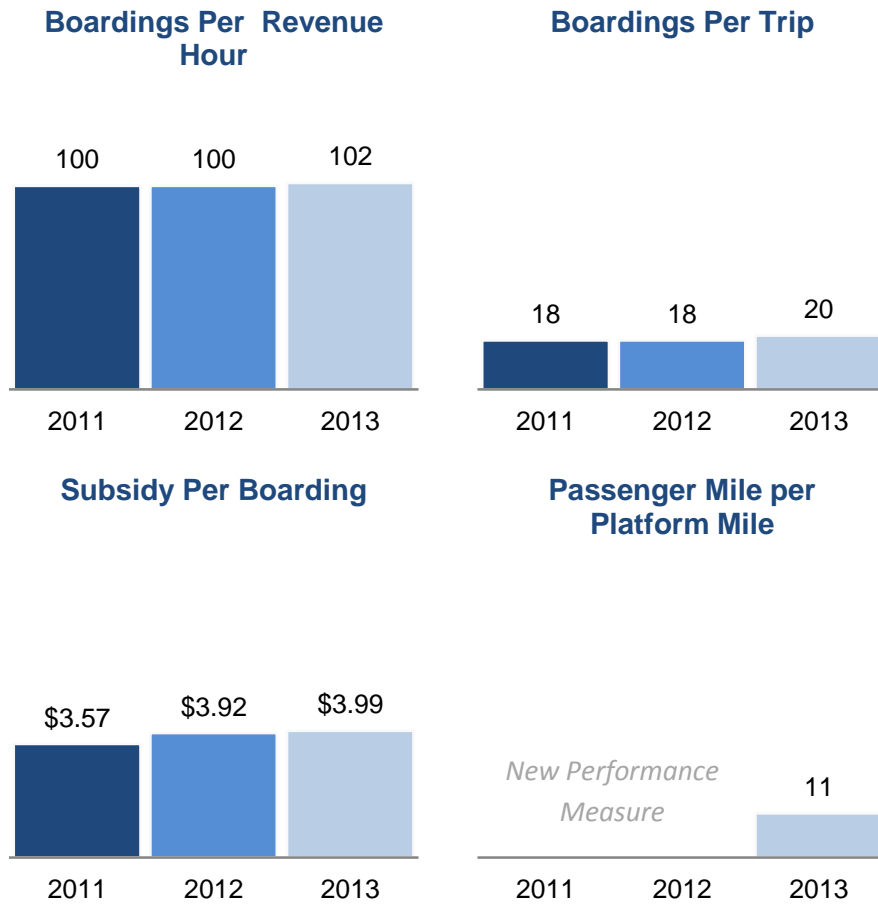


Table 4 - Tacoma Link Service Standards (2013)

Time Period	Boardings Per Revenue Hour	Boardings Per Trip	Passenger Miles Per Platform Mile	Subsidy per Boarding	Score	Rating
Weekday Peak	159.95	34.28	19.7	\$2.50	1	Above
Weekday Midday	115.32	23.06	12.9	\$3.47	1.8	At+
Weekday Early/Late	14.42	2.88	1.8	\$27.74	4	Below
Saturday/Sunday	68.06	13.65	8.45	\$3.23	2.5	At-
Holiday	43.27	17.31	9.61	\$3.36	1.5	At+
System Total	101.71	20.37	12.7	\$4.29		

Central Link Light Rail

Description

Central Link is a 15.6-mile light rail line comprising of the 13.9-mile Initial Segment between downtown Seattle and Tukwila, opened in July 2009, and Airport Link, a 1.7 mile extension opened in December 2009. Today there are 13 stations, 11 in the city of Seattle, one in Tukwila, and one in SeaTac. The University Link Extension, which will extend Central Link 3.15 miles north from downtown Seattle to Capitol Hill and the University of Washington, and the South 200th Link Extension, which will extend the line 1.6 miles south from SeaTac/Airport Station to the new Angle Lake Station in SeaTac, are the next segments scheduled to open in 2016. Future extensions of Link are discussed further in Chapter 4, Preliminary Service Plan 2016-2020.

Performance Assessment

Central Link connects Downtown Seattle with SeaTac Airport via the Beacon Hill, the Rainier valley, and Tukwila. There were no service changes in 2013 besides going to all two car train sets on weekends and evenings and a slight decrease in evening frequencies in the fall during a sound wall construction project that required single tracking in Tukwila.

- Ridership increases in the summer, especially on weekends. In July, ridership on Saturdays and Sundays was 139% and 130% of annual averages respectively.
- Saturday ridership eclipsed weekday ridership in June, by about 1,000 passengers a day.
- Sunday ridership eclipsed Saturday ridership in October to December, during the Seahawks football season.
- Friday has the highest weekday ridership of any weekday, carrying 2,400 riders more than an average Monday.
- On weekends, service before 8am and after 10pm comprises of 12% of the Saturday ridership and 9% of the Sunday ridership.

Figure 11 - Central Link Average Daily Boardings (Weekday)

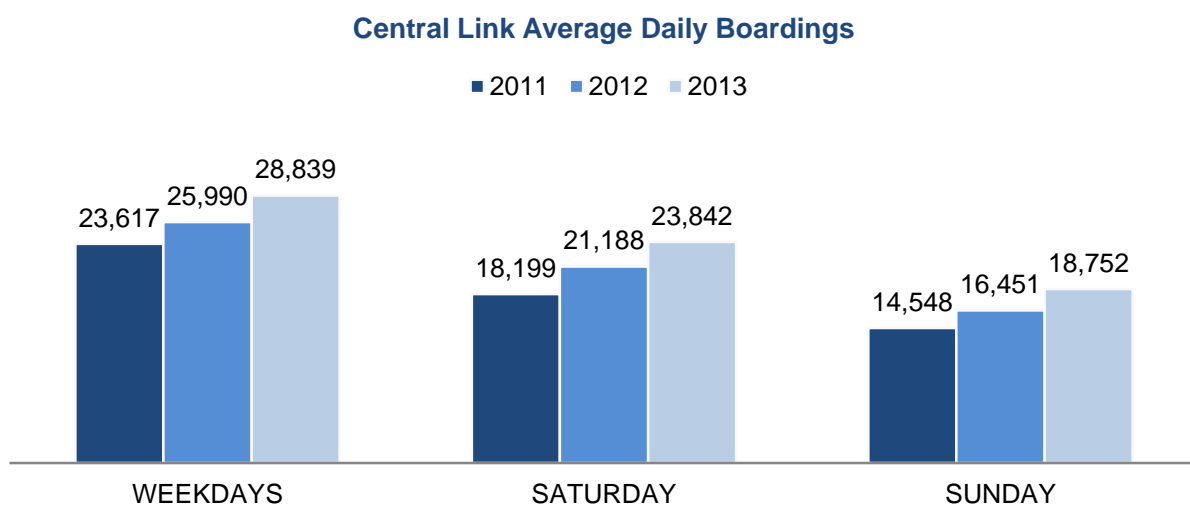


Figure 12 - Central Link Performance Measures

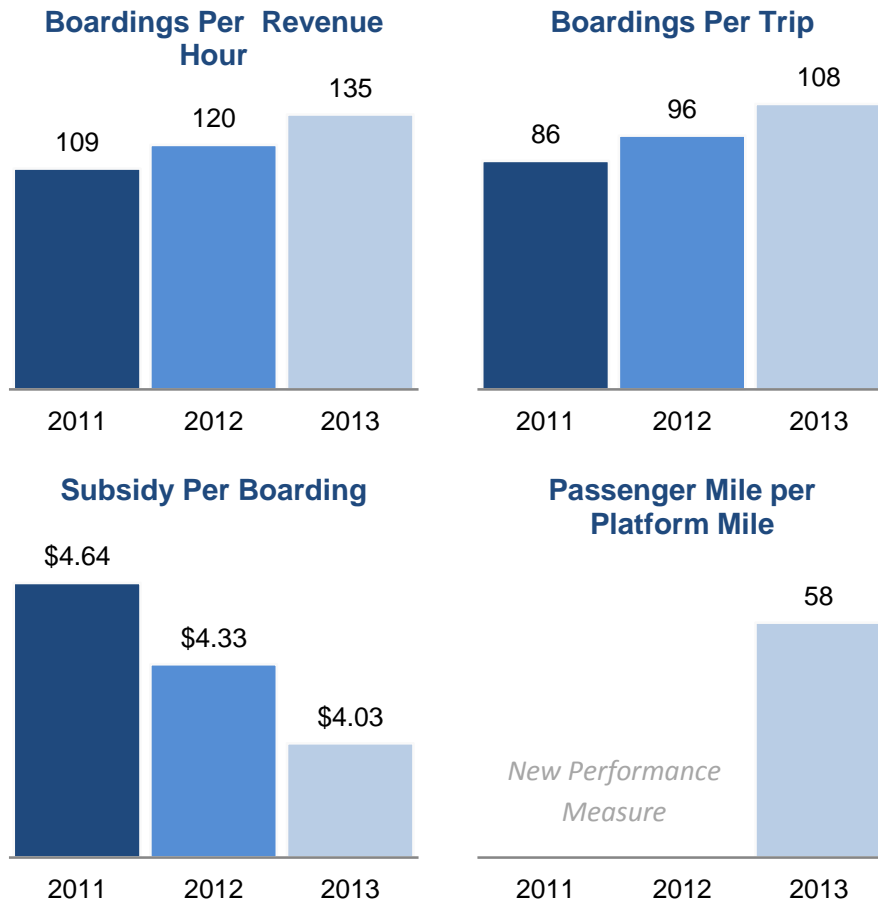


Table 5 - Central Link Peer Review (NTD 2012)

Performance Indicator	Seattle	Minneapolis	St. Louis	Portland	Denver	San Jose
Passenger Miles per Platform Mile	25.31	26.56	23.60	28.47	19.68	16.90
Boardings Per Railcar Revenue Hour	63.91	72.46	63.94	79.8	45.96	53.28
Boardings per Trip	95.78	N/A	N/A	N/A	N/A	N/A
Subsidy per Boarding	\$4.33	\$1.68	\$2.61	\$1.34	\$1.93	\$5.06

Note: Peer review will be updated with 2013 data when available from NTD

Table 6 - Central Link Service Standards (2013)

Central Link 2013 Annual Performance Indicators	YTD	Budget Targets
Total Annual Boardings	9,681,432	9,200,000
Average Weekday Boardings	29,360	N/A
Percentage of Scheduled Trips Operated	99.40%	≥98.5%
On-time Performance and Headway Performance	93.60%	≥90%
Customer Complaints per 100k Boardings	1.2	<15
Preventable Accidents per 100k Platform Miles	0.07	≤0.3

ST Express Overview

Description

Sound Transit's regional bus system, ST Express, served over 16.6 million passengers in 2013. ST Express regional bus service operates from 2:15 a.m. to 1 a.m. every day. ST Express routes range in service from weekday peak-direction only service, to frequent, all-day, bi-directional trips on both weekdays and weekends. At 2013's year end, ST Express has had more than 145 million boardings since service began in September, 1999.

As of the end of 2013, 26 ST Express regional bus routes were in operation. These routes are:

- 510: Everett – Seattle Express
- 511: Ash Way – Seattle Express
- 512: Everett/Lynnwood – Seattle Express
- 513: Evergreen Way/Eastmont – Seattle Express
- 522: Woodinville – Seattle Express
- 532: Everett – Bellevue Express
- 535: Lynnwood – Bellevue Express
- 540: Kirkland – U. District Express
- 542: Redmond – U. District Express
- 545: Redmond – Seattle Express
- 550: Bellevue – Seattle Express
- 554: Issaquah – Seattle Express
- 555: Issaquah – Northgate Express
- 556: Issaquah – U. District – Northgate Express
- 560: Bellevue – Sea-Tac – West Seattle Express
- 566: Auburn – Overlake Express
- 567: Kent – Overlake Express
- 574: Lakewood – Sea-Tac Airport Express
- 577: Federal Way – Seattle Express
- 578: Puyallup – Seattle Express
- 586: Tacoma – U. District Express
- 590: Tacoma – Seattle Express
- 592: Olympia/DuPont/Lakewood – Seattle Express
- 594: Tacoma/Lakewood – Seattle Express
- 595: Gig Harbor – Seattle Express
- 596: Bonney Lake – Sumner Express

Performance Assessment

Until the expanded light rail network begins to replace segments of ST Express routes, Sound Transit faces challenges in meeting the existing demand for bus service. ST Express bus ridership grew by 7.6 percent between 2012 and 2013, while service hours increased by less than 2 percent. Since the express bus network connects major employment centers throughout the region, ST Express is more commuter oriented than most transit systems. An expanding economy means increased commuter demand during peak time periods, particularly in those centers where employee parking is limited and expensive.

Beginning in fall 2014, meeting the demand for ST Express bus service will become even more of a challenge since funding shortfalls are forcing King County Metro to reduce service in three major travel corridors, SR-520, SR-522 and Interstate 90. Sound Transit shares responsibility with Metro for providing service in these corridors, and the reductions may shift more riders to ST Express.

In early 2014, the Sound Transit Board adopted updated *Service Standards and Performance Measures* that include new passenger load guidelines for ST Express. The guidelines recognize that standing passengers during peak hours are an ongoing reality, and lists priorities for corrective action based on the severity of overcrowding and the amount of time passengers have to stand. Sound Transit staff continually monitors service and uses several service management tools to reduce overcrowding,

including schedule adjustments to balance loads, assigning larger buses and adding extra bus trips if the budget allows.

In 2013, Sound Transit significantly restructured service on the I-5 and I-405 corridors. Routes 510-513 were modified so routes 510, 511 and 513 only operate during the peak period and peak direction on weekdays, and 512 became the all-day bi-directional service seven days a week. On the SR-167 and I-405 south corridor, Route 567 was added as a peak express overlay to the existing 566. Route 567 connects with the Sounder trains in Kent and runs to Overlake Transit Center in Redmond, bypassing Renton. Route 560 was truncated to Westwood Village due to low ridership and expansion of King County Metro service in the West Seattle segment. Westwood Village provides a connection to King County Metro's West Seattle network. Since the 2013 service changes occurred in June and September, the full impact of the changes are not reflected in the 2013 performance data.

The following four charts show four key performance indicators for each route, boardings per trip, boarding per revenue hour, subsidy per boarding, and passenger miles per platform mile.

Figure 13 - ST Express Boardings per Trip

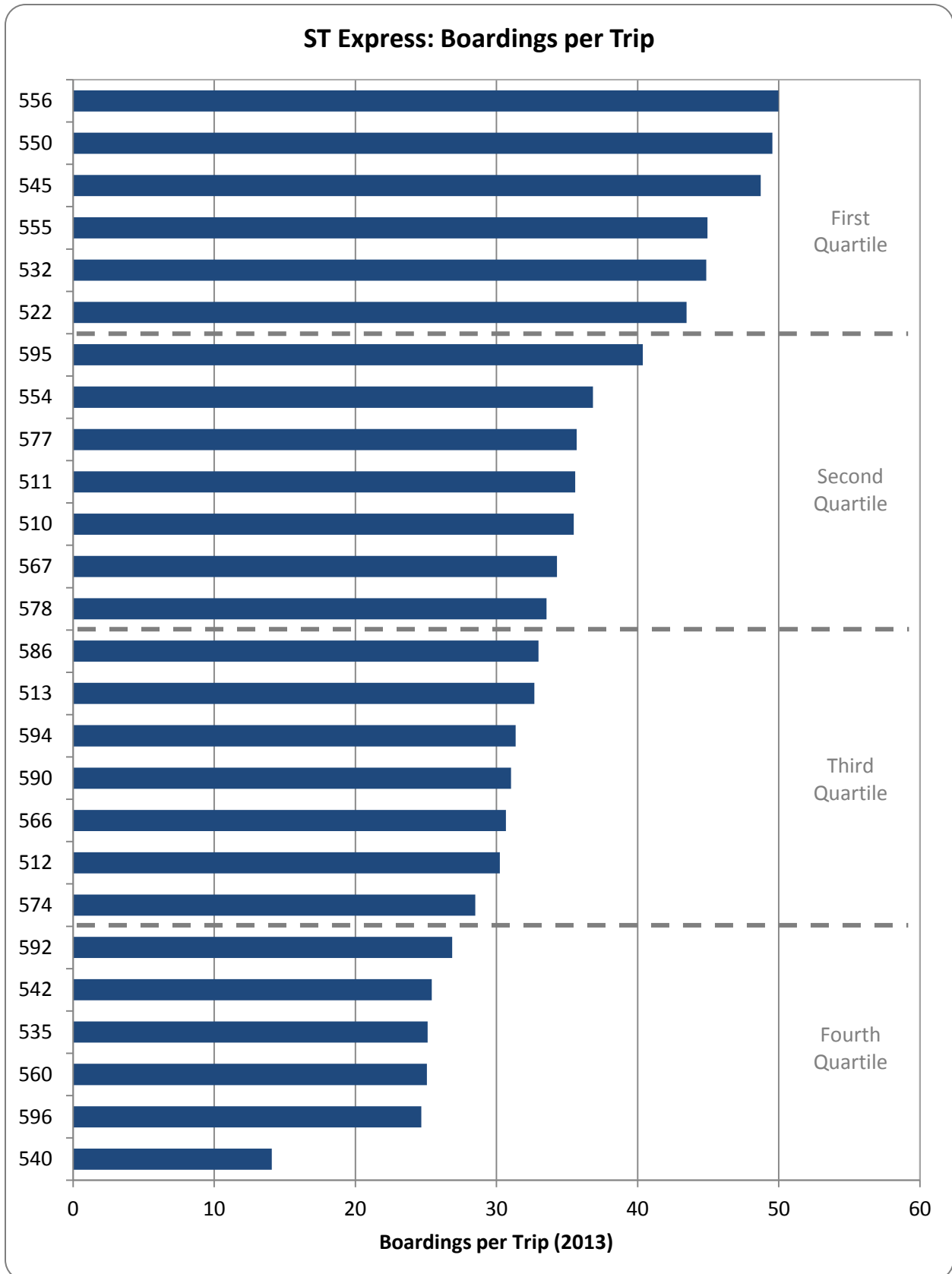


Figure 14 - ST Express Boarding per Revenue Hour

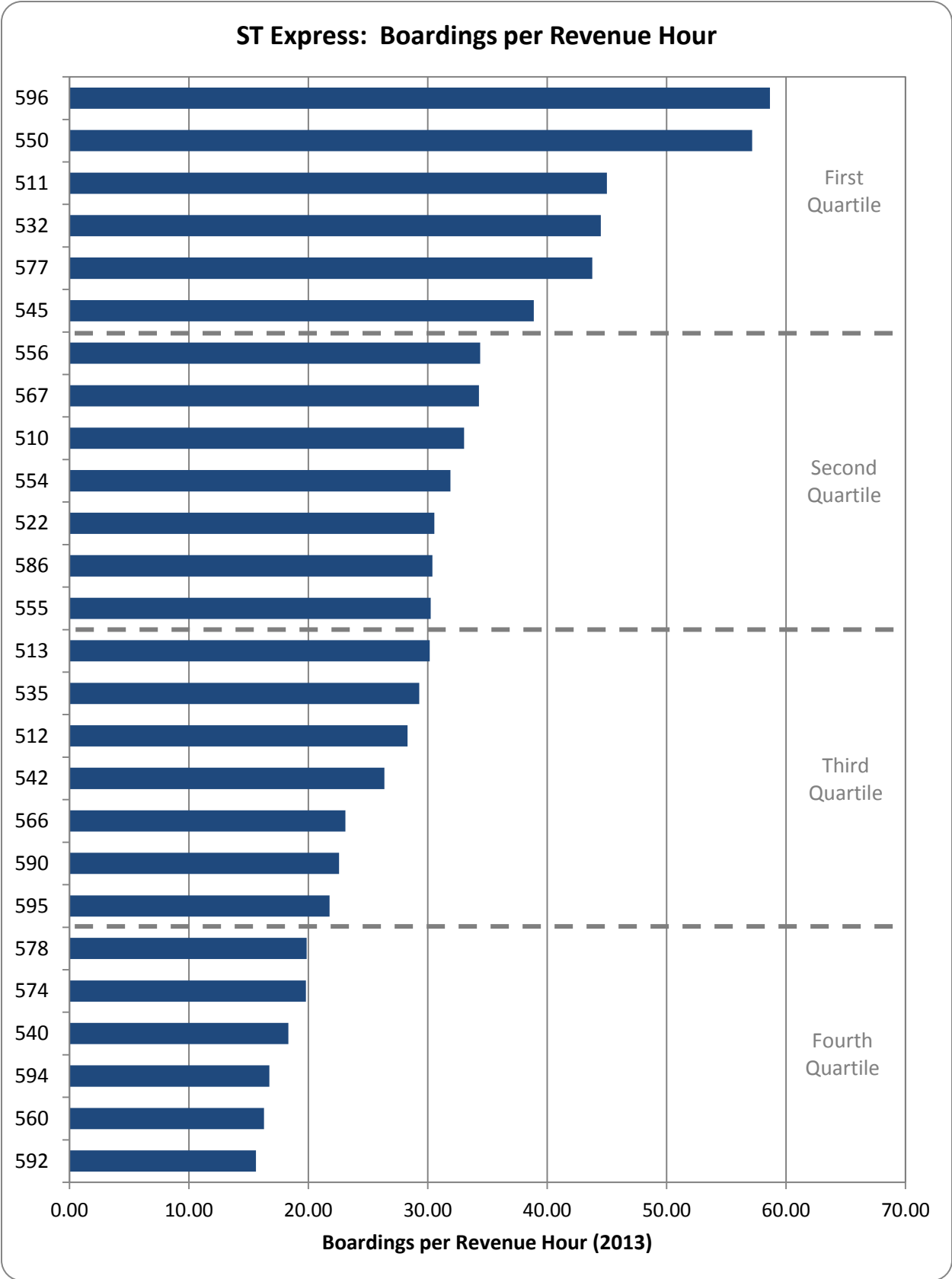


Figure 15 - ST Express Subsidy per Boarding

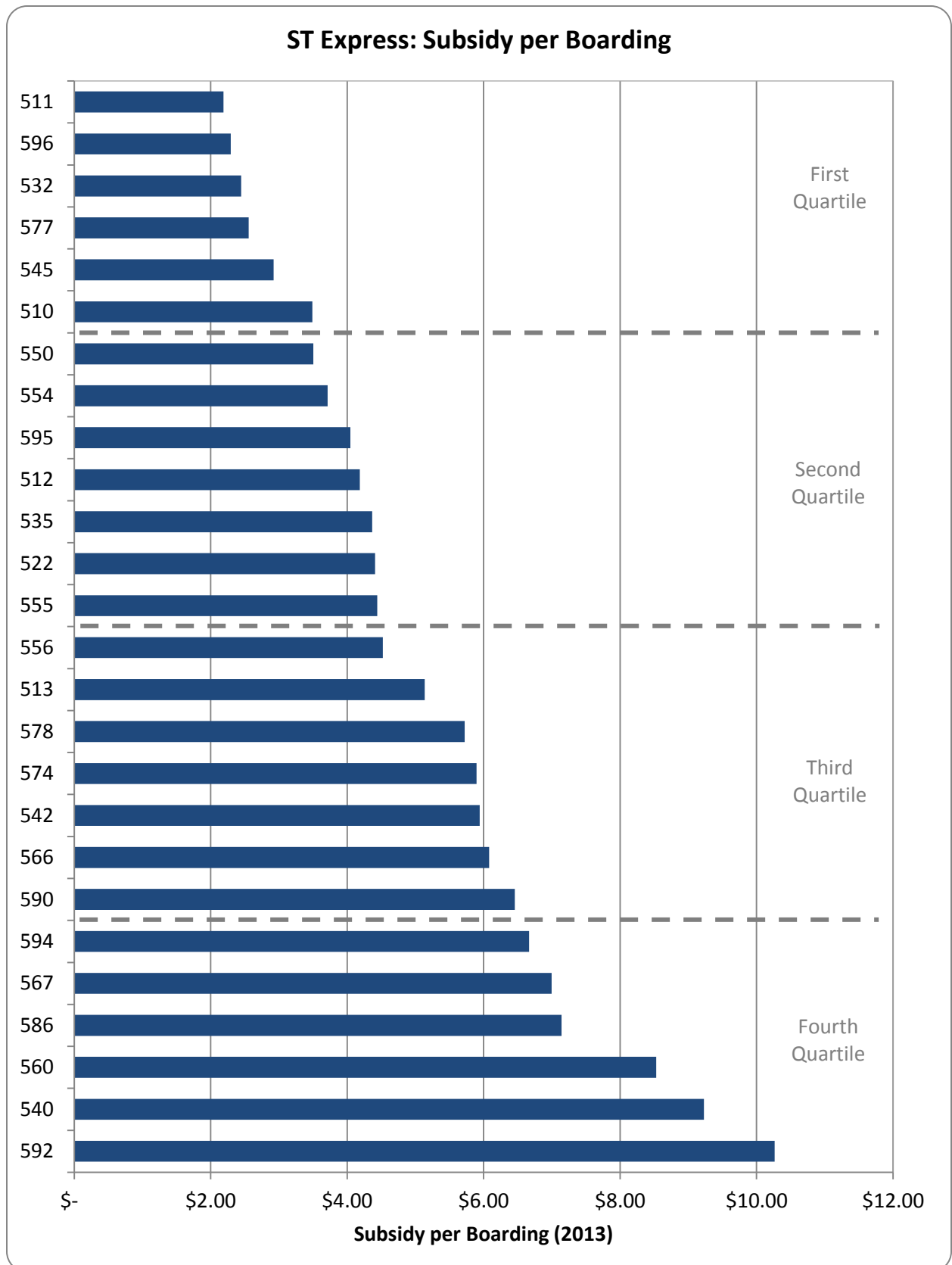


Figure 16 - ST Express Passenger Miles per Platform Mile

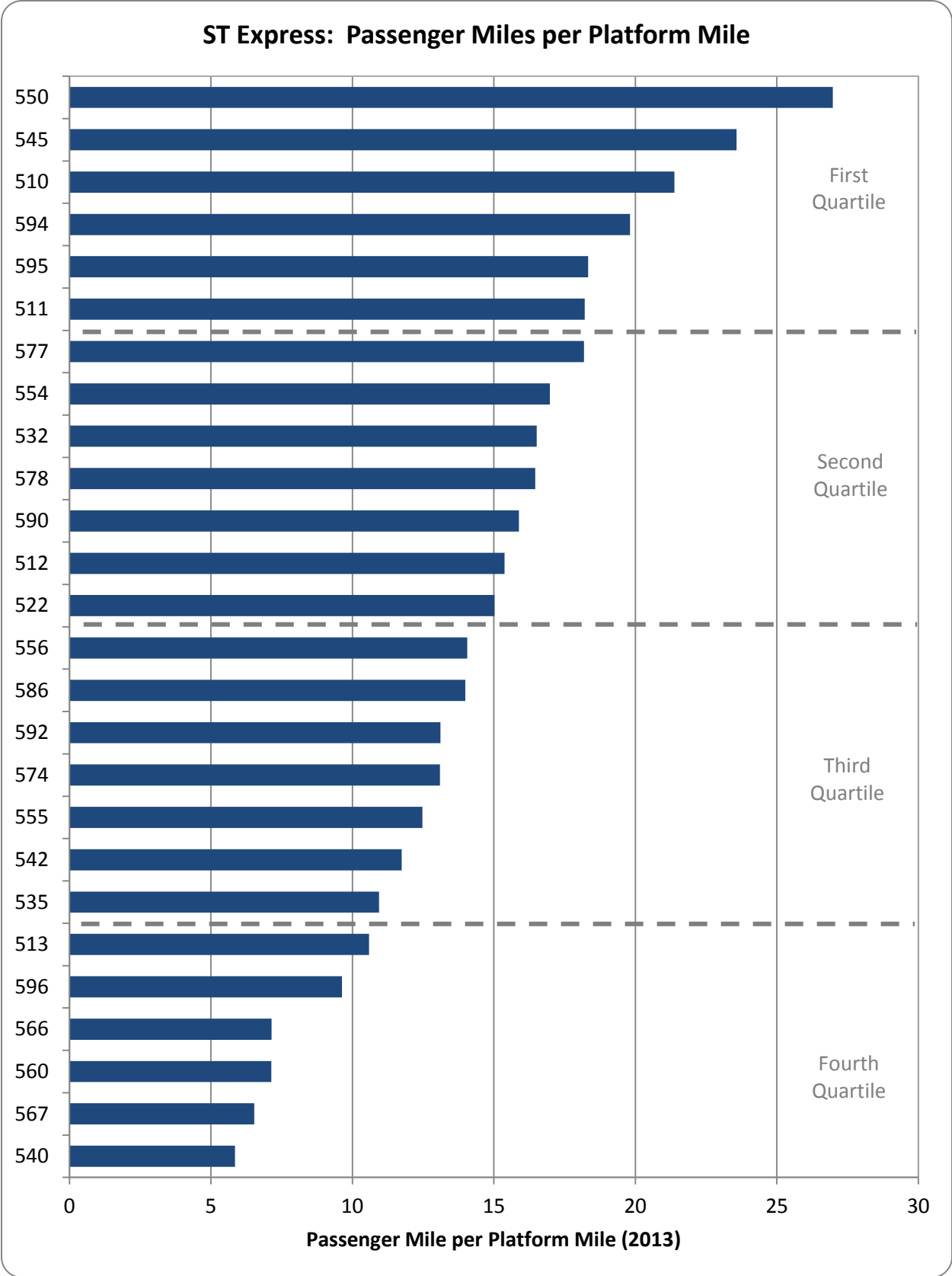


Table 7 - ST Express Performance Summary

	Route	Description	Passengers per Trip	Passengers per Revenue Hour	Subsidy per Boarding	Passenger Miles per Platform Mile
1st Quartile	550	Bellevue-Seattle	49.55	57.17	\$3.50	26.98
	545	Redmond-Seattle	48.73	38.88	\$2.92	23.57
	511	Lynnwood-Seattle	35.58	45.01	\$2.19	18.21
	532	Everett-Bellevue	44.86	44.49	\$2.45	16.51
	577	Federal Way-Seattle	35.68	43.78	\$2.56	18.19
	510	Everett-Seattle	35.48	33.05	\$3.49	21.38
2nd Quartile	554	Issaquah-Seattle	36.83	31.91	\$3.71	16.98
	556	Issaquah-Northgate	49.98	34.40	\$4.52	14.06
	595	Gig Harbor-Seattle	40.37	21.78	\$4.05	18.33
	522	Woodinville-Seattle	43.47	30.55	\$4.41	15.02
	555	Northgate-Issaquah	44.94	30.26	\$4.44	12.47
	596	Bonney Lake-Sumner	24.68	58.65	\$2.29	9.63
	512	Everett-Seattle	30.24	28.31	\$4.19	15.38
3rd Quartile	578	Puyallup-Seattle	33.55	19.86	\$5.72	16.47
	586	Tacoma-U. District	32.97	30.40	\$7.14	13.99
	513	Eastmont-Seattle	32.68	30.17	\$5.14	10.59
	594	Lakewood-Seattle	31.36	16.74	\$6.66	19.81
	567	Kent-Overlake	34.29	34.29	\$7.00	6.53
	590	Tacoma-Seattle	31.04	22.59	\$6.46	15.88
	535	Lynnwood-Bellevue	25.13	29.28	\$4.37	10.95
4th Quartile	542	Redmond-U. District	25.41	26.38	\$5.94	11.74
	574	Lakewood-SeaTac	28.49	19.80	\$5.90	13.09
	566	Auburn-Overlake	30.66	23.11	\$6.08	7.15
	592	Olympia-Lakewood-Seattle	26.86	15.61	\$10.27	13.11
	560	Westwood Village-Bellevue	25.06	16.30	\$8.53	7.13
	540	Kirkland-U. District	14.09	18.34	\$9.23	5.85

ST Express Route Level Performance Assessment

The following section provides an assessment of ST Express service performance by route during 2013 using the following key metrics:

- Average Daily Boardings
- Boardings per Revenue Hour
- Boardings per Trip
- Subsidy per Boarding
- Passenger Miles per Platform Mile

Route 510 Everett – Seattle

Route 510 underwent a major service change in September 2013 as part of a Snohomish County restructure. The new Route 510 is primarily a peak route that operates from Everett to Downtown Seattle when the I-5 express lanes are open. In addition to the new service span, Route 510 was truncated at Everett Station, with only a few early and late trips that continue on to the original terminus in Downtown Everett. The unique service characteristics for this route are as follows:

- Post September 2013, Route 510 has grown increasingly crowded due to all of the trips operated solely in the peak period.
- From January to September 2013 there were 39.7 riders a trip and after the route restructure in September there were 47.7.
- High-capacity double-deck buses have been ordered for 2015 delivery and will be assigned to Route 510.

Figure 17 - Route 510 Map

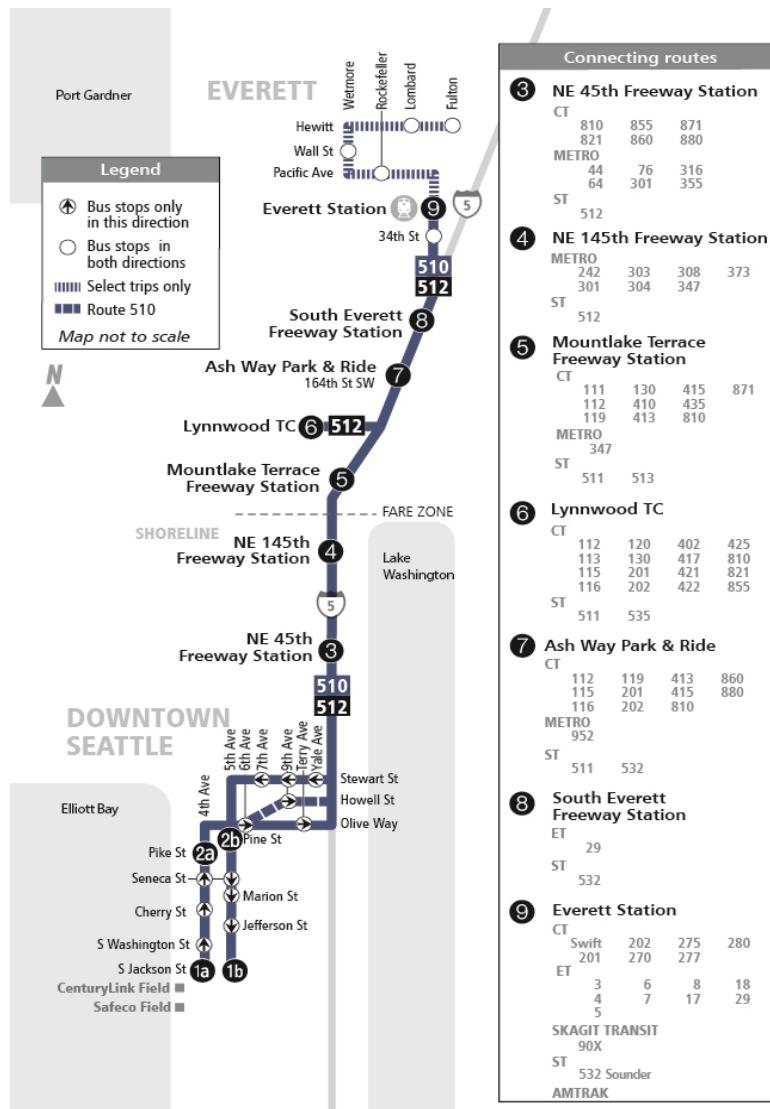


Figure 18 - Route 510 Average Daily Boardings (Weekday)

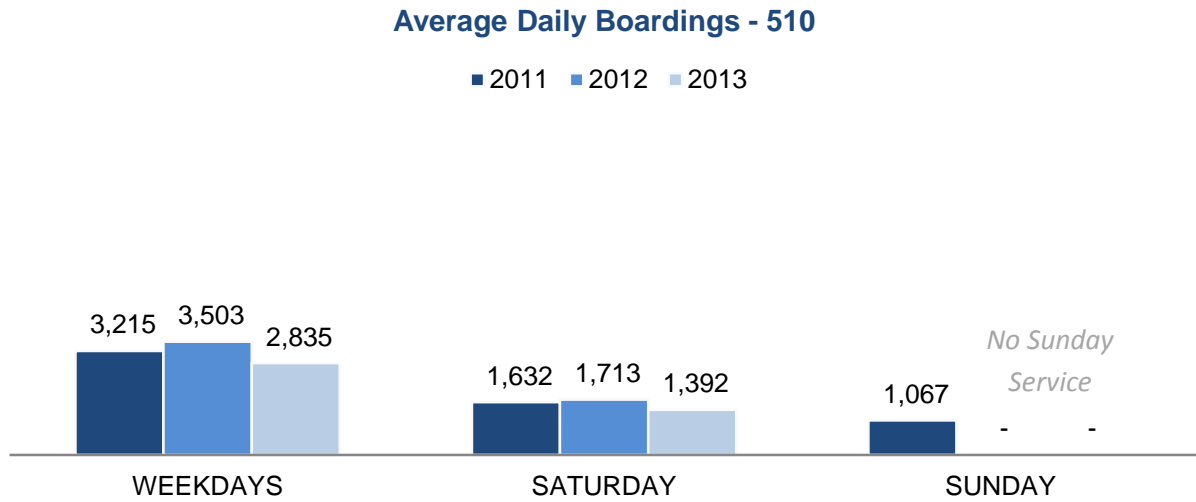
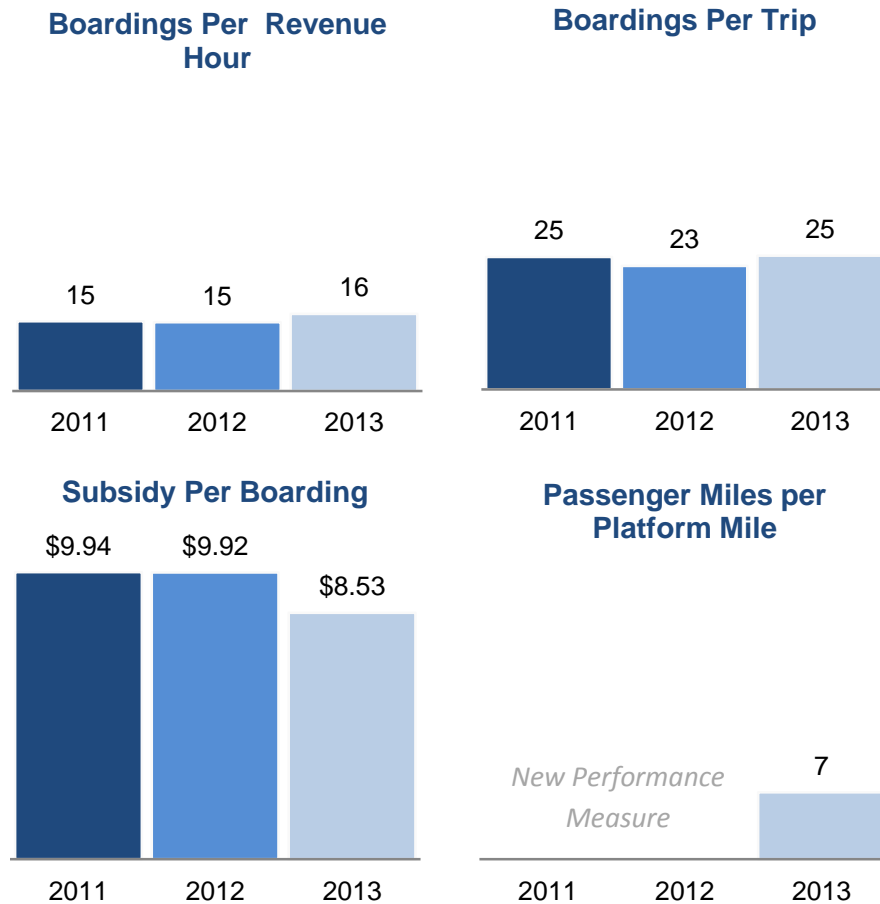


Figure 19 - Route 510 Performance Measures



Route 511 Ash Way – Seattle

Route 511 also underwent a major service change in September 2013. Route 511 is now a Monday-Friday peak-only route that operates from Ash Way Park and Ride in North Lynnwood in Snohomish County to Downtown Seattle via I-5 express lanes. The unique service characteristics for this route are below:

- Route 511 has become more productive due to service span that is entirely within the peak periods of the day. Previously the route operated on Saturdays and during weekday midday hours.
- From January to September there were 37.7 riders a trip and after the September restructure there were 54.1 riders per trip.

Figure 20 - Route 511 Map

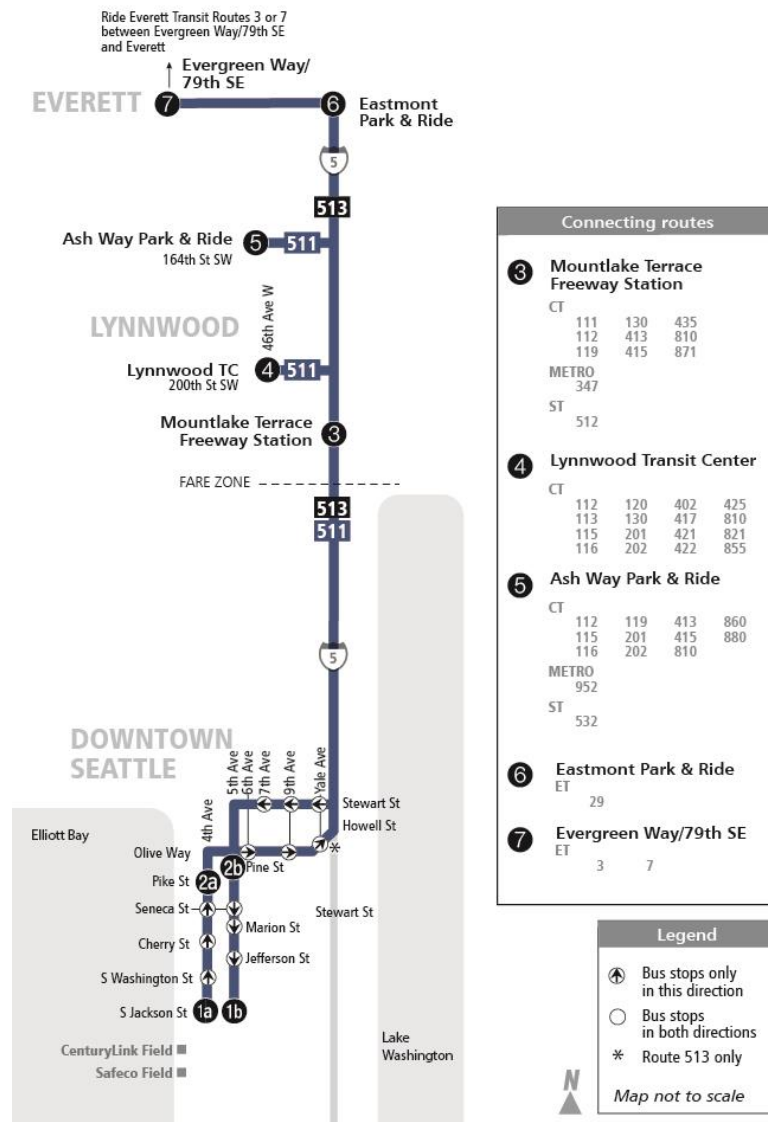


Figure 21 - Route 511 Average Daily Boardings (Weekday)

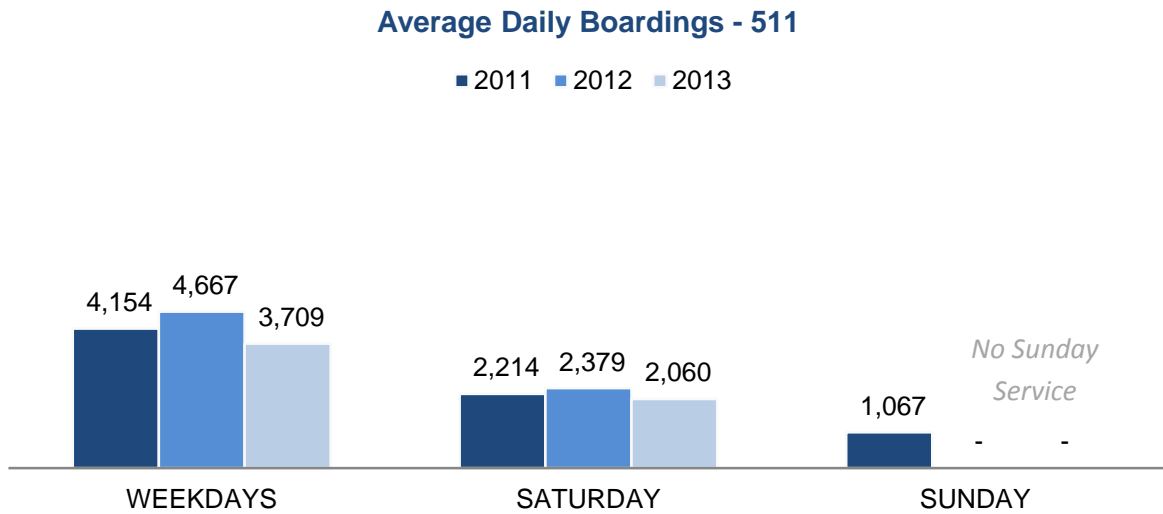
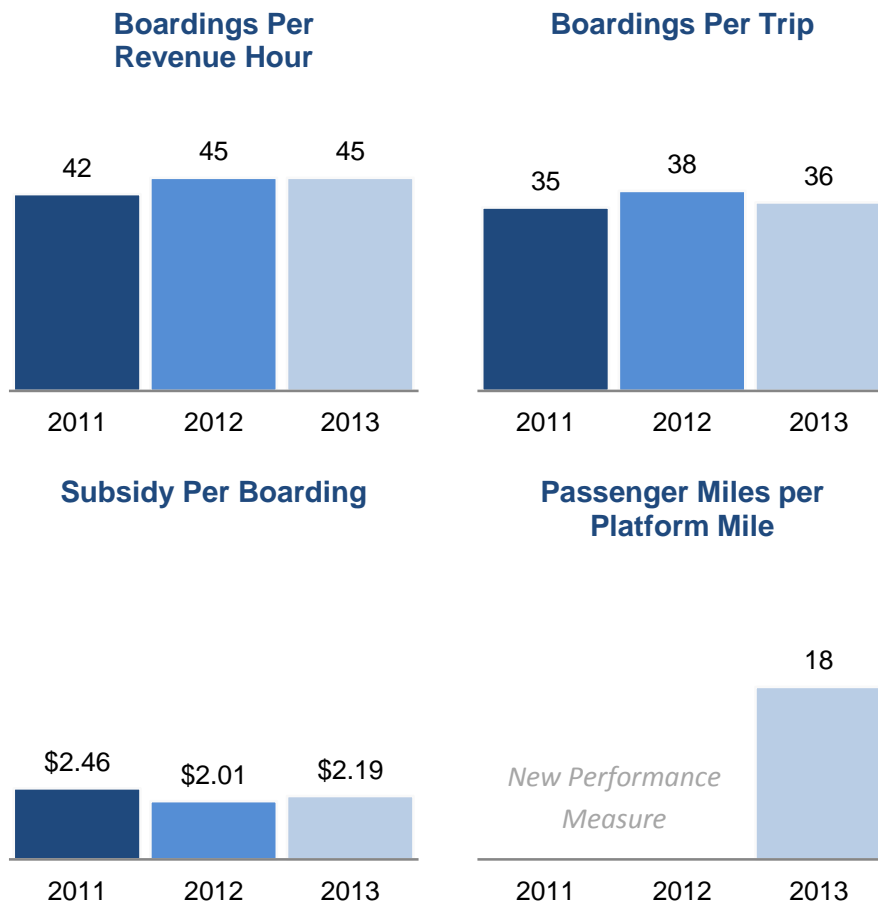


Figure 22 - Route 511 Performance Measures



Route 512 Everett – Seattle

Route 512 was also a part of the Snohomish I-5 restructure. It now is now the primary I-5 north seven day a week all-day service, with 10-15 minute midday service to all of the park and rides along I-5. Previously a Sunday only route, Route 512 now provides weekday off peak service and all day service on weekends. The unique service characteristics for this route are below:

- The revised Route 512 is utilized much more often in the shoulder of the peak periods, with significant bi-directional travel north and south.
- The first two southbound trips regularly have more passengers than seats which create standing conditions, and northbound trips on either side of the 510/511 service span have full seated loads.

Figure 23 - Route 512 Map

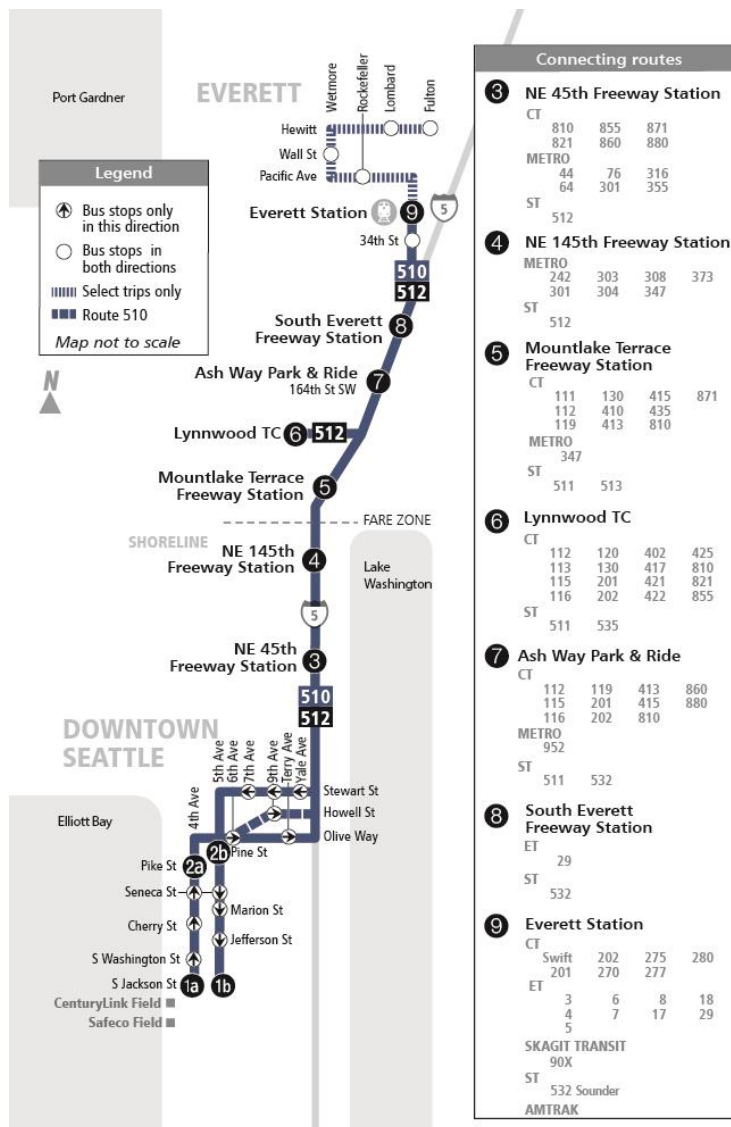


Figure 24 - Route 512 Average Daily Boardings (Weekday)

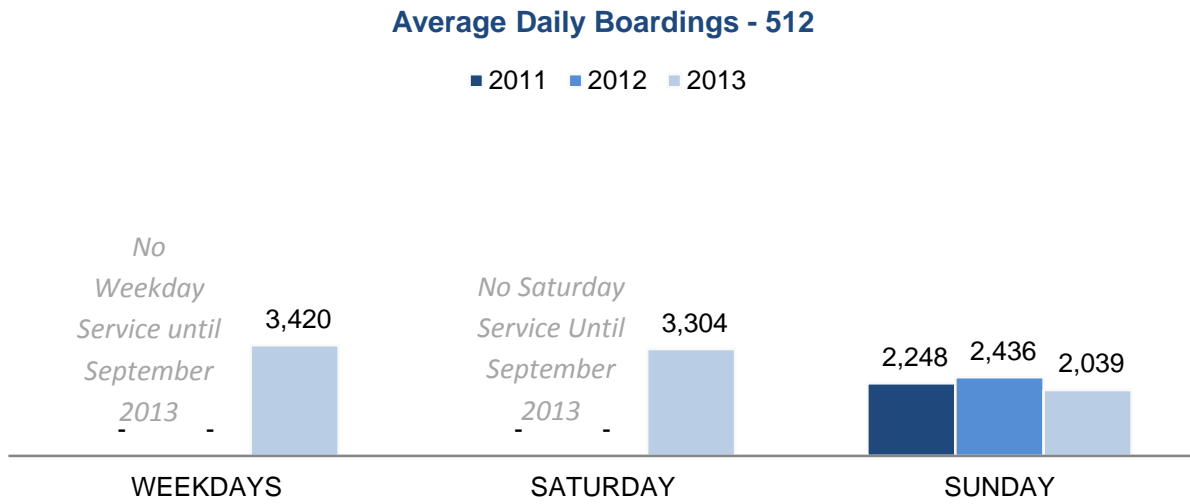
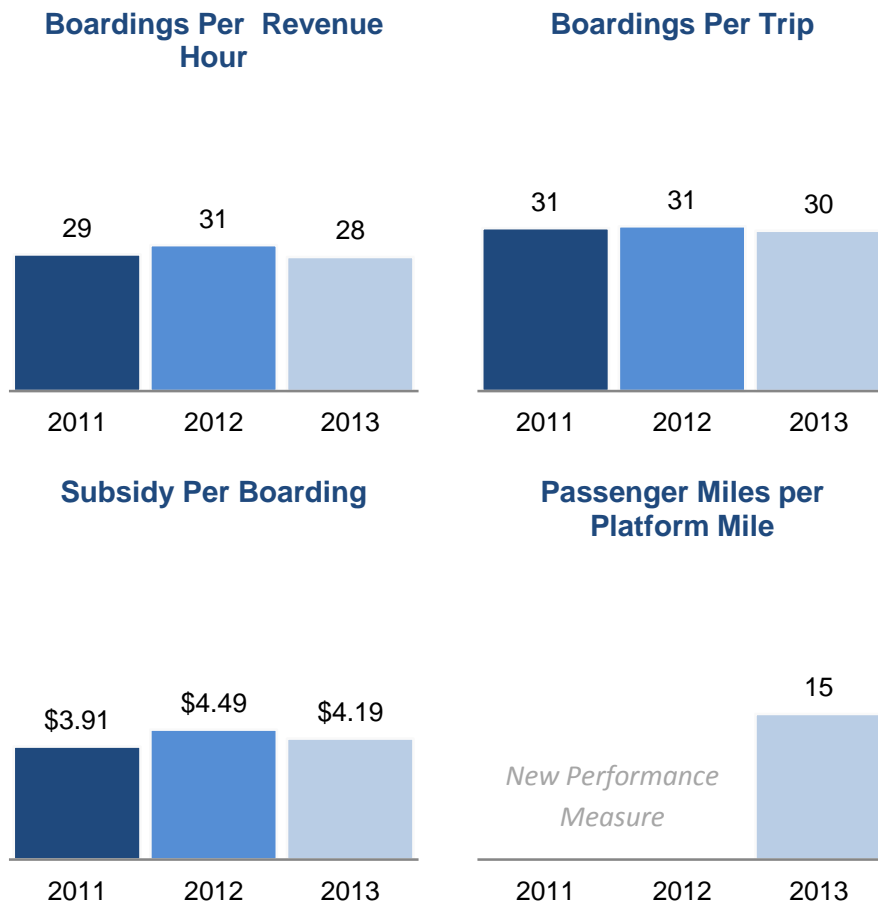


Figure 25 - Route 512 Performance Measures



Route 513 Everett – Seattle

Route 513 service was increased as part of the September restructure. The route is still a peak only M-F route that operates out of Eastmont Park and Ride in Everett.

- Following the September service overall ridership has increased,
- Ridership drops during minor holidays with weekday service, with only 31% of average ridership.

Figure 26 - Route 513 Map

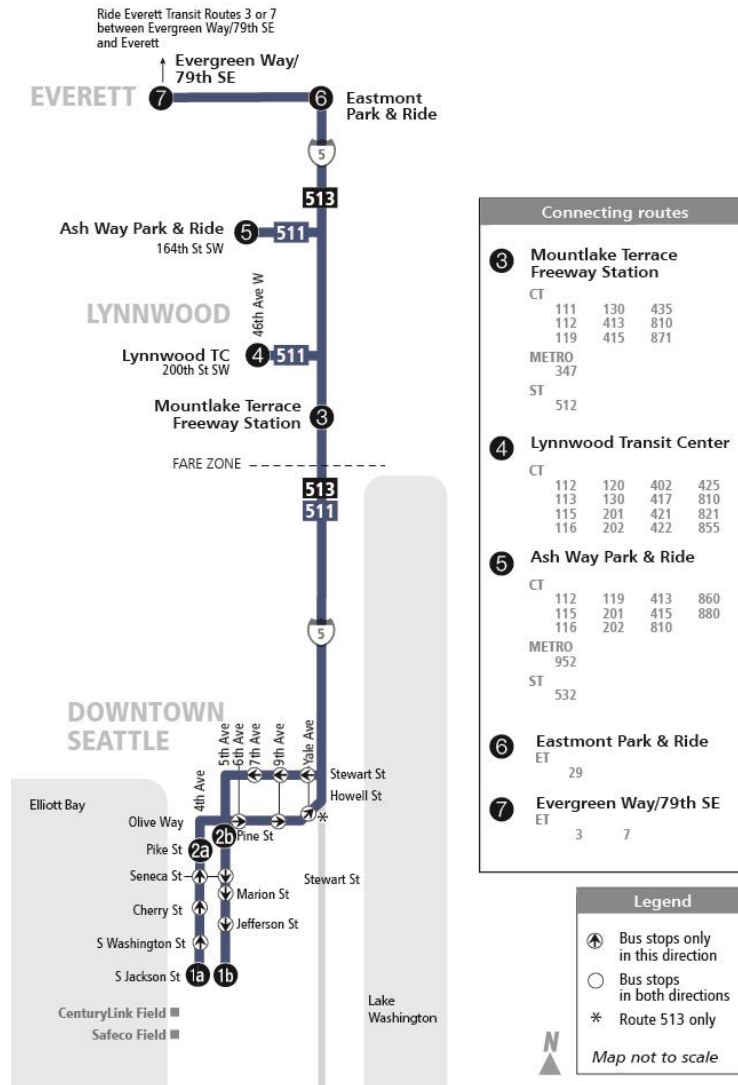


Figure 27 - Route 513 Average Daily Boardings (Weekday)

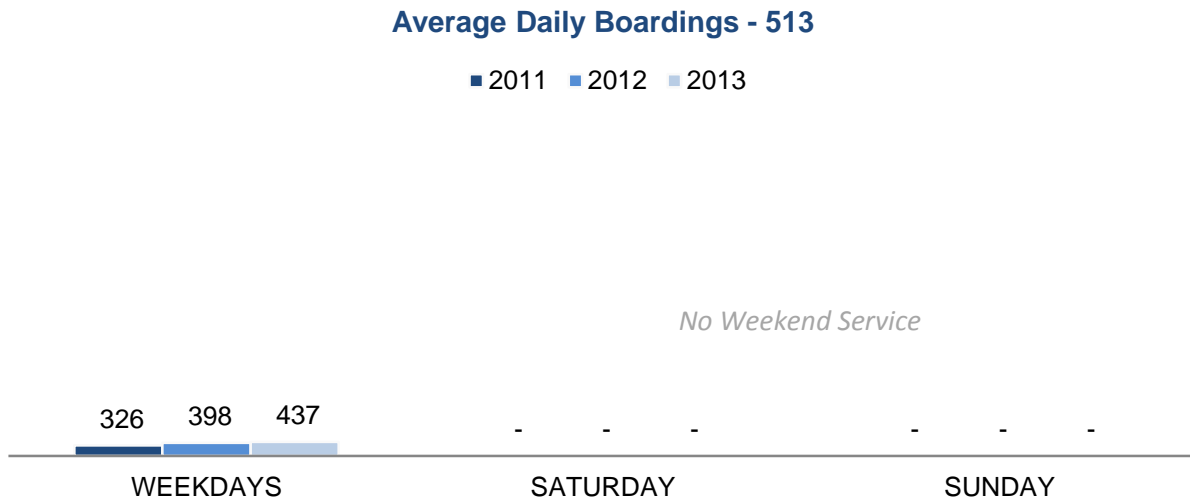
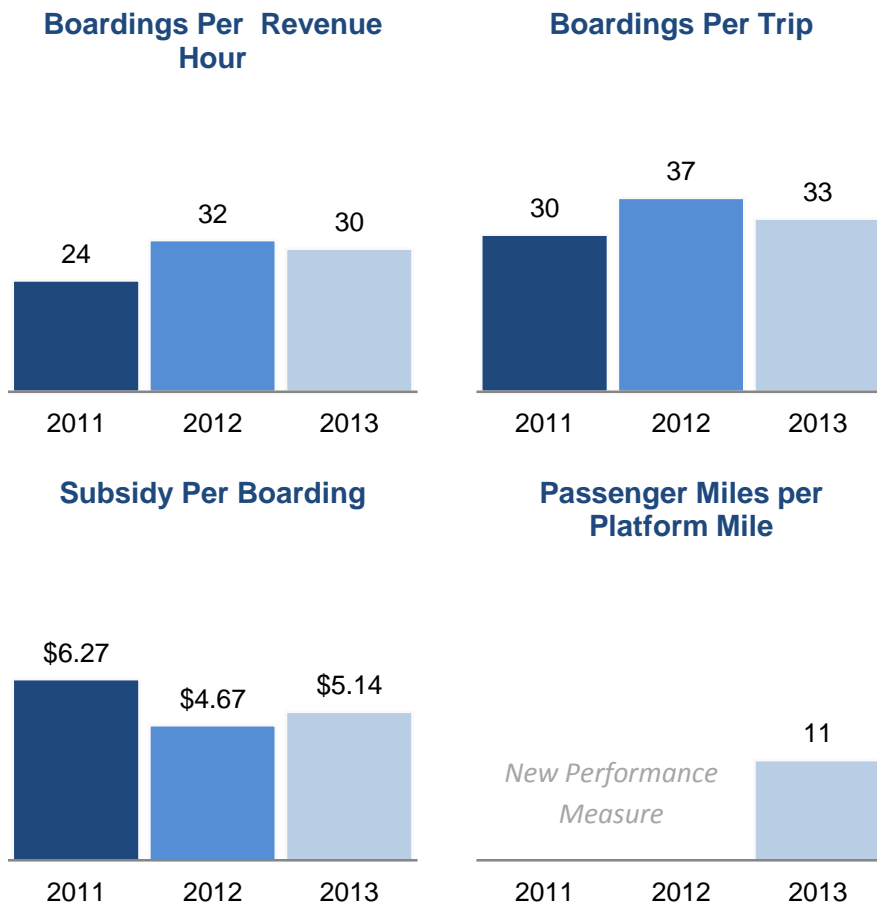


Figure 28 - Performance Measures Performance Measures



Route 522 Woodinville – Seattle

Route 522 connects Woodinville with Downtown Seattle via Bothell, Kenmore, Lake Forest Park, and Lake City. The route did not change in 2013. The route has seen ridership steadily increasing during peak periods.

- The Northbound PM peak is the busiest period for Route 522, with 58.5 riders a trip. The articulated buses serving Route 522 have 56 seats. AM Peak Southbound trips average 53 a trip.
- Saturdays have high ridership with loads similar to weekdays, with midday southbound trips averaging 51.2 and northbound trips averaging 55.3 per trip.

Figure 29 - Route 522 Map

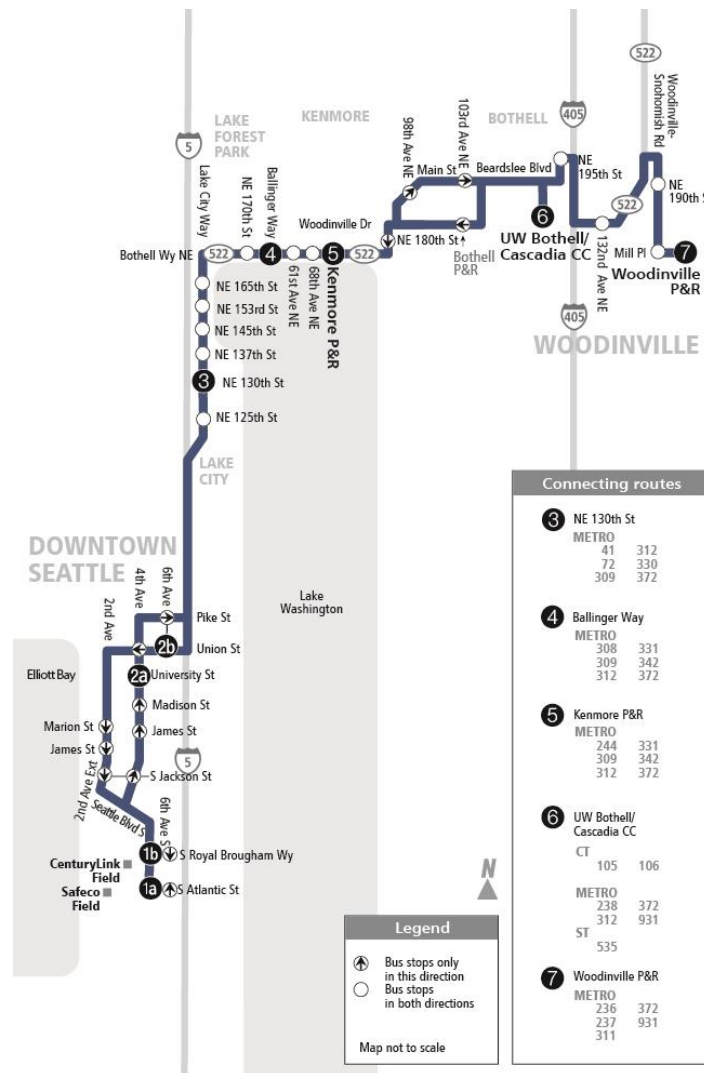


Figure 30 - Route 522 Average Daily Boardings (Weekday)

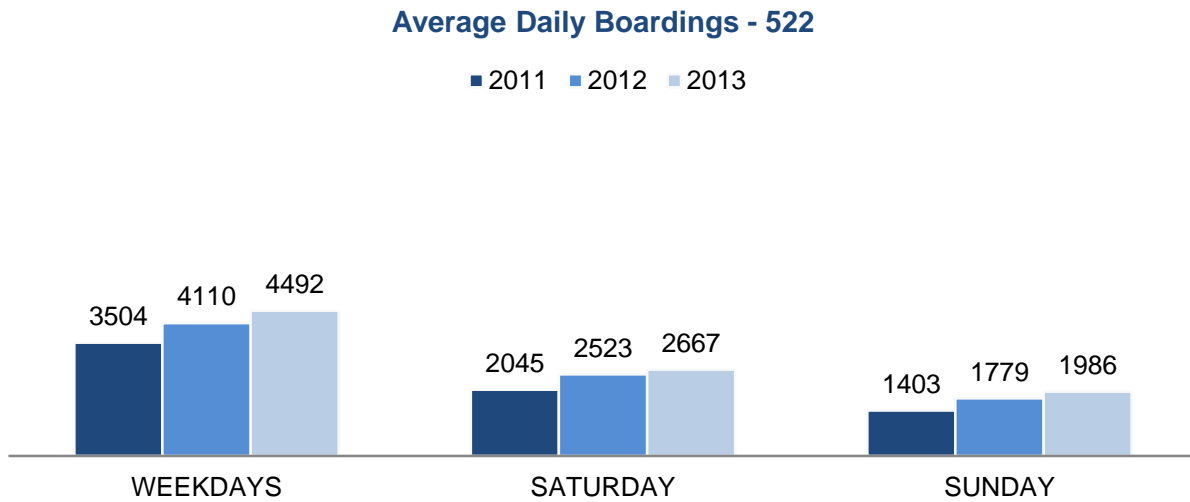
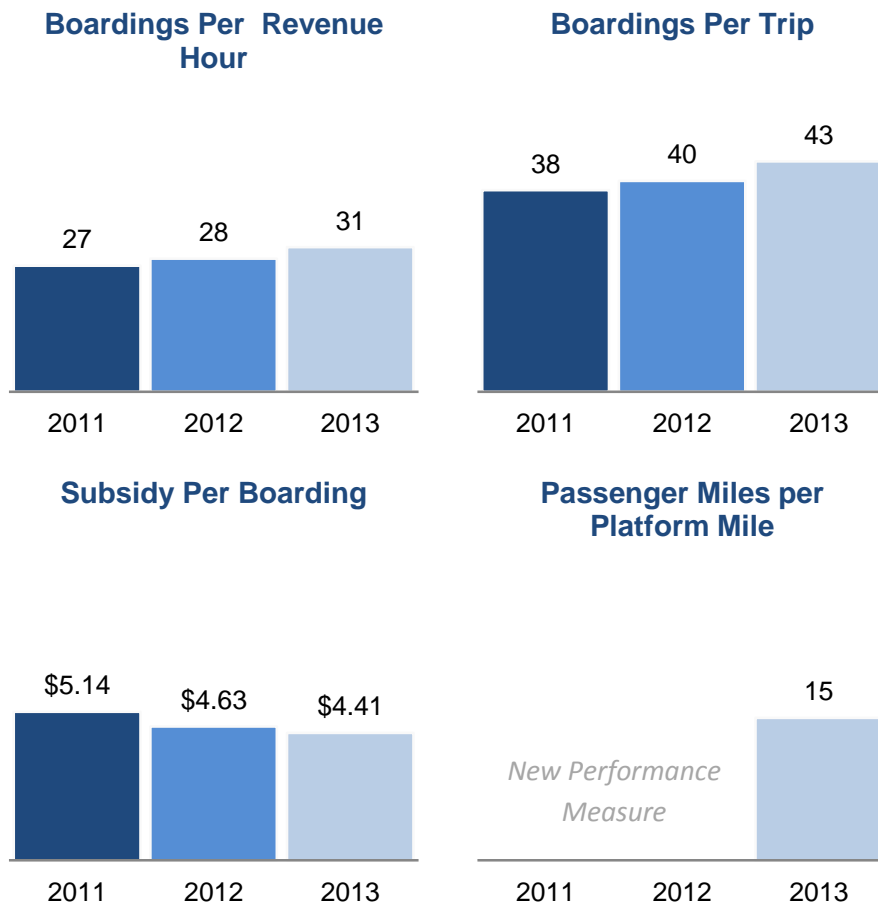


Figure 31 - Route 522 Performance Measures



Route 532 Everett – Bellevue

Route 532 connects Everett with Bellevue via South Everett, Ash Way, Canyon Park, Bothell, and Totem Lake. The route underwent minor changes in 2013 with some schedule changes in the morning and a stop change in Everett.

- Route 532 ridership drops the last week of the year and minor holidays more than other routes.
- The average boardings per trip in the reverse peak direction are generally only half of the peak direction.

Figure 32 - Route 532 Map

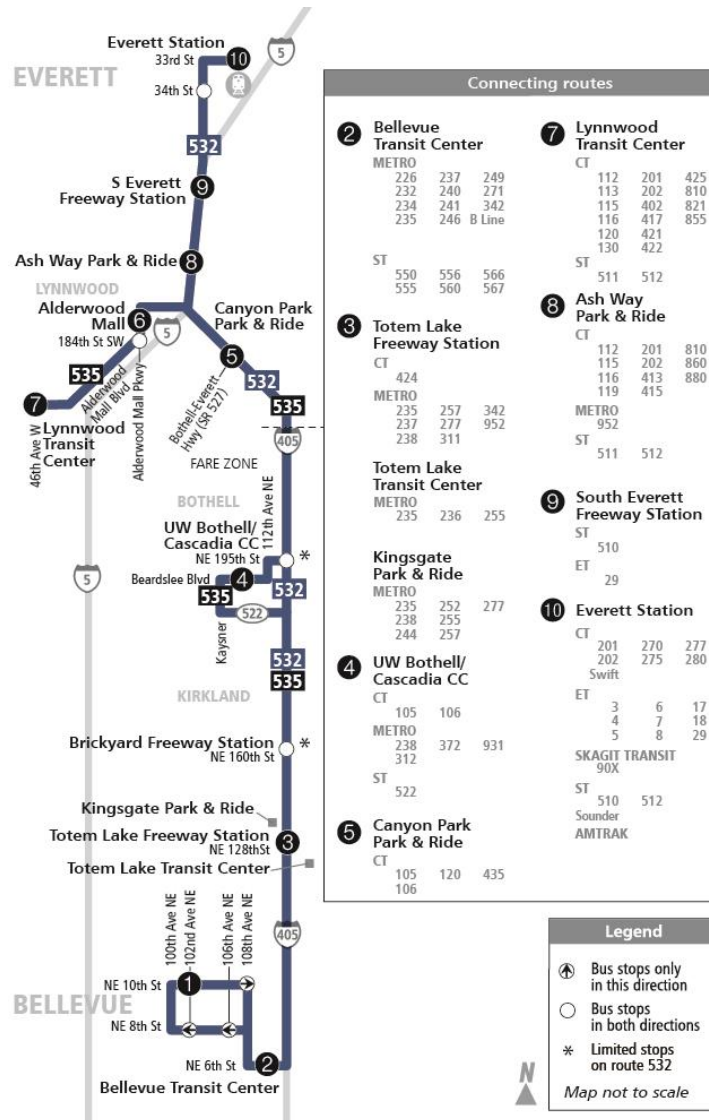
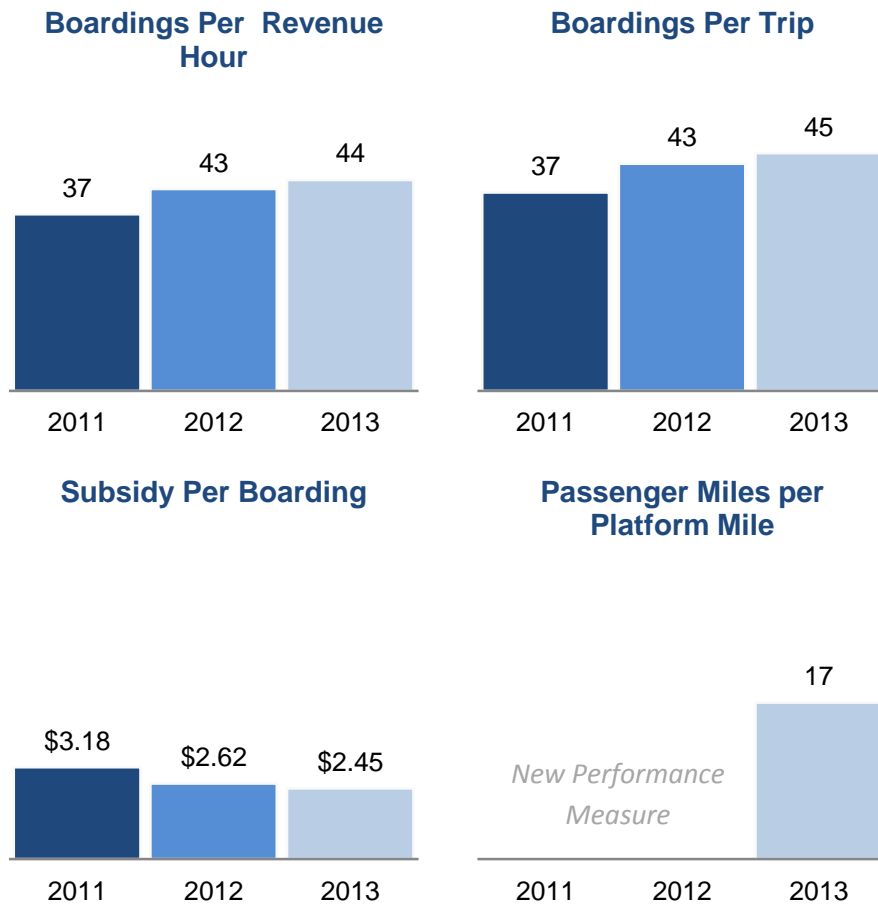


Figure 33 - Route 532 Average Daily Boardings (Weekday)



Figure 34 - Route 532 Performance Measures



Route 535 Lynnwood – Bellevue

Route 535 is an all-day route between the Lynnwood Transit Center and Bellevue via I-405. Route 535 was unchanged in 2013.

- Off-peak ridership is about half of peak ridership. Early trips southbound regularly have standing loads.
- The first three northbound trips have fewer than 16 passengers, with the first trip averaging only nine passengers.

Figure 35 - Route 535 Map

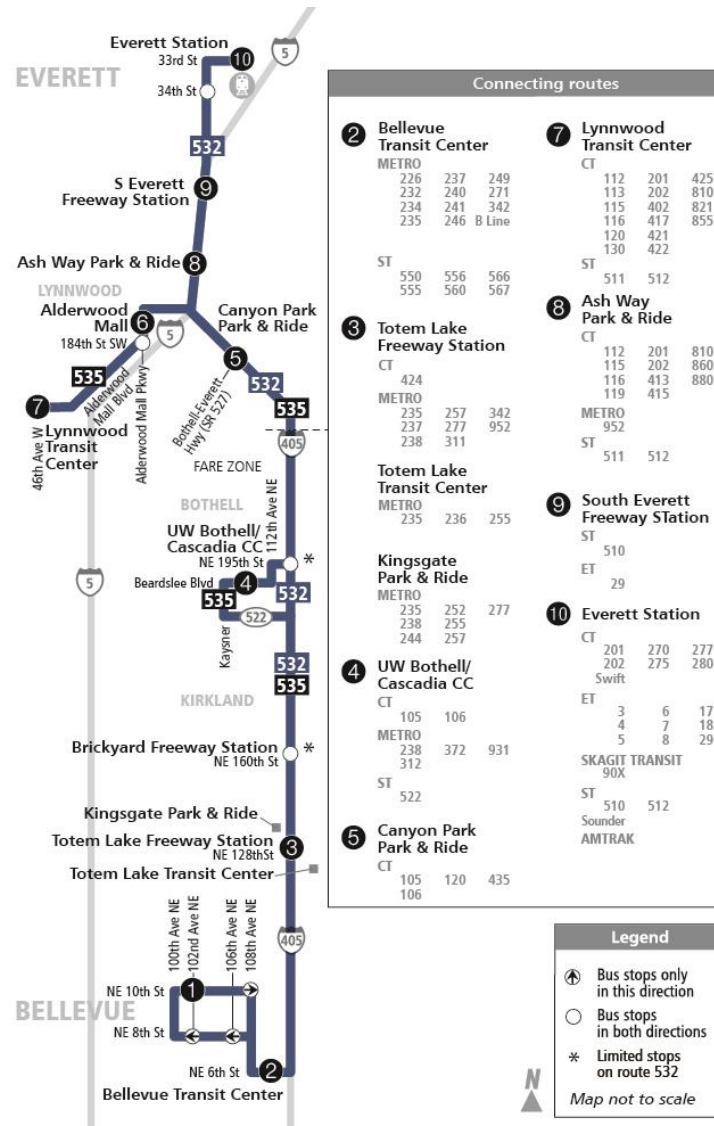


Figure 36 - Route 535 Average Daily Boardings (Weekday)

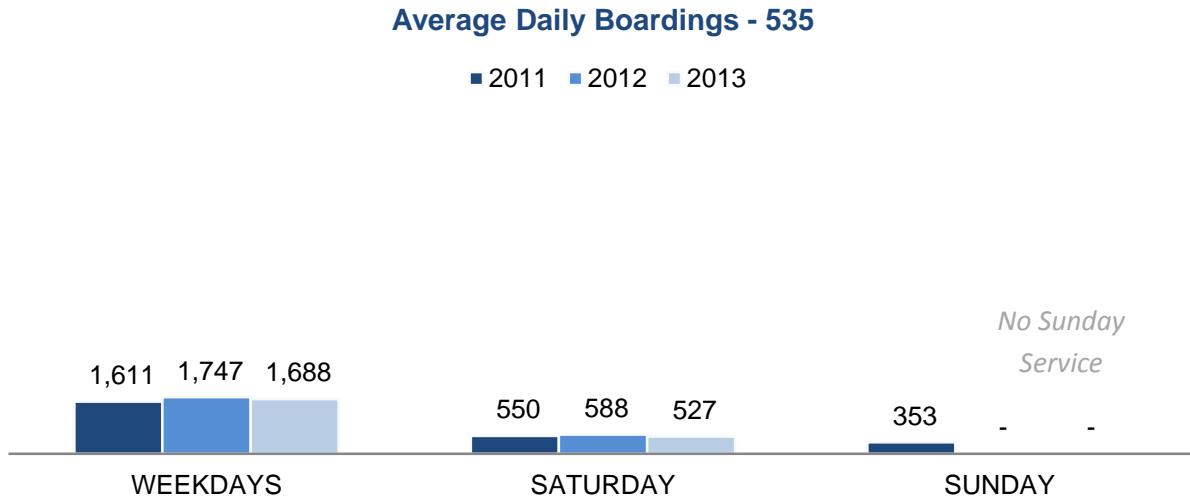
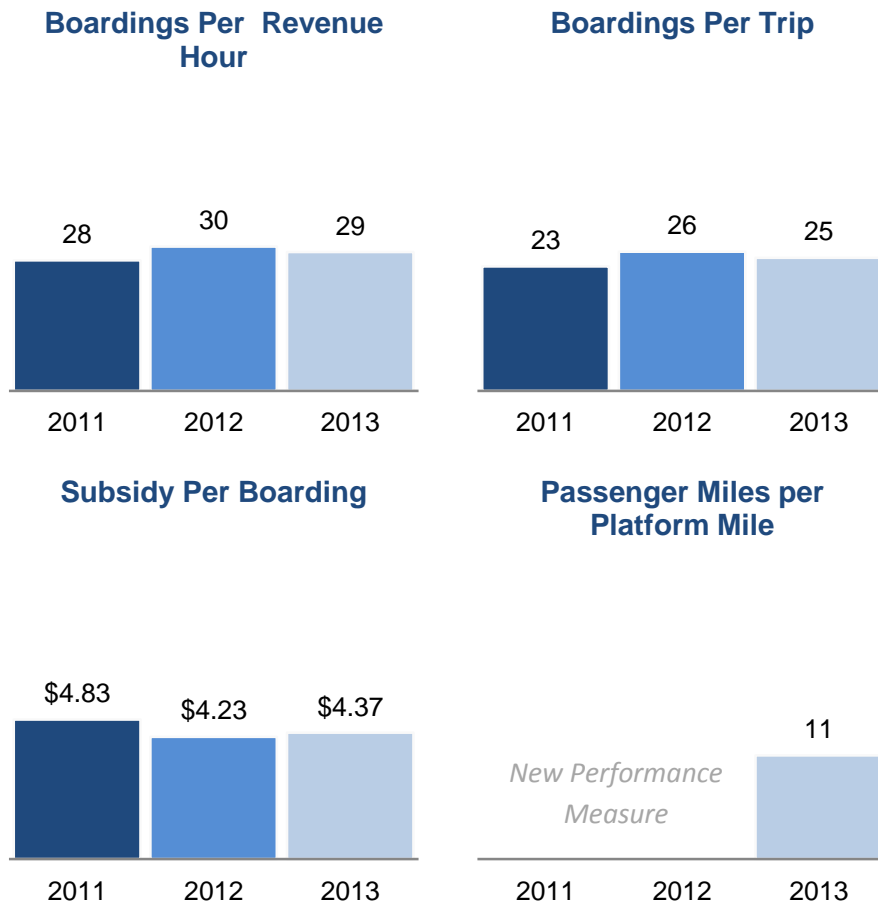


Figure 37 - Route 535 Performance Measures



Route 540 Kirkland – University District

Route 540 connects Kirkland with the University District. The route had a service reduction in September 2013 due to low ridership.

- Route has little seasonal variation, indicating that the University of Washington semesters have little effect on the route.
- Route 540 has very little ridership on minor holidays, possibly related the UW medical center’s work schedule. During seven minor holidays throughout the year, Route 540 averages only five riders a trip.
- While route level ridership for the year averages 14.5 riders a trip, there is one westbound trip at 7:38 a.m. during the fall service change that often had standing loads with an average of 40.1 riders per trip.

Figure 38 - Route 540 Map

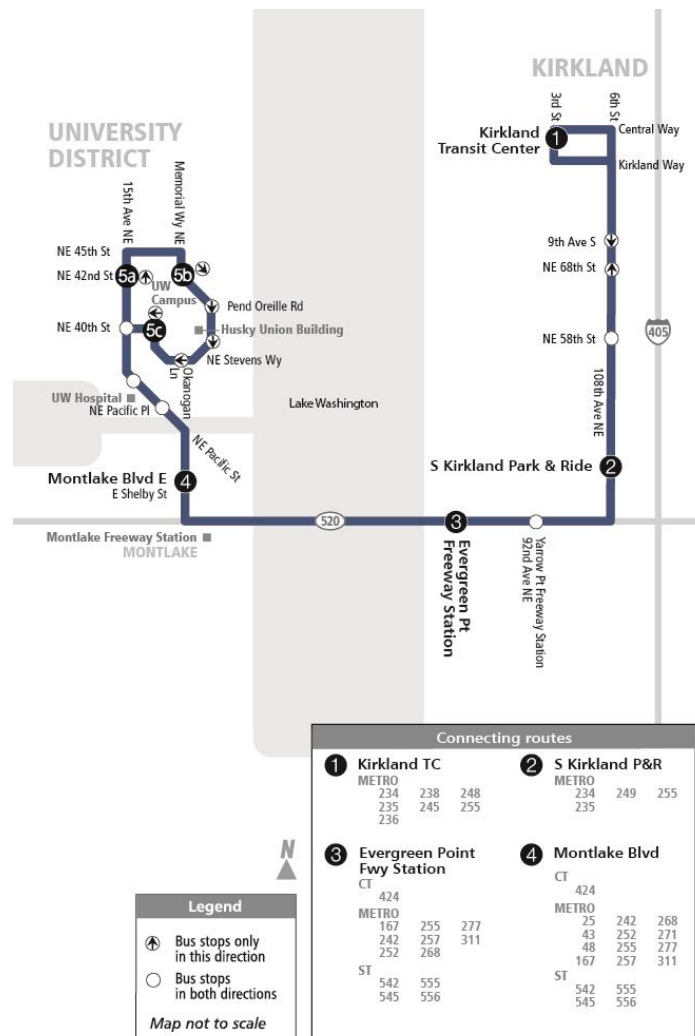


Figure 39 - Route 540 Average Daily Boardings (Weekday)

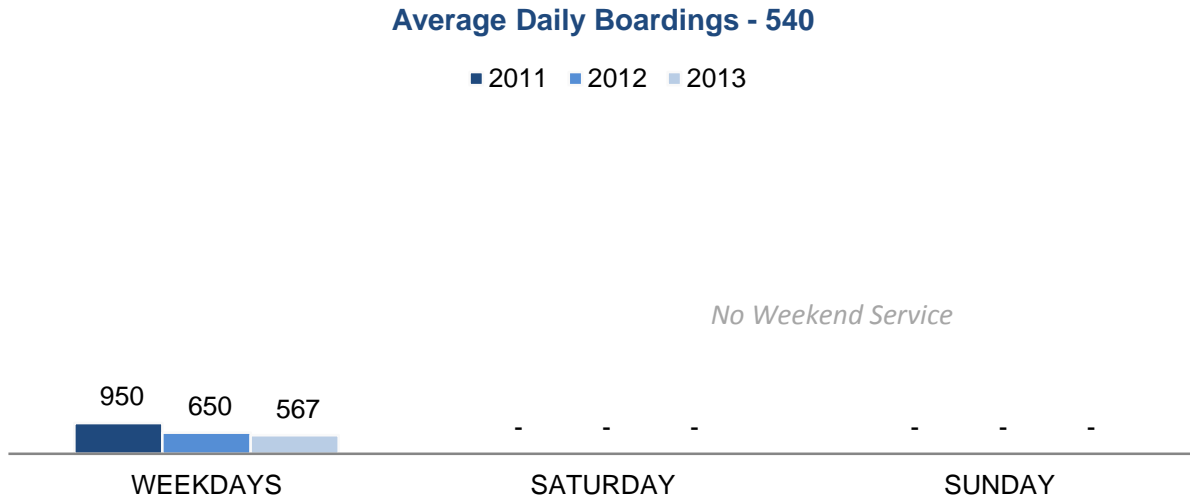
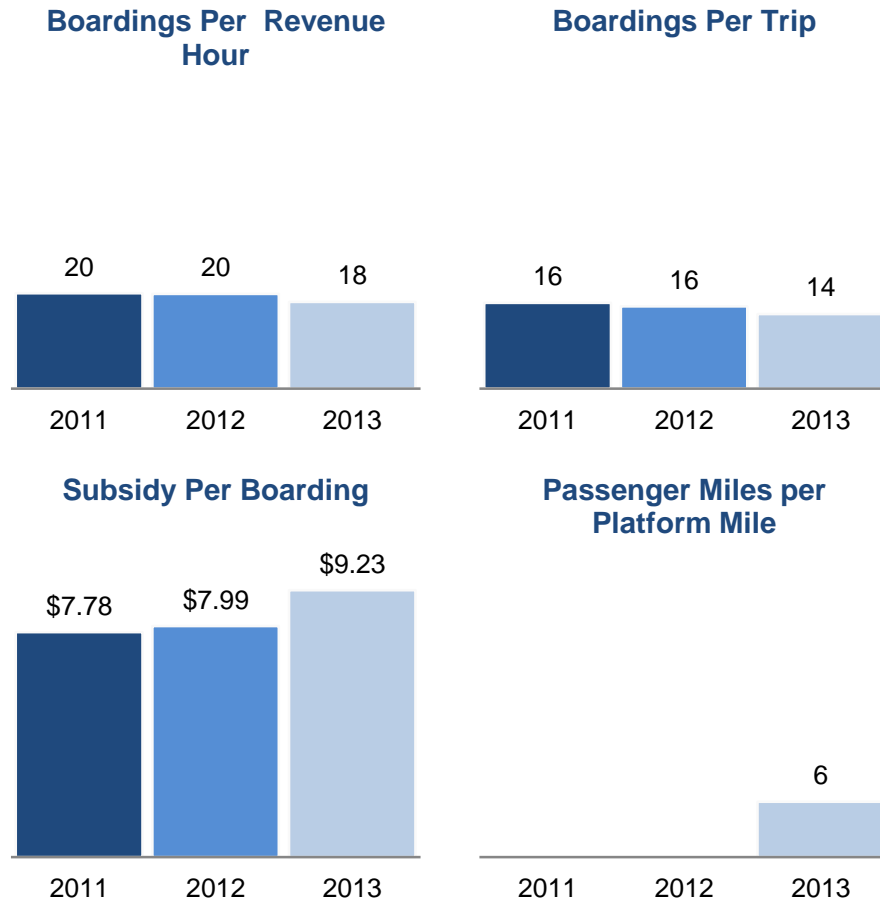


Figure 40 - Route 540 Performance Measures



Route 542 Redmond – Green Lake via University District

Route 542 connects Green Lake with the Overlake Transit Center in Redmond. There were no service changes in 2013.

- The early westbound trips before 7 a.m. have lower than average ridership with only about ten riders a trip. Eastbound trips during the same period average around 25 riders a trip, indicating that there is significant demand for service to employers in Redmond.
- Service outside the traditional morning and afternoon peaks is less productive, with about nine fewer riders a trip than during peak periods.
- There are occasional standees on Route 542, especially during the 8:03 AM eastbound trip and during the 7:42 a.m. and 7:57 a.m. westbound trips.

Figure 41 - Route 542 Map

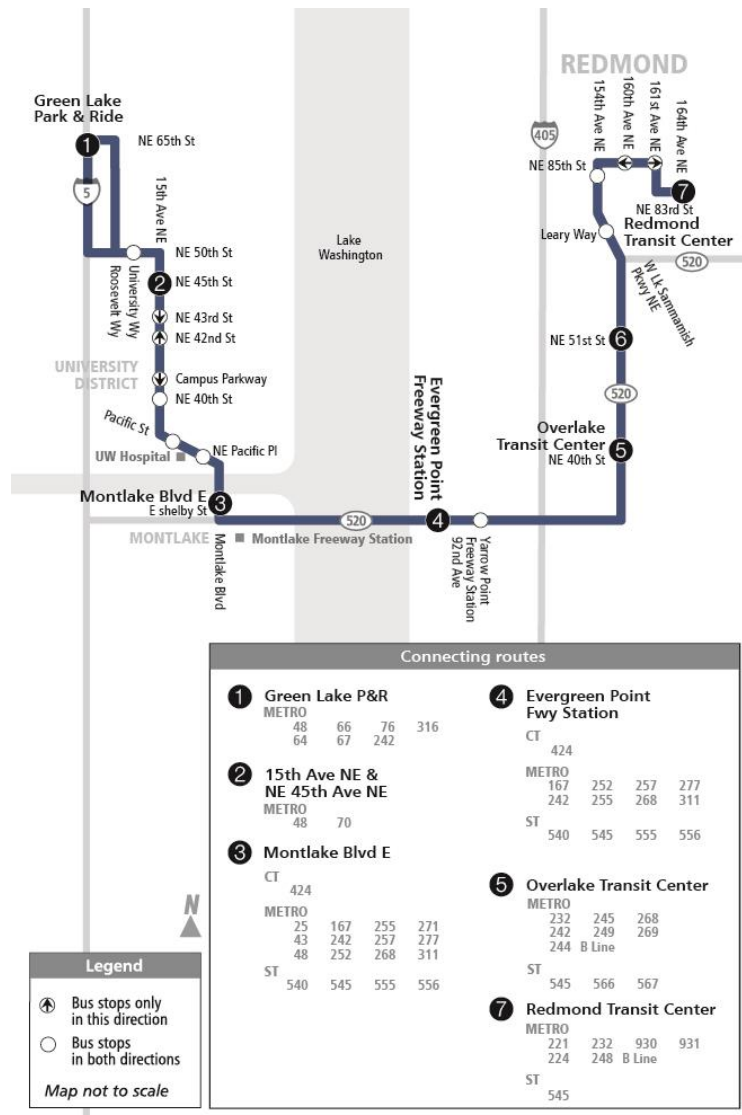


Figure 42 - Route 542 Average Daily Boardings (Weekday)

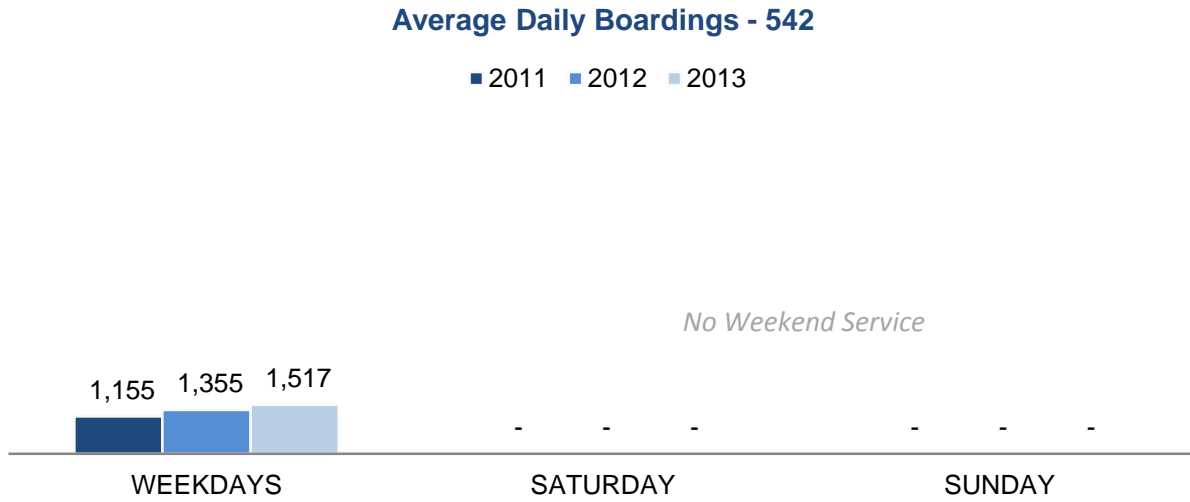
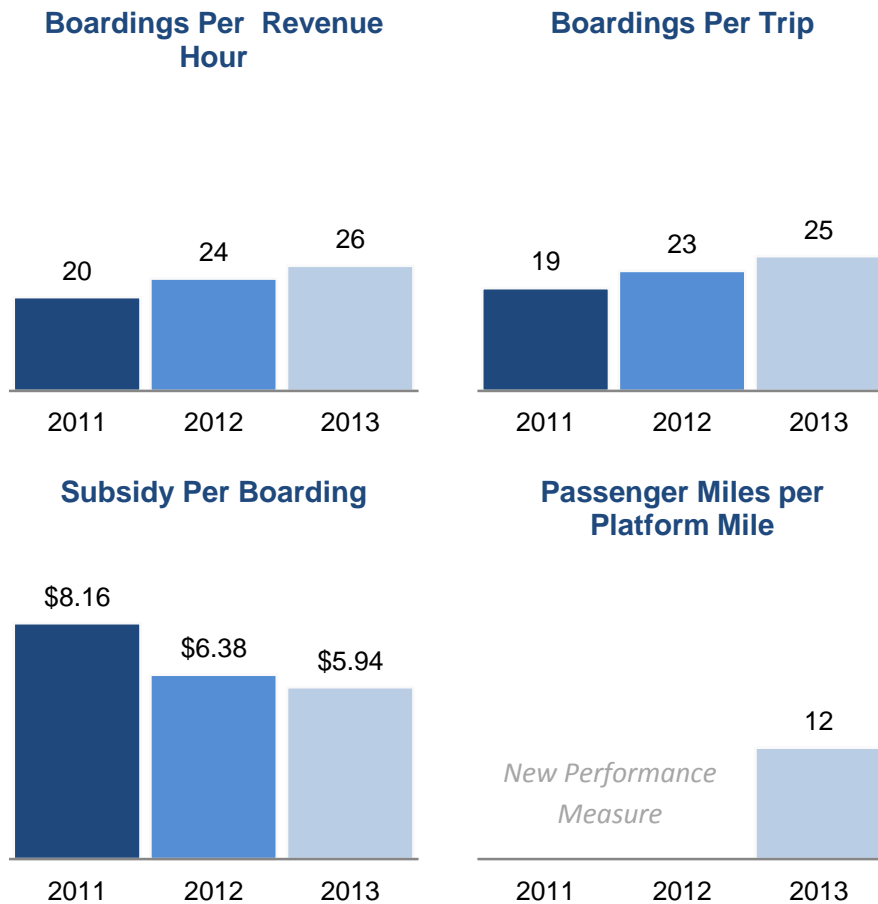


Figure 43 - Route 542 Performance Measures



Route 545 Redmond – Seattle

Route 545 is a route with frequent service with high ridership. It traverses the SR-520 bridge from Redmond to Downtown Seattle, which has been tolled since 2011. Route 545 has become increasingly crowded in 2013. One outbound trip was added in September.

- There were reported max loads of over 80 passengers 349 times in the AM peak, and 311 times in the PM peak. Four trips were added to the AM peak in February 2014.
- Ridership remains steady throughout the year on the weekday service. Four days see significant drops, all of which are minor holidays or days after or preceding these holidays.
- Weekend ridership dramatically increases during the summer, with about 12 more riders a trip than during the winter and fall. Weekend ridership peaks in late August during Labor Day weekend with 55 riders a trip on Saturday and 38 on Sunday.

Figure 44 - Route 545 Map

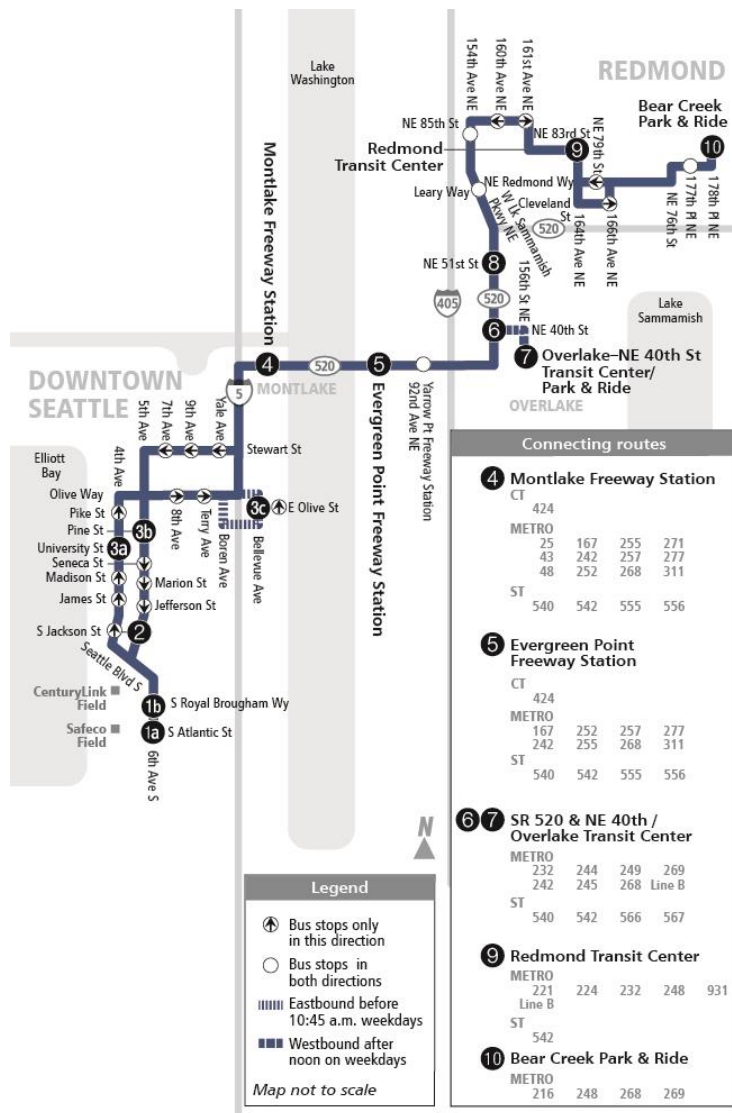


Figure 45 - Route 545 Average Daily Boardings (Weekday)

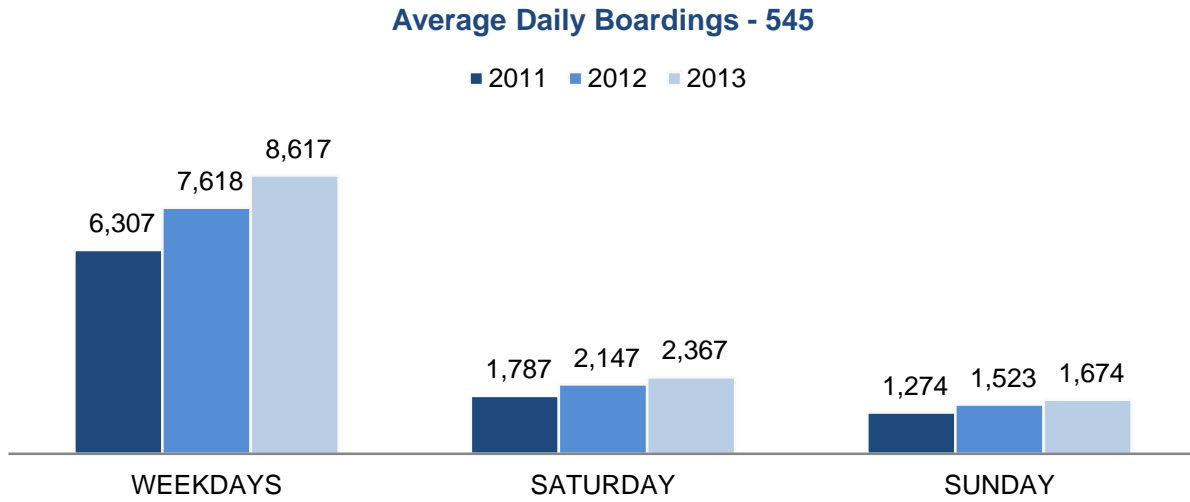
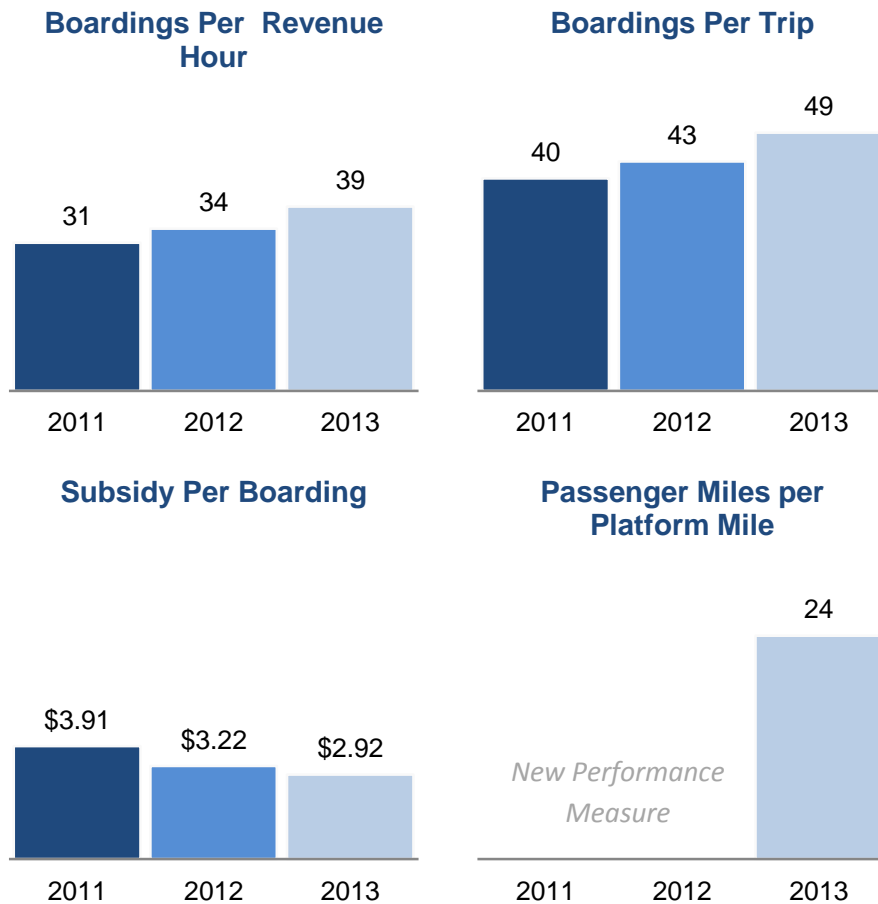


Figure 46 - Route 545 Performance Measures



Route 550 Bellevue – Seattle

Route 550 connects Downtown Seattle with Downtown Bellevue via I-90 and the Downtown Seattle Transit Tunnel. Route 550 is Sound Transit’s highest ridership bus route. Service was increased in September 2013 to five minute frequencies in the tunnel during the peaks.

- The PM peak is the busiest ridership period on the 550, with 815 observations of a trip with a max load of 80 or higher. For an articulated bus, 80 passengers mean that there are 23 standees. The AM peak is also very busy, with 255 observations of a trip with a max load of 80 or more.
- Both directions have very similar ridership, indicating that there is significant bi-directional demand.
- Weekend ridership patterns are similar to the 545, although the 550 has higher Sunday ridership throughout the year with 39.1 riders a trip for the 550 and 24.1 for the 545.
- Sunday afternoon ridership has several crush loaded trips, with 21 observations of a max load of 80 or more throughout the year. These loads occur largely after large sporting events.

Figure 47 - Route 550 Map

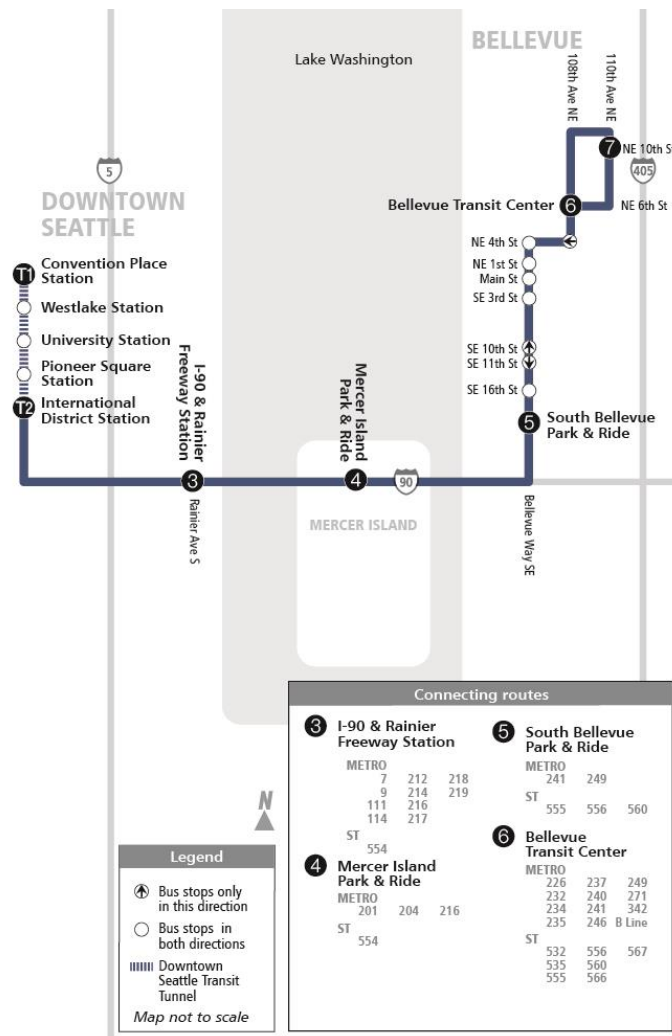


Figure 48 - Route 550 Average Daily Boardings (Weekday)

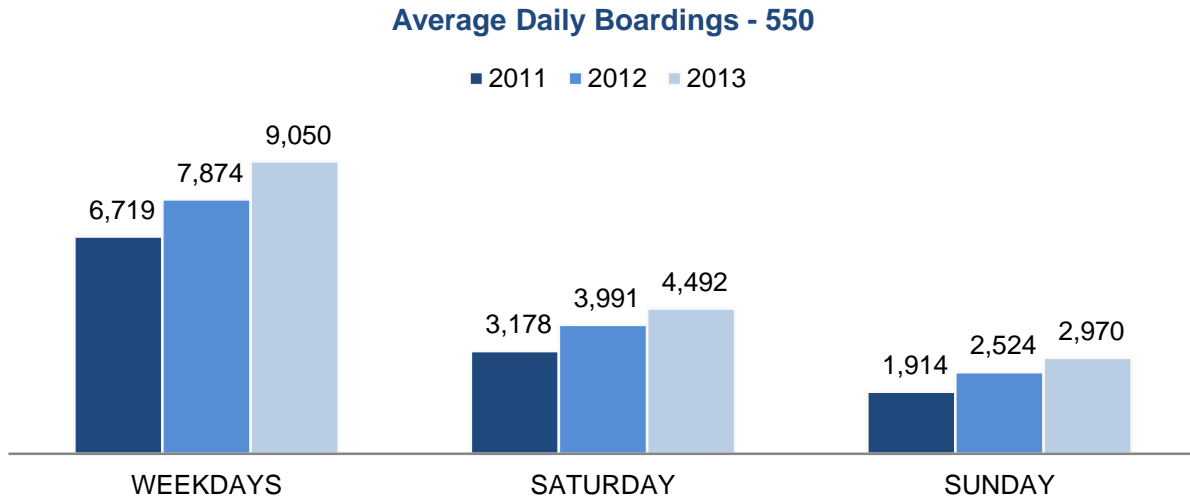
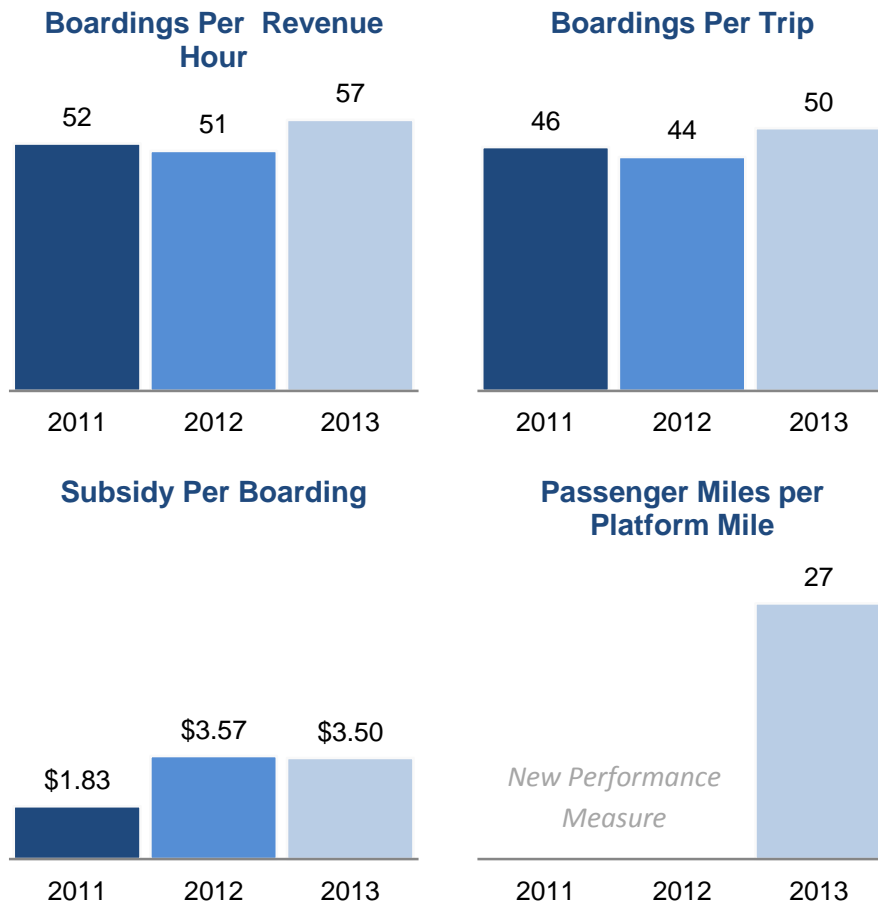


Figure 49 - Route 550 Performance Measures



Route 554 Issaquah – Seattle

Route 554 provides all day bi-directional service from Issaquah to Downtown Seattle. Route 554 had no significant service changes in 2013.

- On weekdays, ridership is higher in the PM peak especially on either shoulder before and after the King County Metro I-90 service is operating. The AM peak is strong as well, with over 60 riders a trip on average from 8 a.m. to 9 a.m.
- Route 554 has strong year round ridership with only 3 weekdays that averaged fewer than 25 riders a trip, 2 Saturdays with 20 riders a trip, and 5 Sundays with fewer than 15 riders a trip.

Figure 50 - Route 554 Map

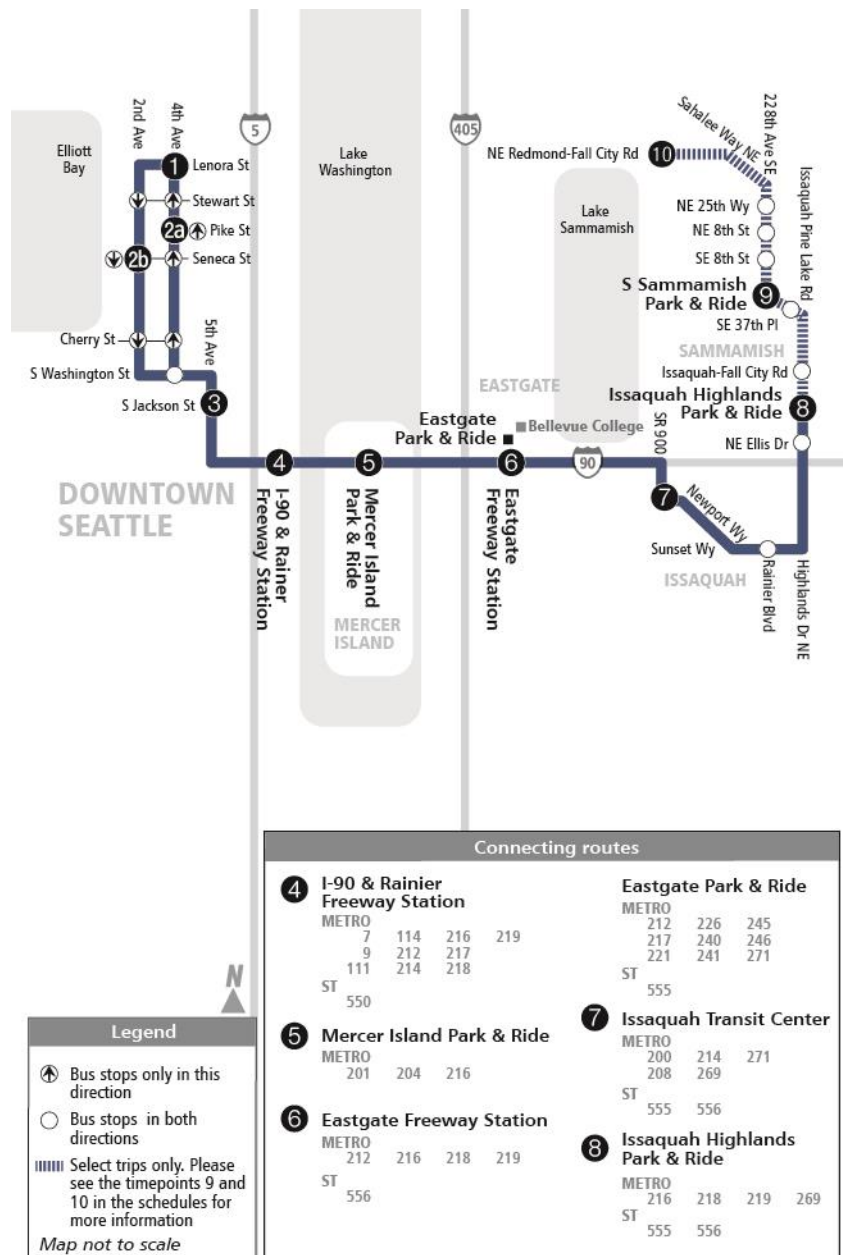


Figure 51 - Route 554 Average Daily Boardings (Weekday)

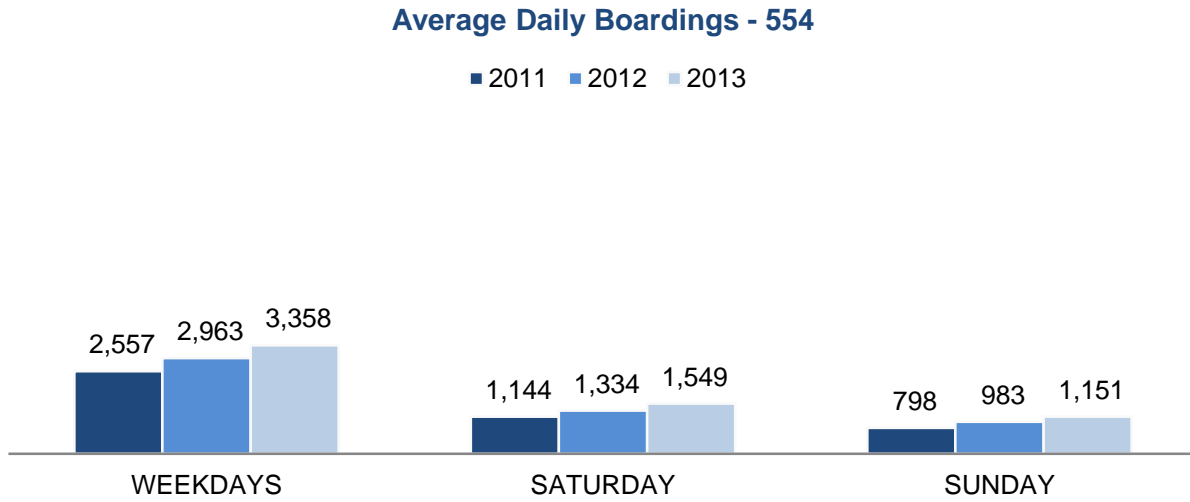
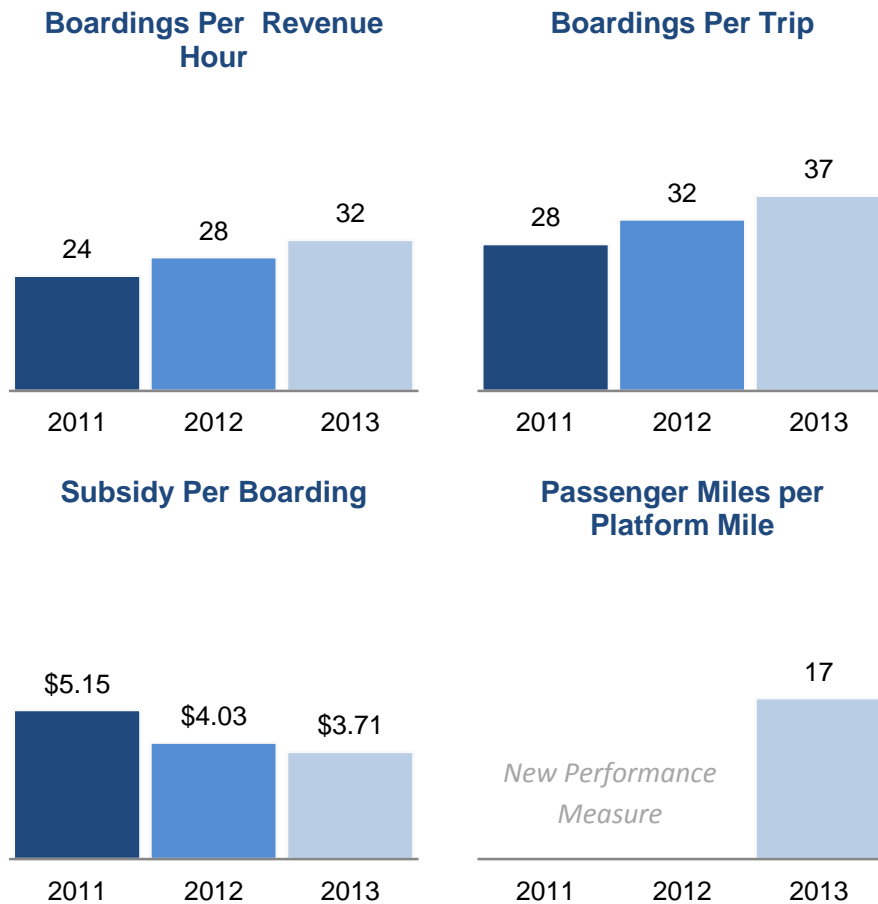


Figure 52 - Route 554 Performance Measures



Route 555/556 Northgate – Bellevue – Issaquah

Route 555 connects the Northgate Transit Center with Issaquah via SR-520, I-405, and I-90. The route did not have any service changes in 2013.

- Route 555 has very consistent ridership throughout the year, with only 3 days with fewer than 20 riders a trip.
- The westbound direction has about 5 riders a trip more than eastbound direction, possibly due to combined use with other parallel routes.

Route 556 connects Issaquah with Northgate Transit Center via the University District. One westbound trip was added in February 2013.

- Route 556 occasionally has standing loads during the PM peak in the eastbound direction, but most standing situations occur in the westbound direction in the morning peak around 7 a.m. This demonstrates that there is market for Seattle commuters going to the eastside.
- The added westbound AM trip appears to have helped spread out the riders. The new schedule since spring 2013 is also 'clock face', with regular timed intervals which make it easier for riders to remember their next bus.
- Route 556 has more seasonal variation with more riders in the fall than in the summer. However, the last two weeks of the year are about half as productive as the rest of the year.

Figure 53 - Route 555/556 Map

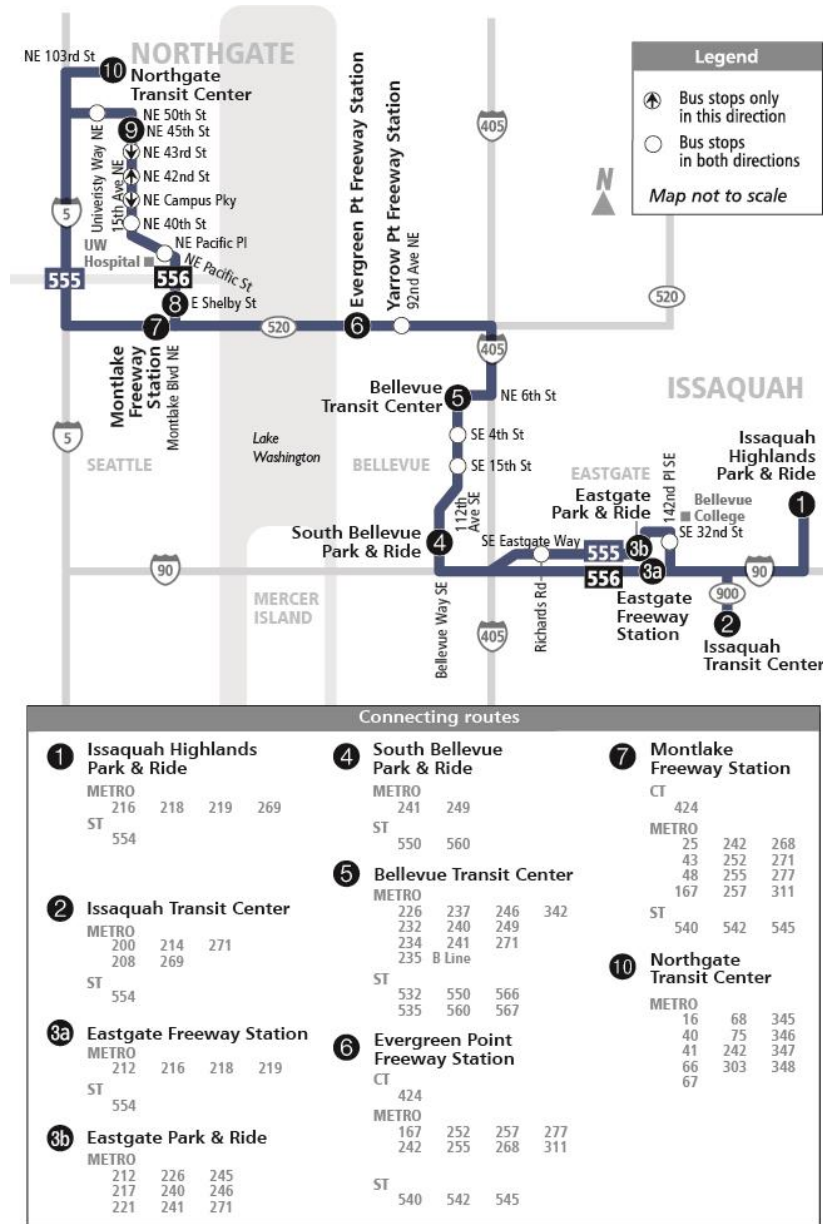


Figure 54 - Route 555 Average Daily Boardings (Weekday)



Figure 55 - Route 555 Performance Measures

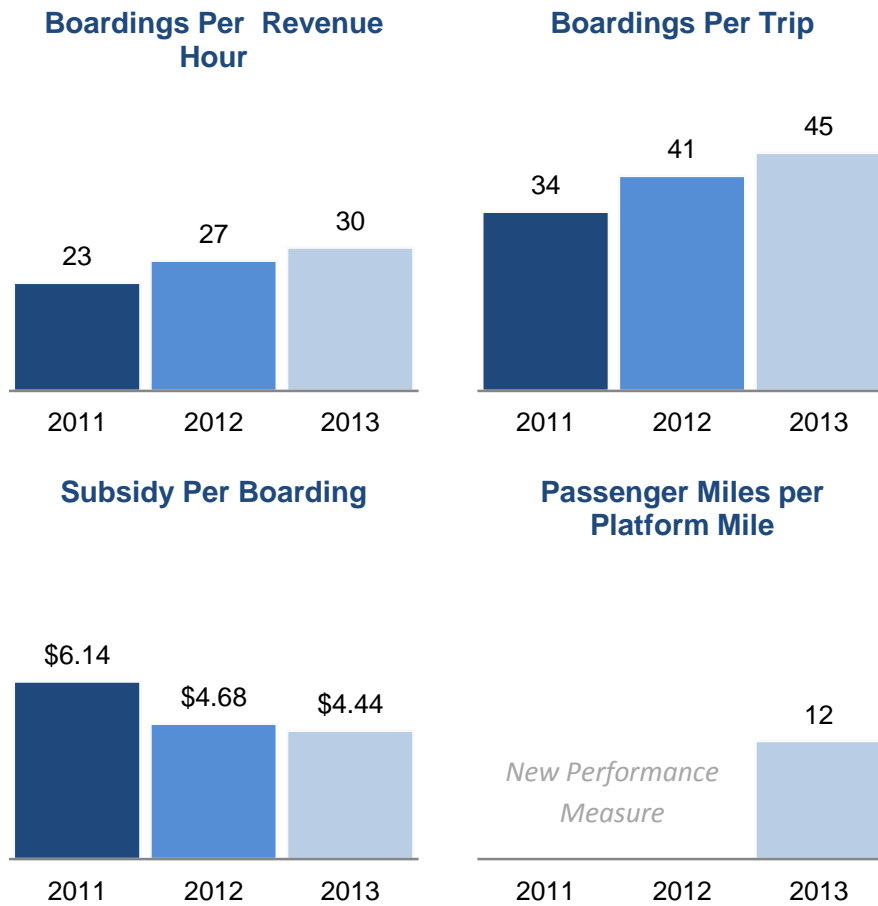


Figure 56 - Route 556 Average Daily Boardings (Weekday)

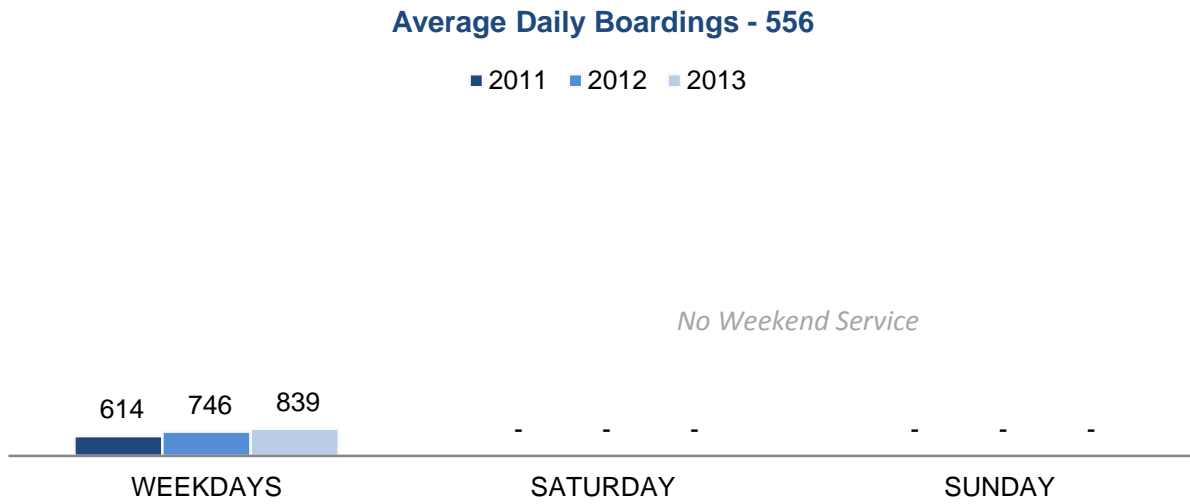
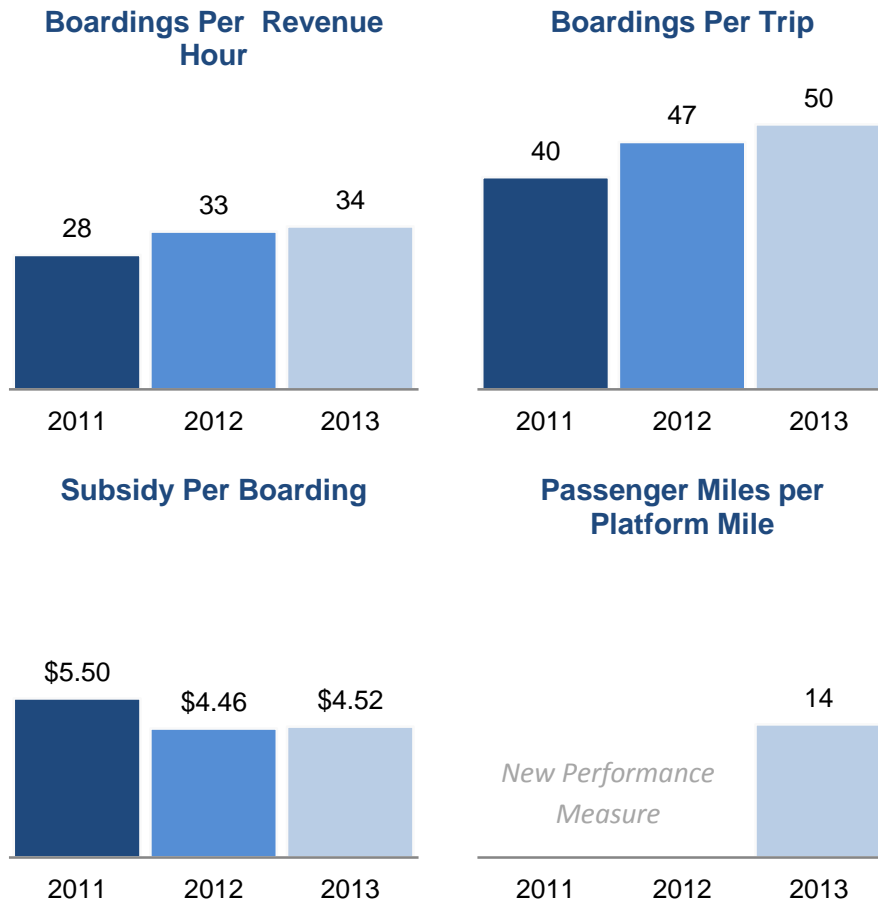


Figure 57 - Route 556 Performance Measures



Route 560 Bellevue – SeaTac – West Seattle

Route 560 connects Westwood Village with Bellevue via SeaTac Airport, Renton, and I-405. The route underwent significant service revisions in June 2013. The western portion of the route that previously served Alaska Junction in West Seattle was truncated to serve the Westwood Village Shopping Center. Westwood Village became the seven day a week terminus all day long, Before the June service change, peak only trips went to Alaska junction, but off-peak and weekend trips terminated at the Burien Transit Center. After the June service change, all trips operate to and from Westwood Village, creating additional transfer opportunities. . Route 560 also received additional riders due to the revisions of Route 566 and the addition of Route 567. Route 560 now serves more short-haul Bellevue to Renton passengers due to the express nature of the new Route 567, which is covered later in this chapter.

- After the June service change and 560 truncation, weekday ridership went up in the fall and summer of 2013 by about 4 riders a trip on average.
- Midday weekday ridership rose after the truncation, with the westbound direction averaging 6 more boardings a trip and the eastbound midday ridership increasing by 10 riders a trip. This could be due to the short trips on the 566 that require a transfer from Route 560.
- Weekend ridership also rose by 5 riders a trip on Saturdays and 3 on Sundays from fall 2012 to fall 2013. This could be due to the new terminus at Westwood Village that was established after the June truncation.

Figure 58 - Route 560 Map

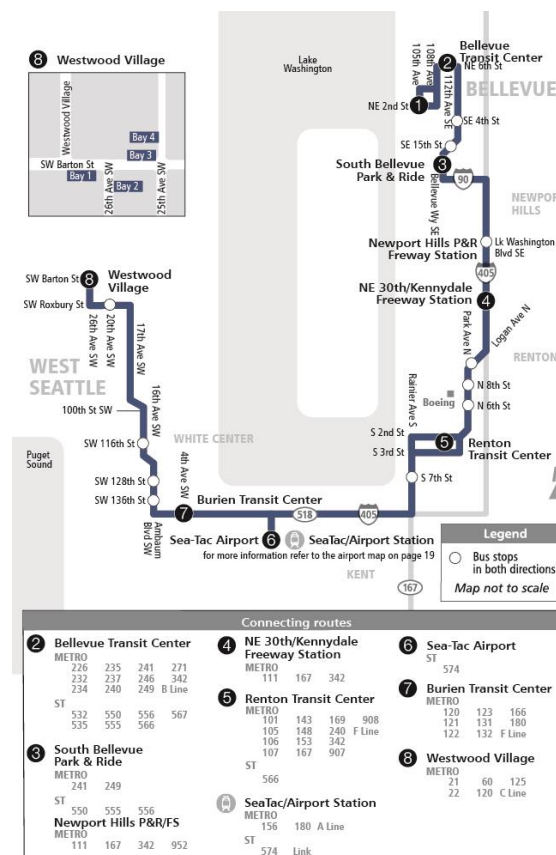


Figure 59 - Route 560 Average Daily Boardings (Weekday)

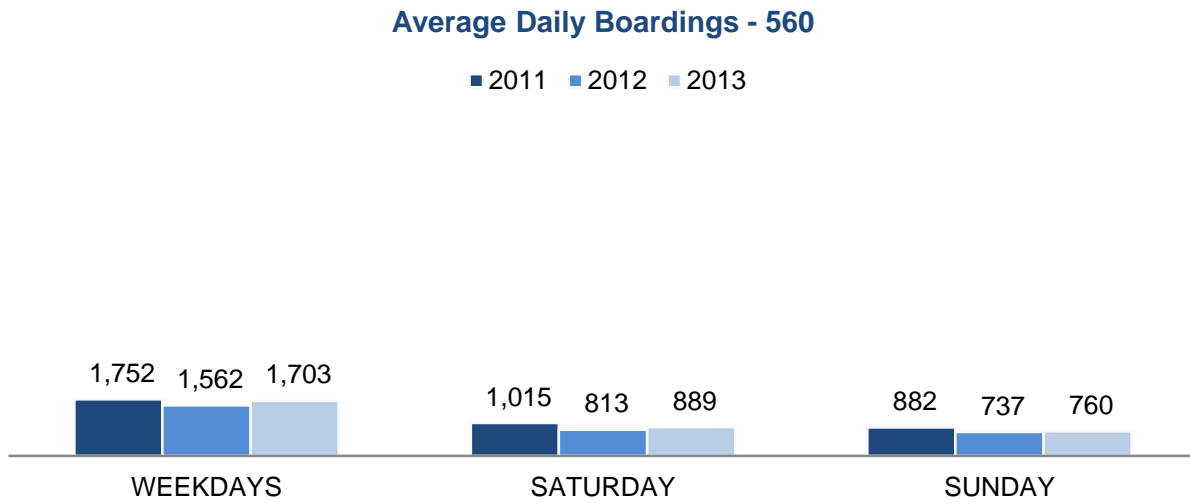
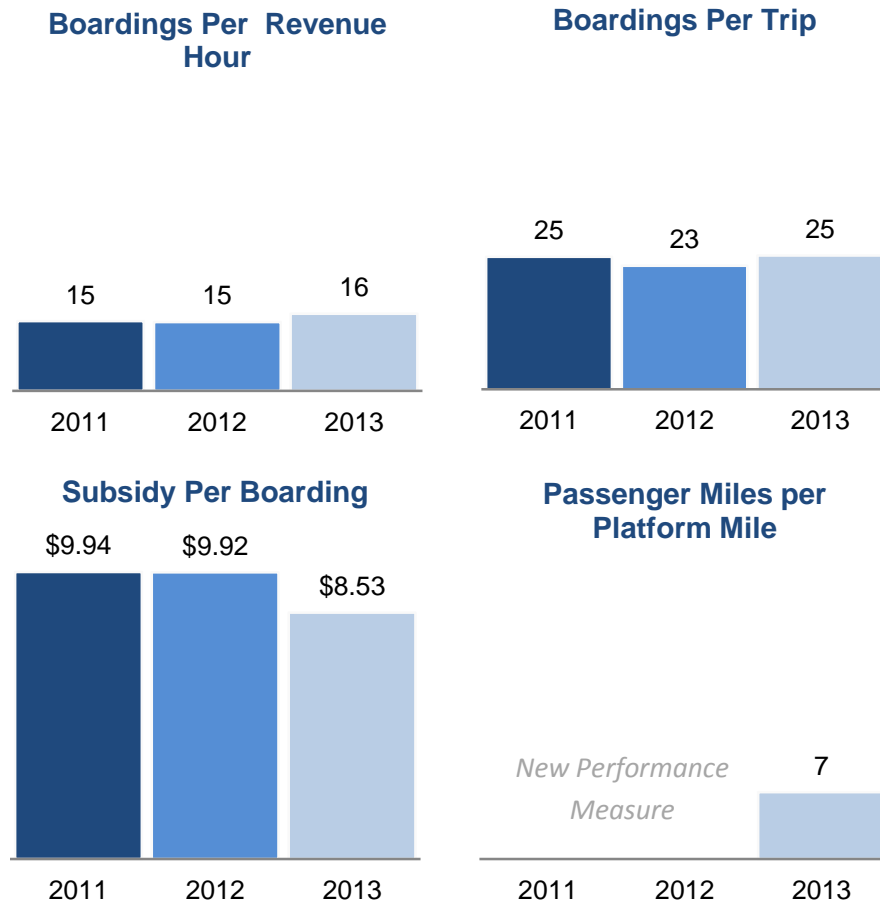


Figure 60 - Route 560 Performance Measures



Route 566 Auburn – Overlake

Route 566 connects Auburn and Kent to Downtown Bellevue and the Overlake Transit Center in Redmond via SR-167, SR-520 and I-405. Route 566 underwent a major service change in June 2013. Select peak period trips were converted to a new Route 567, which an express overlay that bypasses Renton and is timed to make connections to the Sounder trains at Kent Station. Select midday trips were shortened, with service between Auburn and Renton only. Passengers who want to continue to Bellevue are accommodated with a timed transfer with Route 560 at the Renton Transit Center.

- Route 566’s overall total ridership was relatively unchanged after the June restructure. The riders per trip averages changed by less than 1.
- The midday short trips from Kent to Renton have about 14 riders per trip, or half of the all-day route average.
- Day by day averages are very constant throughout the year, which shows that 566 riders use the service regularly and there is little parallel service.

Figure 61 - Route 566 Map

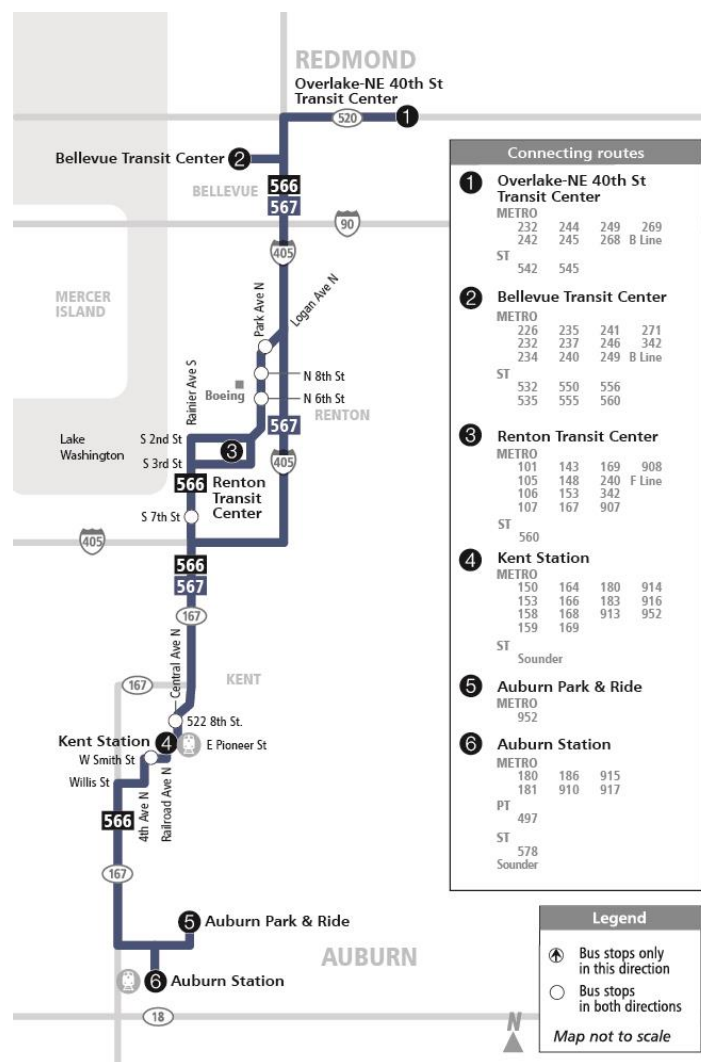


Figure 62 - Route 566 Average Daily Boardings (Weekday)

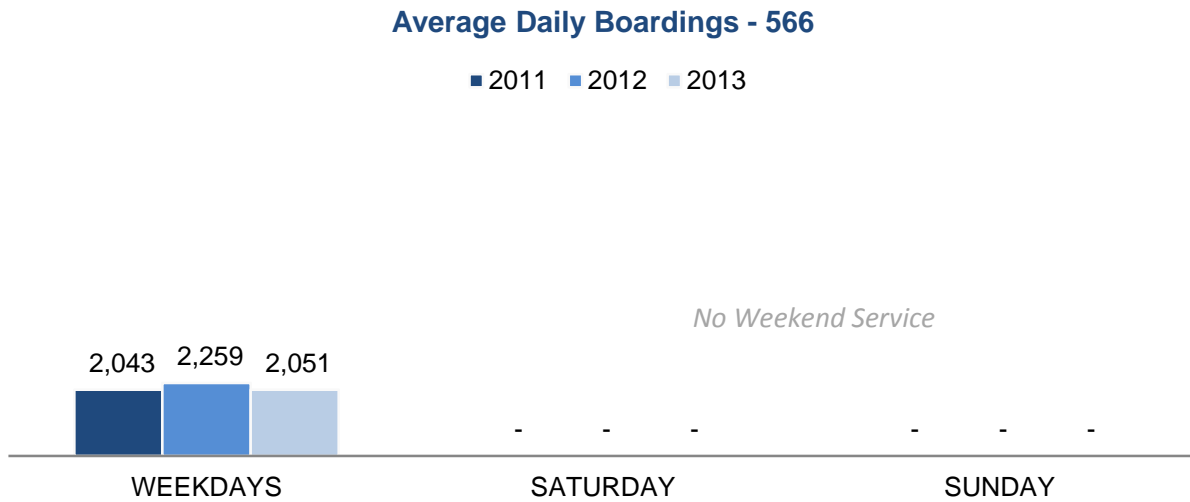
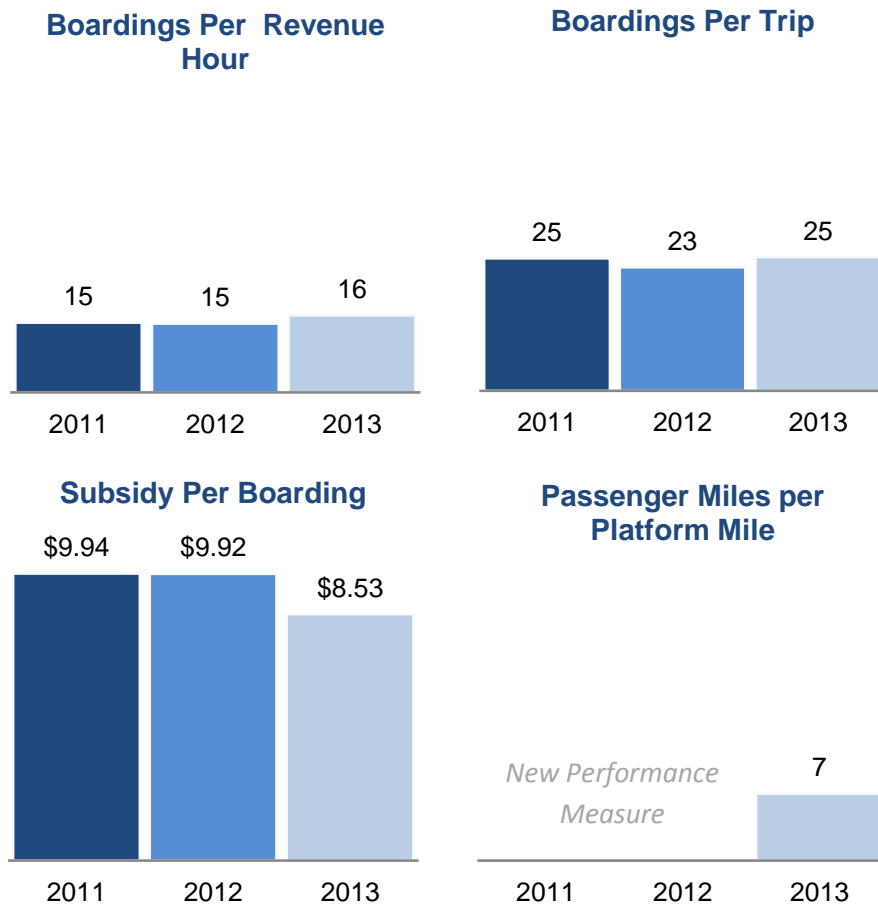


Figure 63 - Route 566 Performance Measures



Route 567 Kent – Overlake

Route 567 was introduced in June 2013 as an express version of Route 566 between Kent and Overlake via Bellevue. Route 567 does not stop in Renton or Auburn. One additional trip was added in September 2013 to meet an additional Sounder train.

- Route 567 riders appear to make other arrangements on Friday, as ridership on those days drops by about 7 average riders per trip.
- Most trips carry full seated loads, except the last three late morning trips.

Figure 64 - Route 567 Map

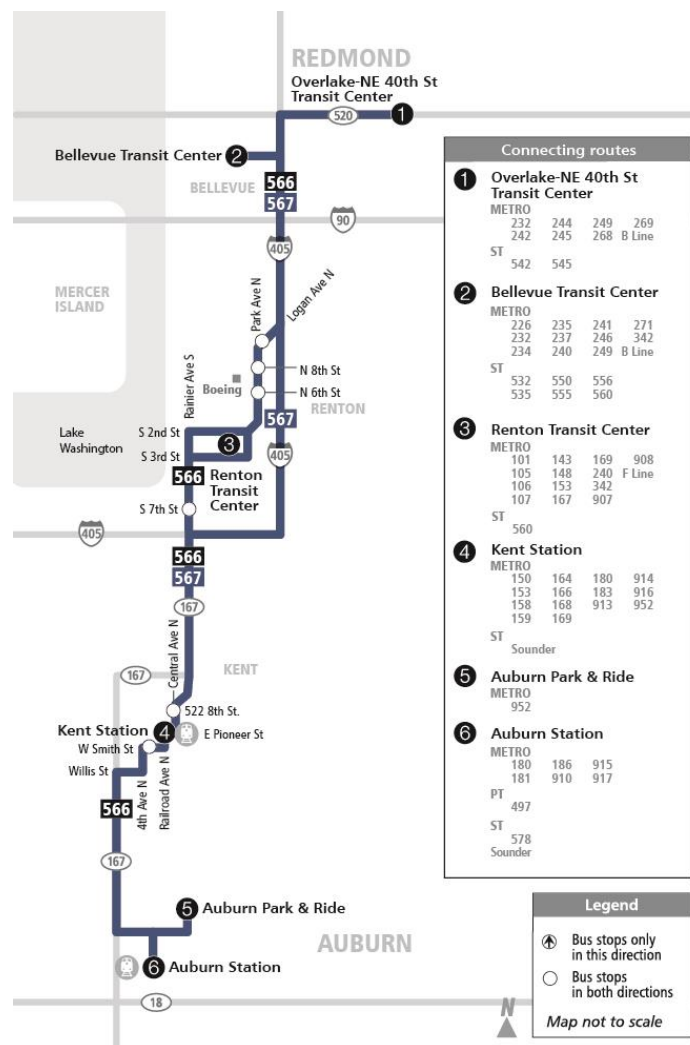


Figure 65 - Route 567 Average Daily Boardings (Weekday)

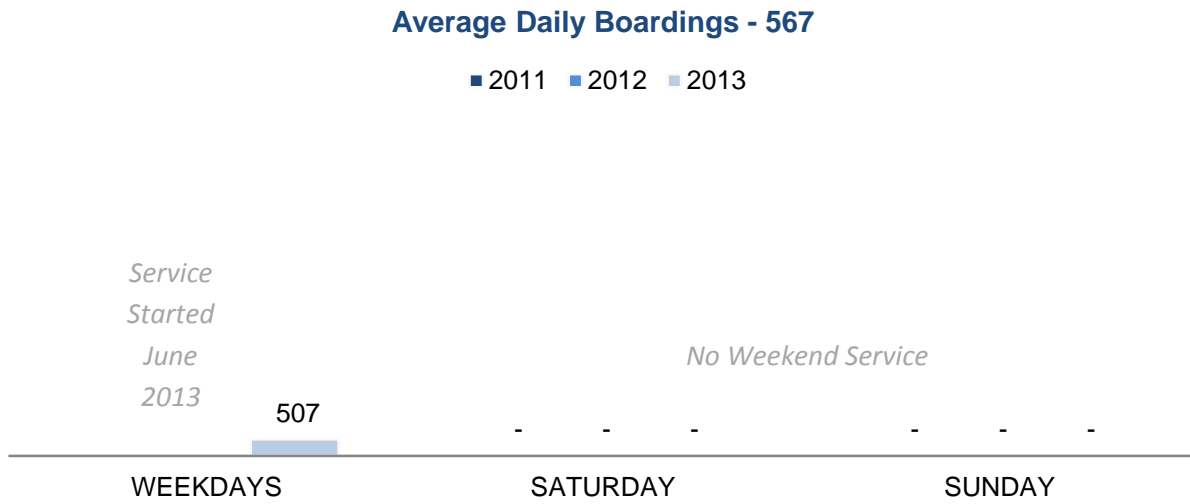
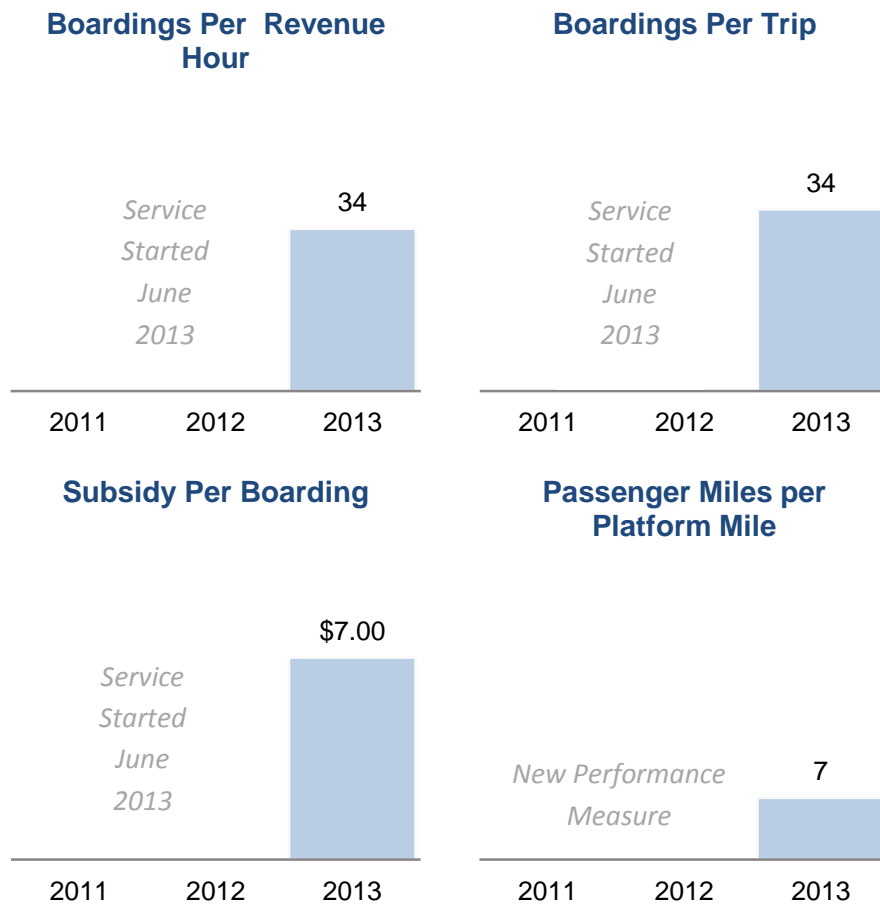


Figure 66 - Route 567 Performance Measures



Route 574 Lakewood – SeaTac Airport

Route 574 connects Tacoma Dome with SeaTac Airport. It has a very long service span with the first trip starting at 2:15 a.m. to accommodate employees at SeaTac Airport. There were no service changes for the 574 in 2013.

- The first weekday trip to SeaTac in the morning is the busiest trip through the year with 48.8 passengers.
- Route 574 has very resilient ridership throughout the year, with little variation day to day. Only 5 days had fewer than 25 average riders a trip.
- Weekend ridership per trip is very similar to weekday, except the busiest trips occur later in the day instead of 2 a.m.

Figure 67 - Route 574 Map

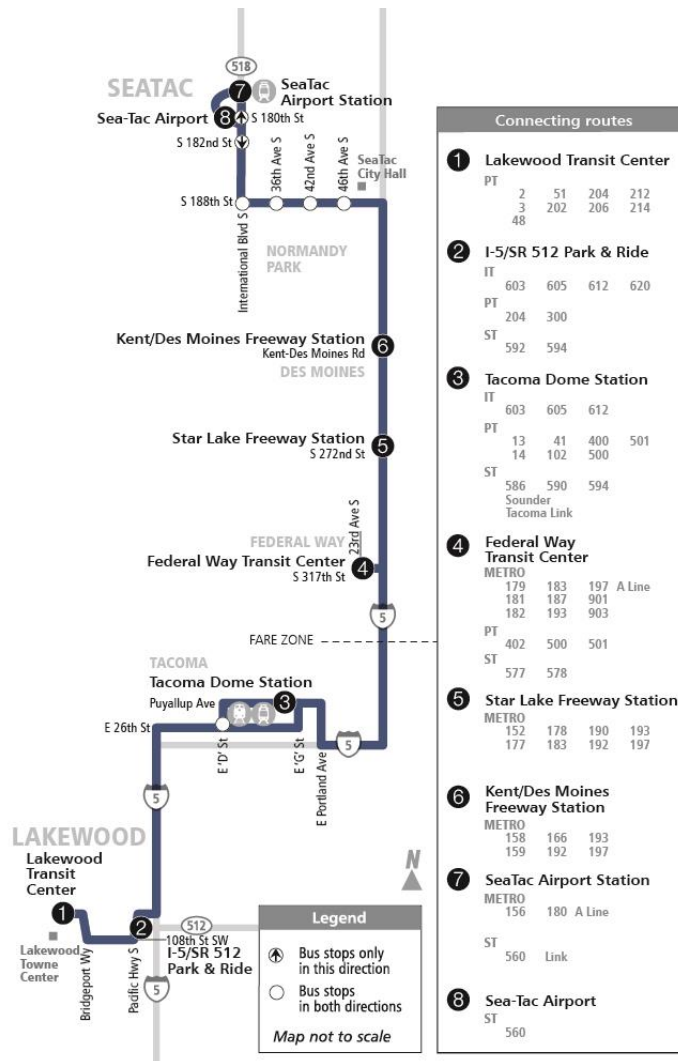


Figure 68 - Route 574 Average Daily Boardings (Weekday)

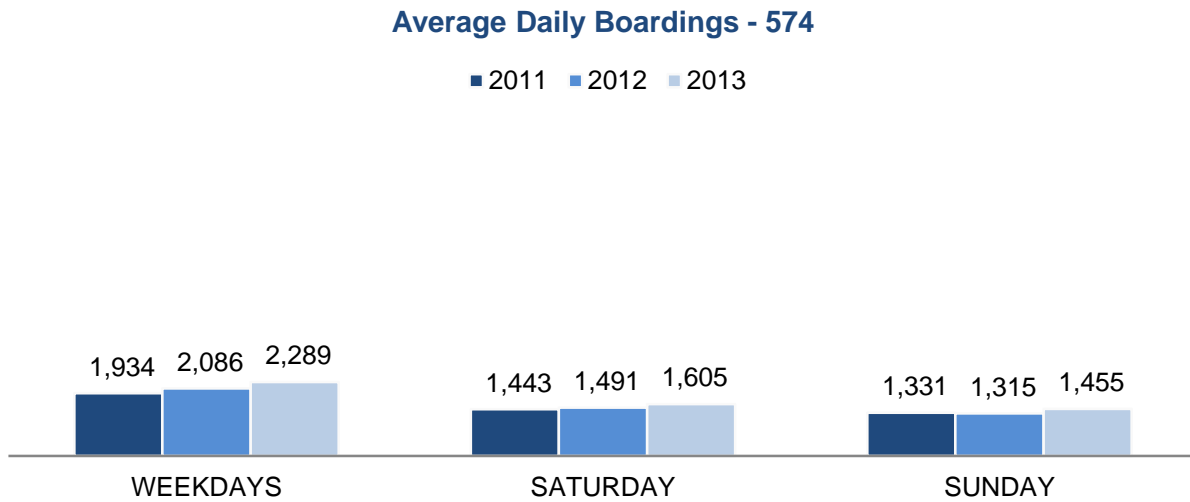
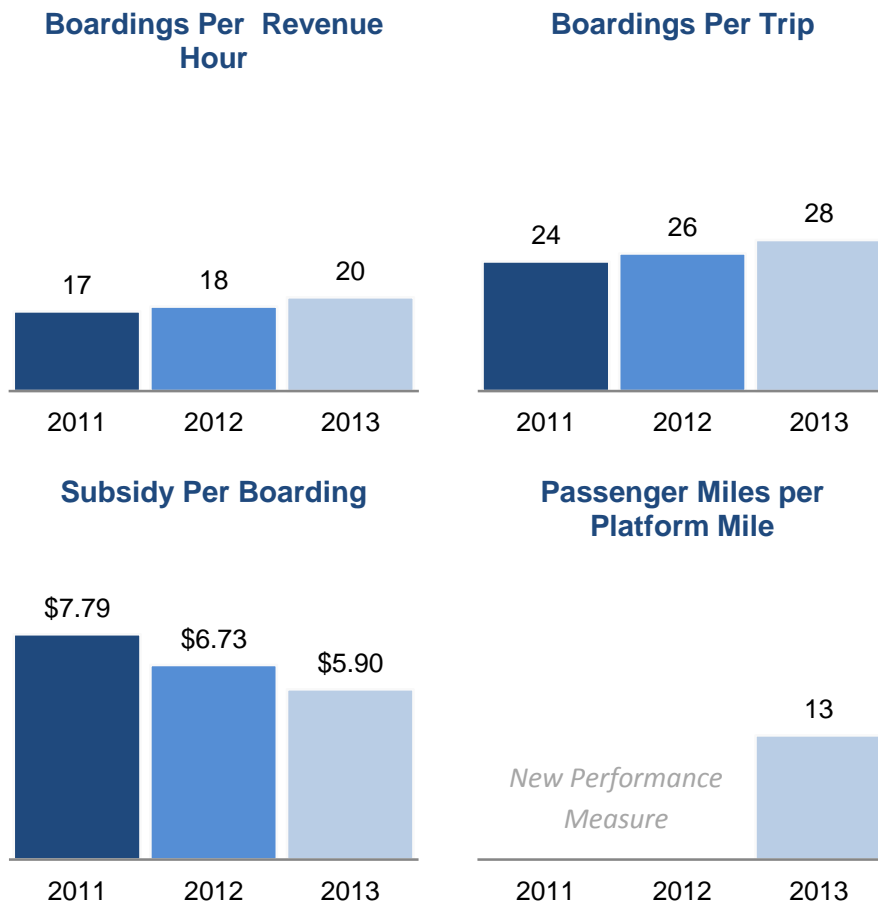


Figure 69 - Route 574 Performance Measures



Route 577 Federal Way – Seattle

Route 577 connects the Federal Transit Way Center to Downtown Seattle via I-5 and the Seneca Street off-ramp.

- Weekday peak direction 577 trips average about 53 riders a trip, while the reverse peak trips carry about seven passengers south in the morning.
- On Saturdays, ridership starts off at 27 riders a trip in the morning and then buses carry less passengers as the day goes on, with 17 riders a trip during the 3-6pm afternoon period. Saturday ridership also increases during the summer, with about 5 more riders per trip on average.
- Sunday ridership stays much more constant throughout the day with 14 riders a trip. Ridership spikes during the football season

Figure 70 - Route 577 Map

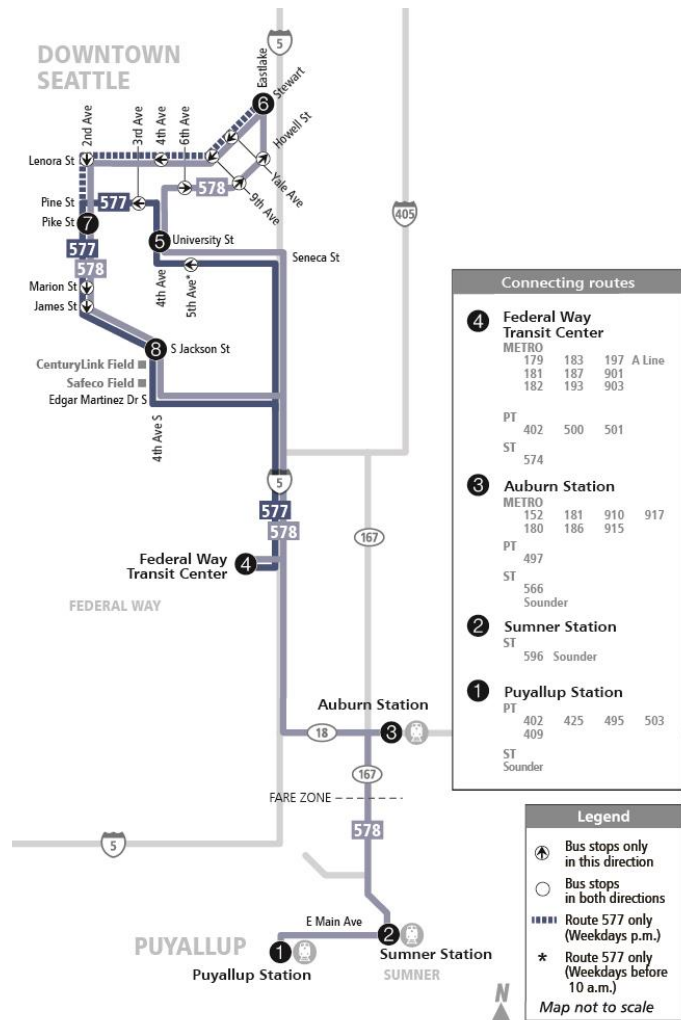


Figure 71 - Route 577 Average Daily Boardings (Weekday)

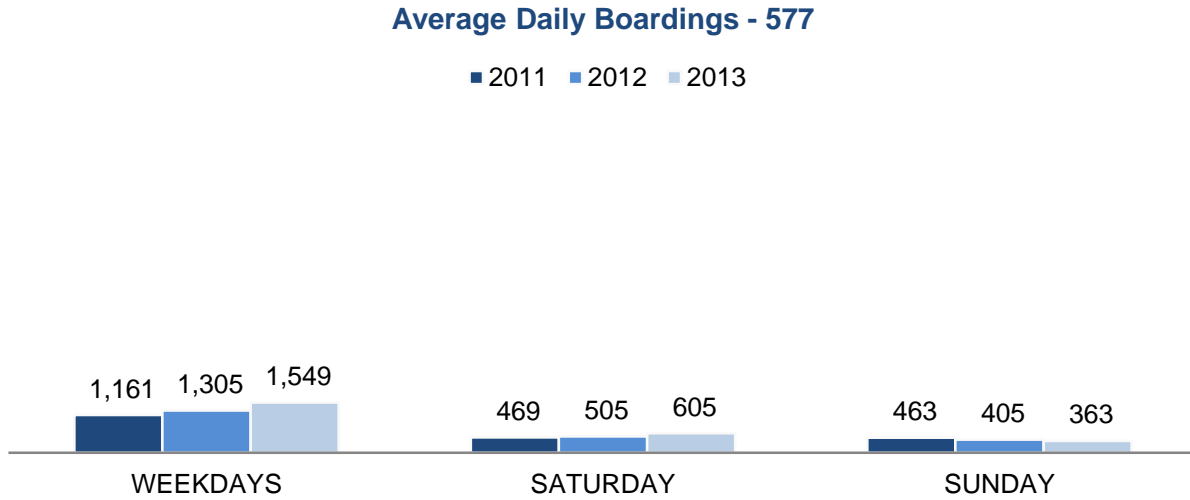
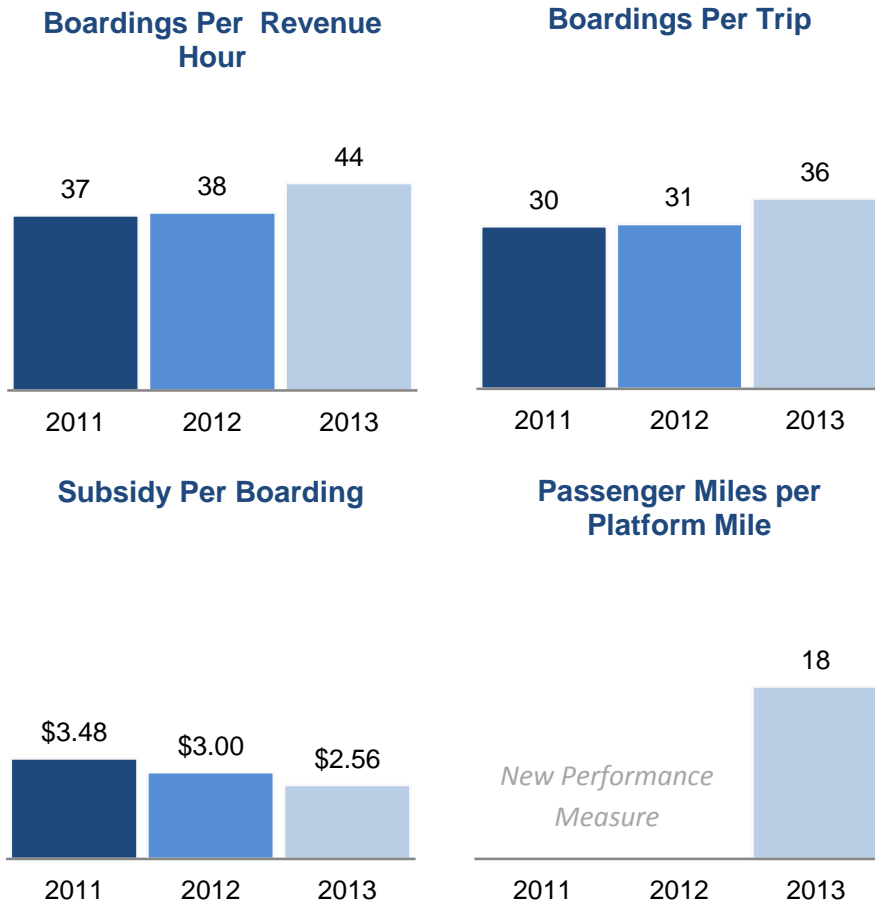


Figure 72 - Route 577 Performance Measures



Route 578 Puyallup – Seattle

Route 578 is a seven day a week route that follows Route 577 alignment until Federal Way, when it shifts to the SR-167 corridor to serve Sounder stations in Auburn, Sumner, and Puyallup. On weekdays 578 operates off-peak when Sounder is not running, and on weekends the 578 operates all day. One trip was added in September 2013.

- Weekday ridership is highest from the start of service in the morning, and it slowly gets lighter throughout the day.
- Route 578 weekdays, Saturday and Sunday ridership increase in the summer, with peak ridership days during Hempfest weekend.

Figure 73 - Route 578 Map

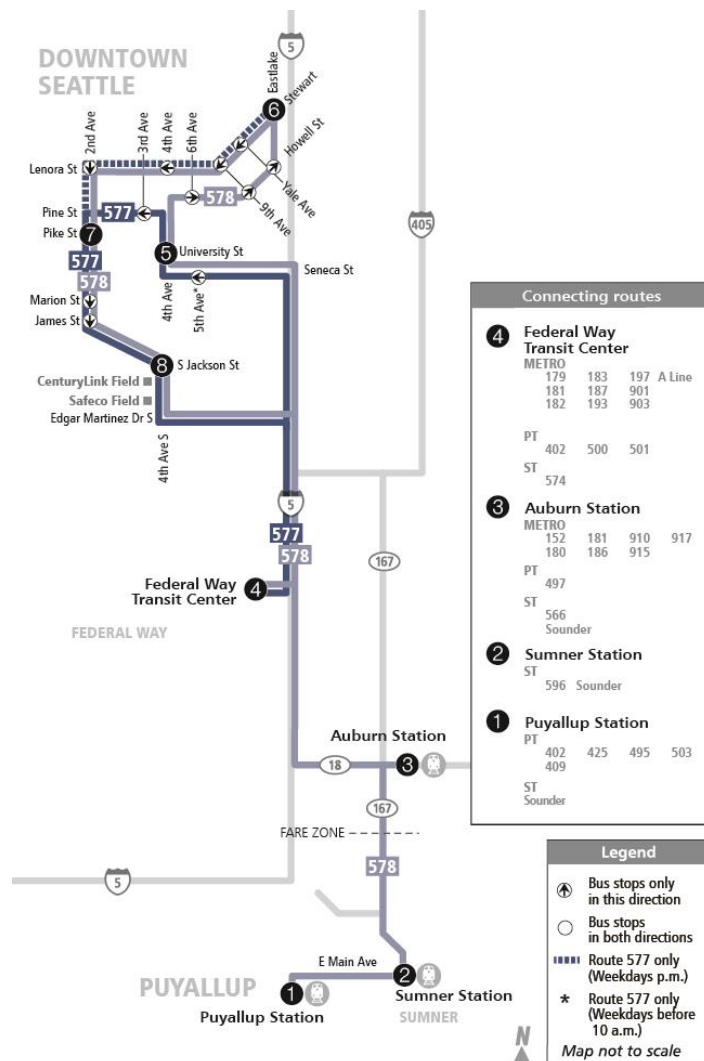


Figure 74 - Route 578 Average Daily Boardings (Weekday)

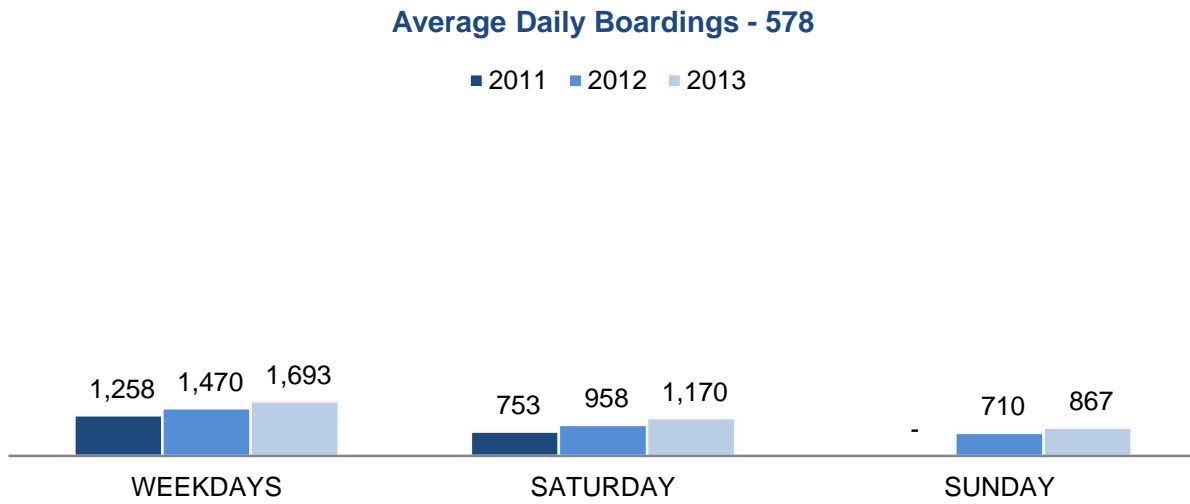
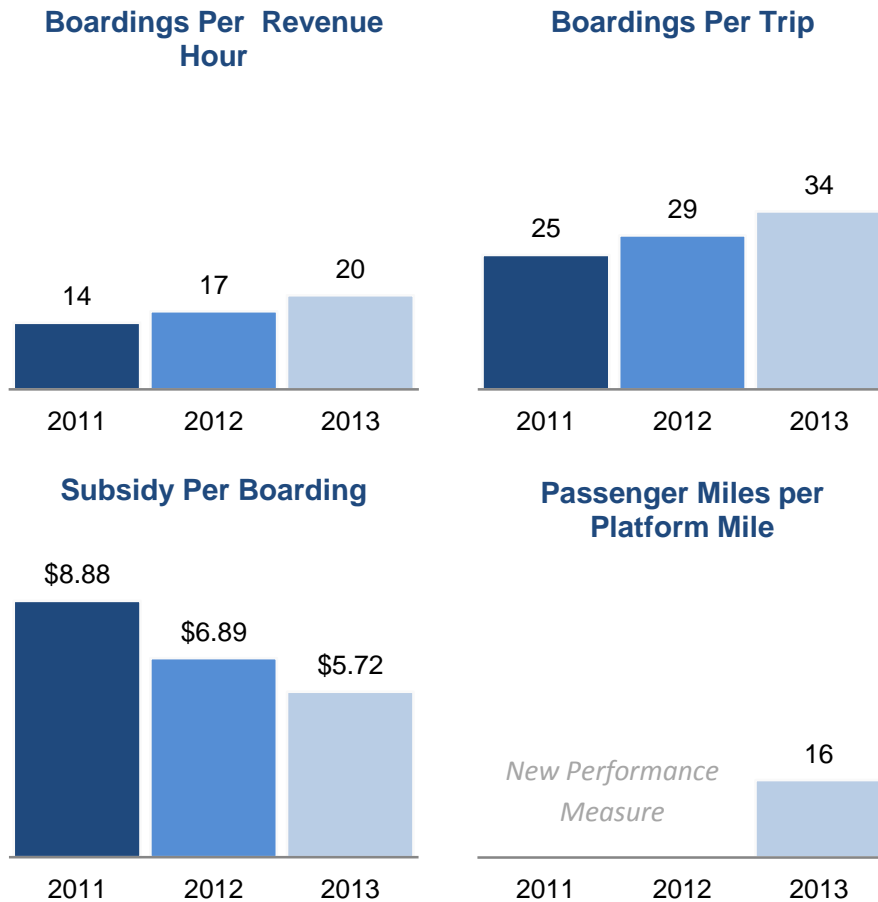


Figure 75 - Route 578 Performance Measures



Route 586 Tacoma – University District

Route 586 is a weekday peak-only express route from the Tacoma Dome to the University of Washington (UW) in North Seattle via I-5. The route did not have any service changes in 2013 besides the annual occurrence of 4 trips being added during the UW school year and then deleted during the summer.

- The earliest Seattle bound trips are the busiest, averaging over 40 riders per trip.
- Tacoma bound trip level ridership varies greatly by trip start time. With half hour frequencies, it appears that riders are selecting trips based upon class or work shift end times. Trips at half past the hour are more productive.
- Route 586 has far lower productivity during minor holidays, with four days with fewer than 10 riders a trip on average. The last few weeks of the year also have lower ridership with 15 riders a trip.

Figure 76 - Route 586 Map

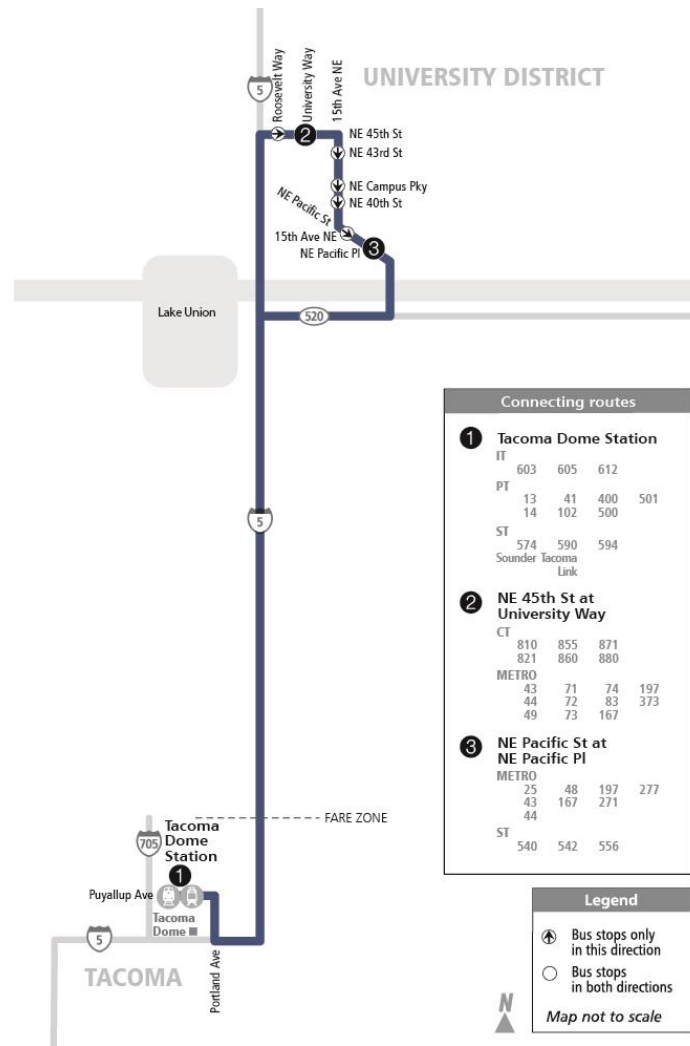


Figure 77 - Route 586 Average Daily Boardings (Weekday)

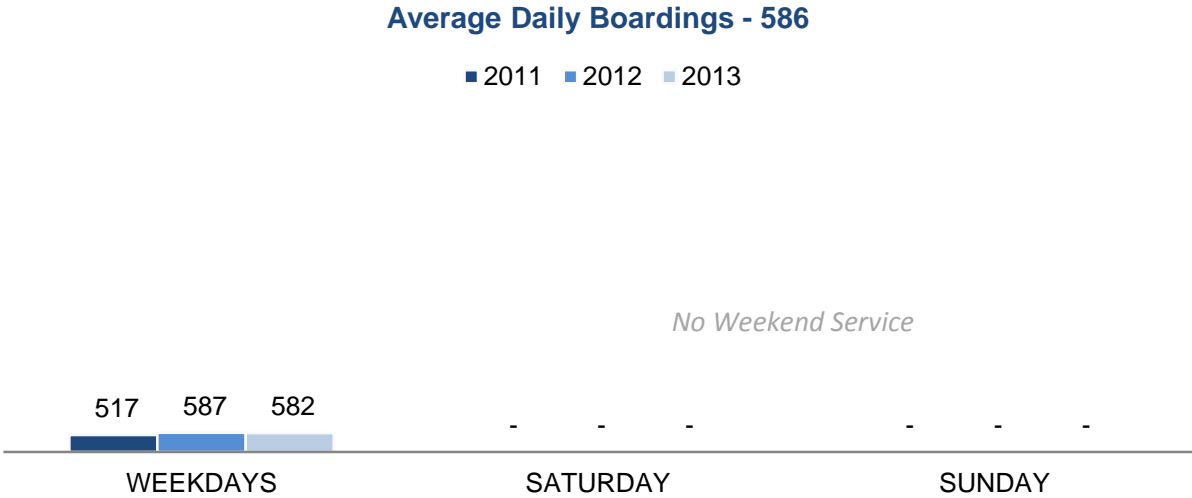
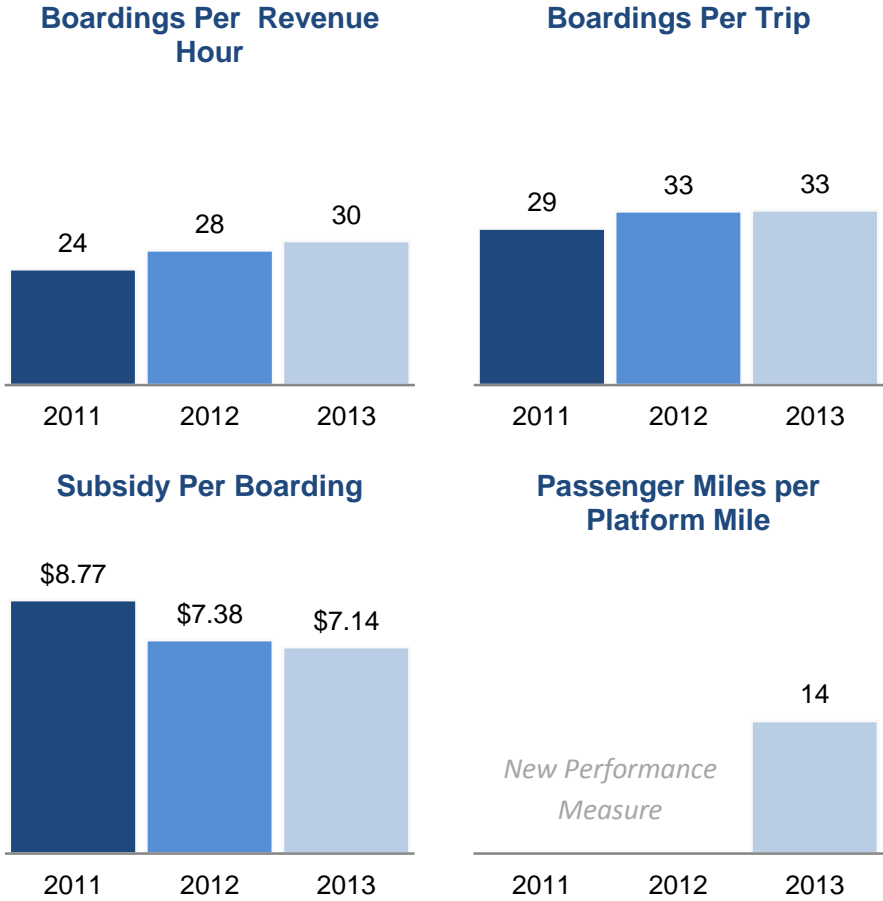


Figure 78 - Route 586 Performance Measures



Route 590 Tacoma – Seattle

Route 590 connects Downtown Tacoma and the Tacoma Dome to Downtown Seattle via I-5 and the SODO busway. Service is very frequent, and operates during weekday peaks only. Minor schedule changes were made to balance frequencies to Downtown Tacoma in September 2013.

- Trip level ridership changes with the vehicle assignments, especially during the peak of the peak. Both 40-foot buses and 45-foot MCI over-the-road coaches serve the route, ranging from 35 to 57 seats. Riders take advantage of the high frequency service to wait to get a seat.
- Reverse peak trips carry about half the passengers of peak direction trips on average.
- Seattle bound ridership is carries about four more riders per trip on average, possibly an indication that Sounder riders are taking the bus one way.
- Ridership is slightly lower on Fridays, especially in the summer.

Figure 79 - Route 590 Map

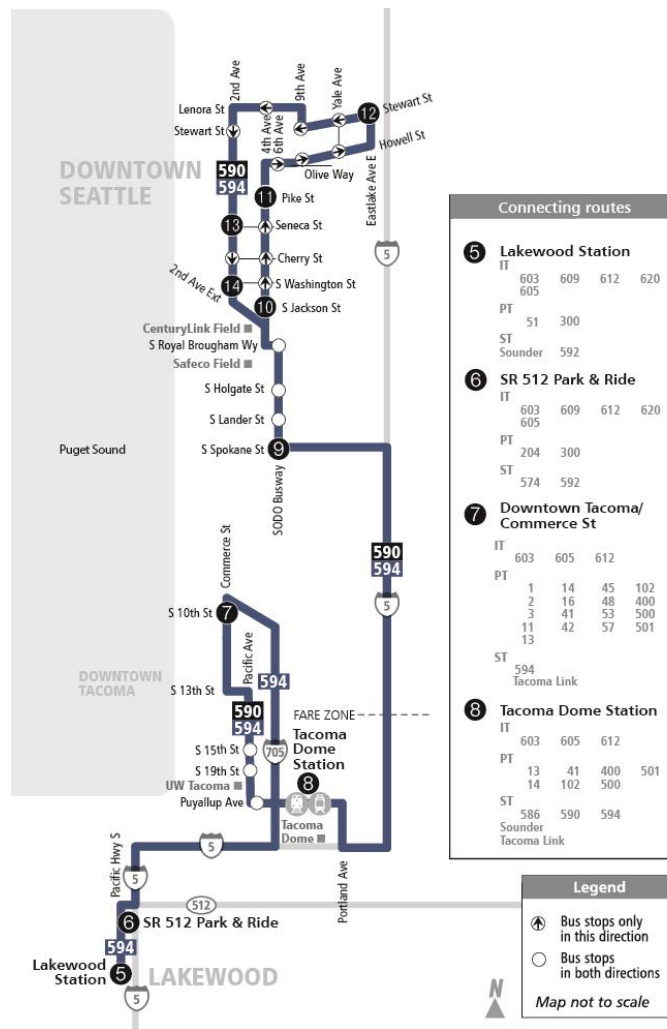


Figure 80 - Route 590 Average Daily Boardings (Weekday)

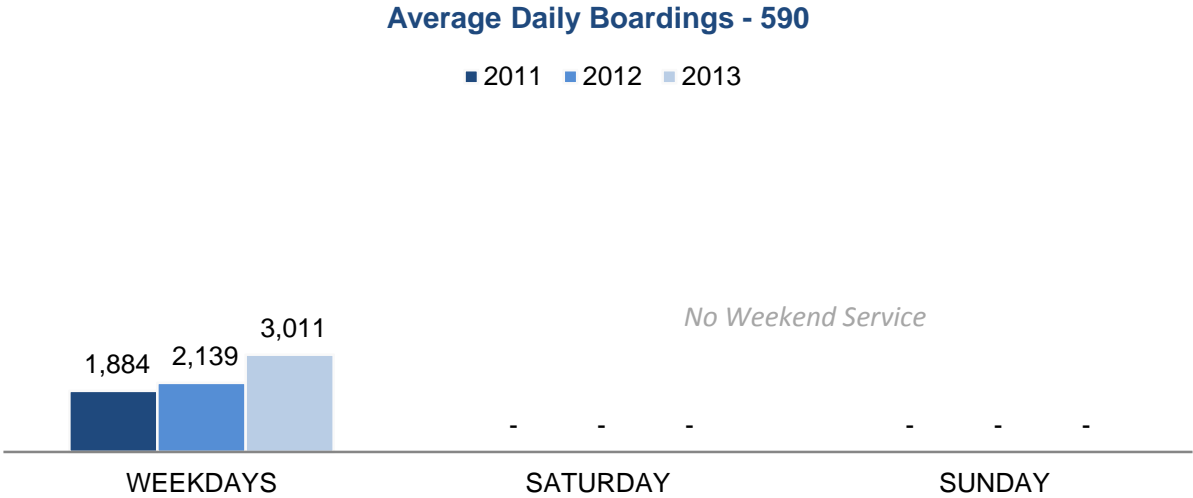
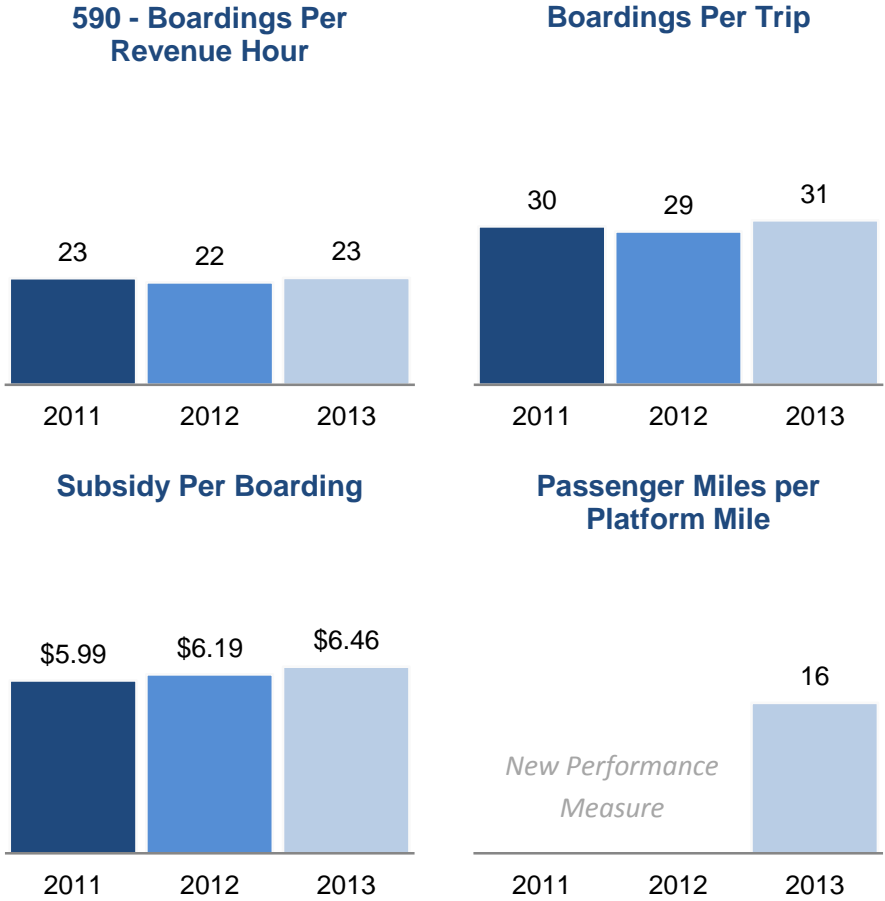


Figure 81 - Route 590 Performance Measures



Route 592 Olympia/DuPont – Seattle

Route 592 connects Olympia, DuPont, and Lakewood with Downtown Seattle via the Seneca St off-ramp during weekday peak periods. It does not serve Tacoma. Six round trips were extended to Olympia from DuPont in September 2013. Two reverse peak Seattle bound trips were cut in spring of 2013.

- Southbound reverse peak trips carry about 10 passengers an hour. In fall 2012, the first Northbound reverse peak trip carried about nine passengers and the second trip carried about three.
- In October 2012 Sounder commuter rail was extended to Lakewood. Peak Seattle bound trips have an inverse relationship with train departures. In general, 592 trips evenly spaced between trains carry about 40 riders a trip on average, while bus departure times that are next to trains carry about 25 to 30 riders a trip.
- There appears to be a directional bias towards morning Seattle-bound service, with 29 riders a trip in that direction and about 25 going back to Lakewood.

Figure 82 - Route 592 Map

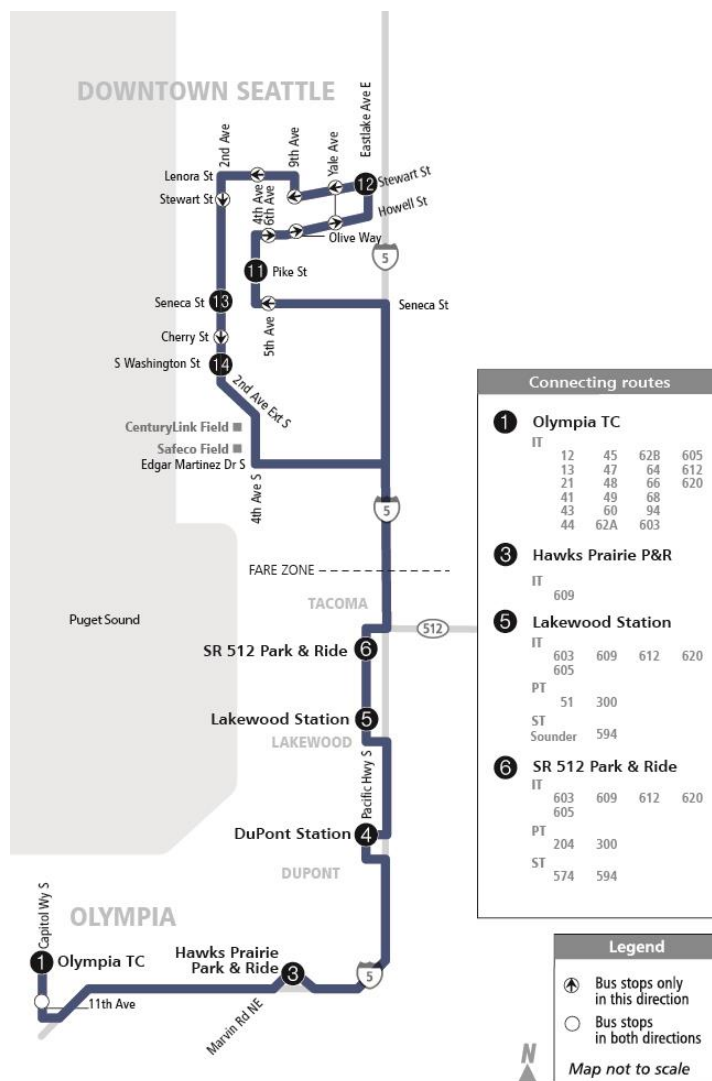


Figure 83 - Route 592 Average Daily Boardings (Weekday)

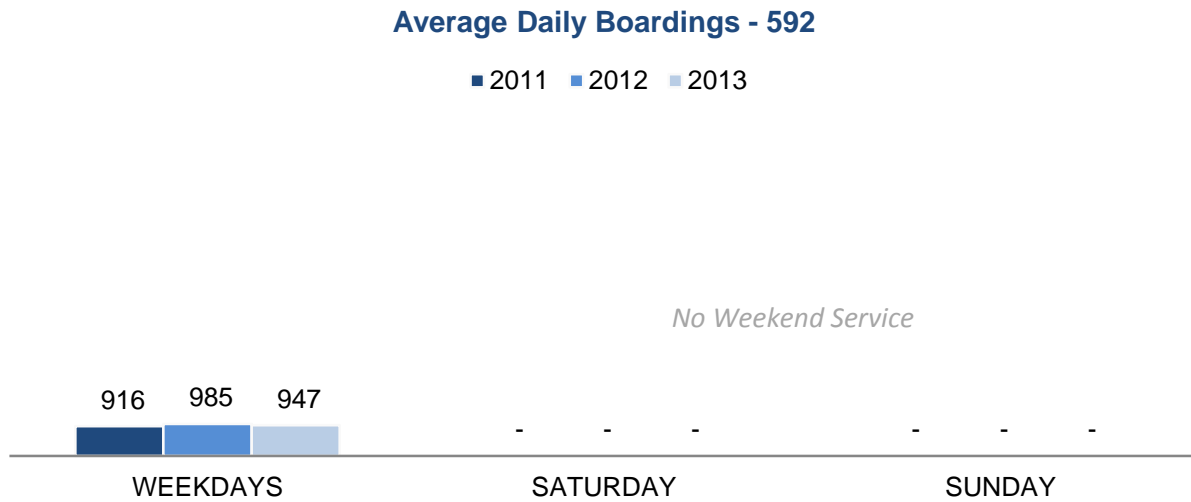
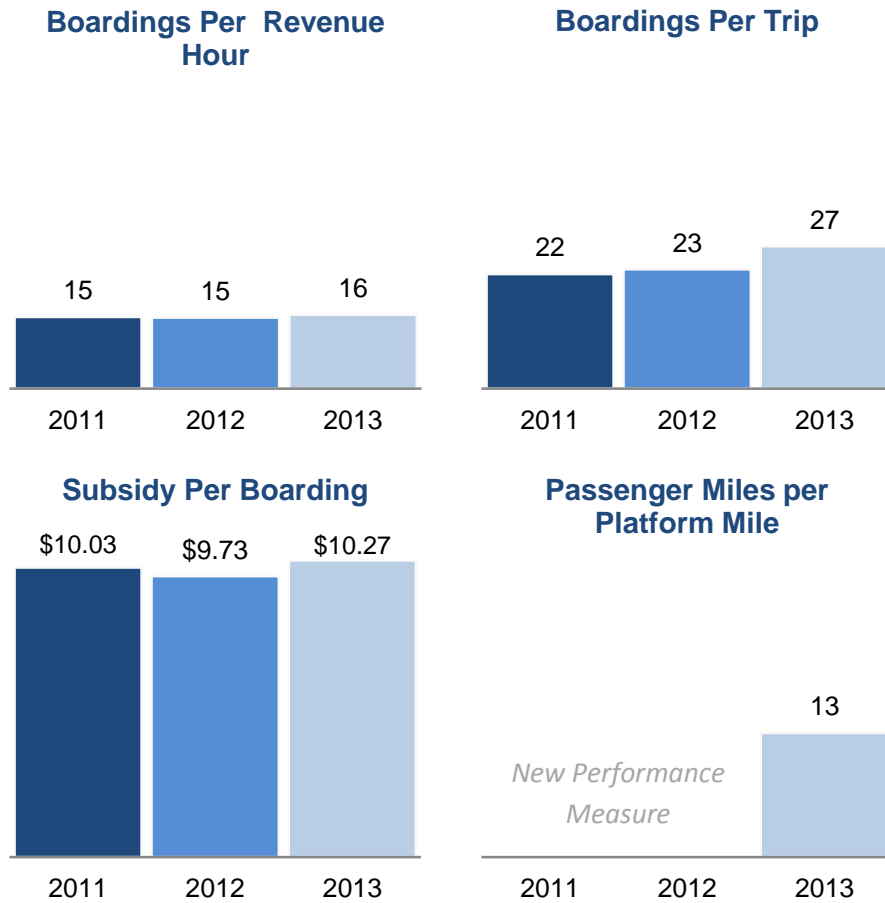


Figure 84 - Route 592 Performance Measures



Route 594 Lakewood – Seattle

Route 594 is the all-day, seven day a week service that connects Lakewood to Downtown Seattle via Downtown Tacoma, the Tacoma Dome, and the SODO Busway. The route only experienced a few minor schedule changes in 2013.

- The busiest period for the 594 is 10 a.m. to 2 p.m. in the southbound direction with over 40 riders per trip on average.
- Northbound was busy during the same times, but its busiest trip was the first of the day at 8:33 a.m. with over 50 riders a trip on average.
- Overall route ridership is up about 8 riders a trip on weekends in the summer compared to fall ridership.

Figure 85 - Route 594 Map

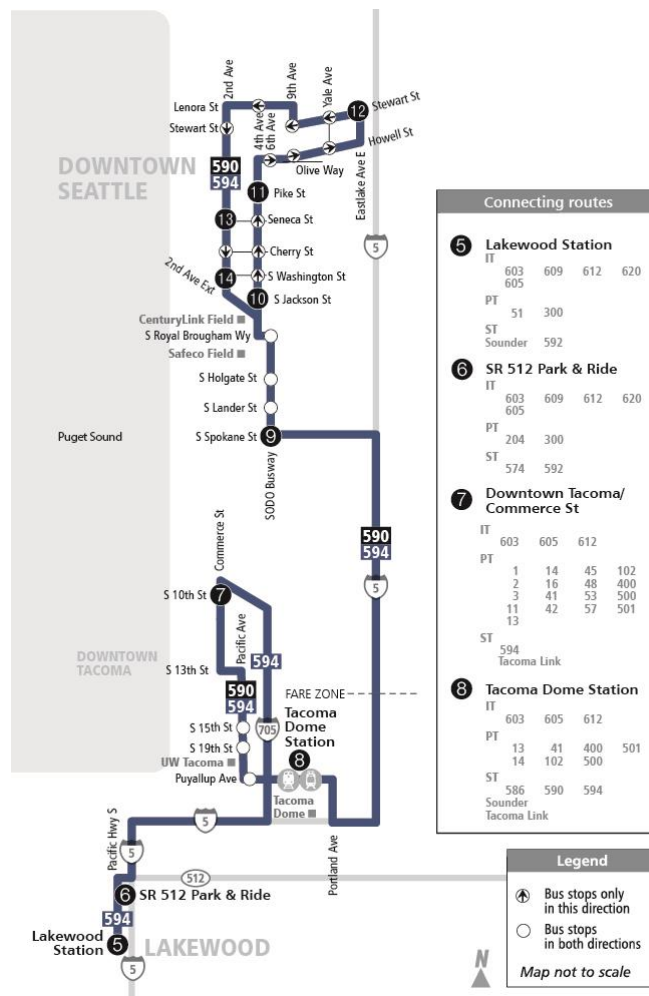


Figure 86 - Route 594 Average Daily Boardings (Weekday)

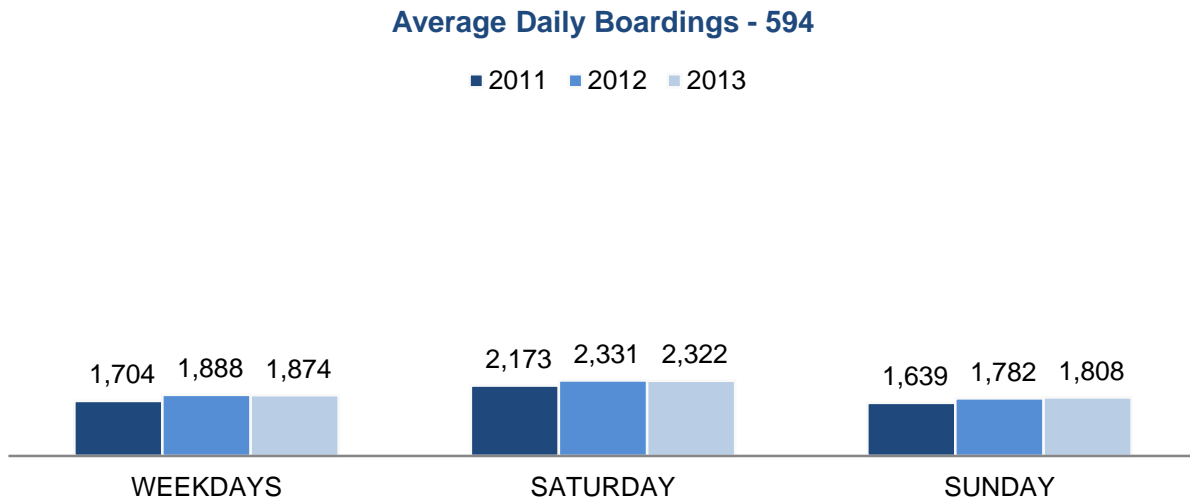
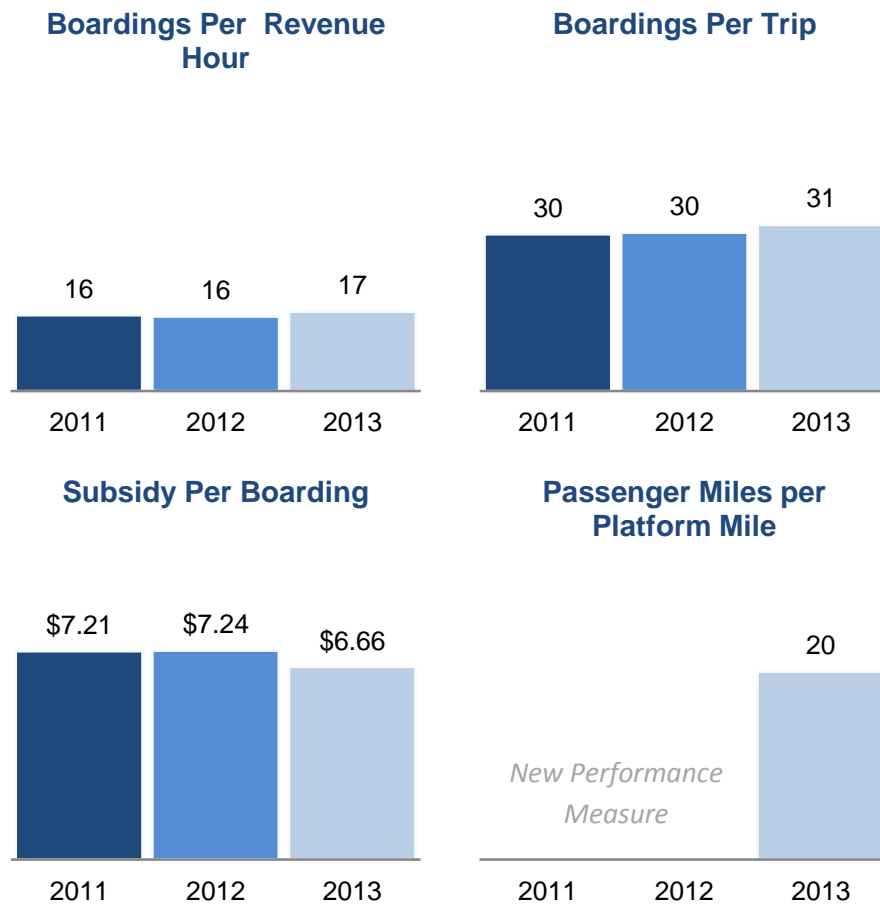


Figure 87 - Route 594 Performance Measures



Route 595 Gig Harbor – Seattle

Route 595 connects Gig Harbor to downtown Seattle via the Tacoma Narrows Bridge and West Tacoma. The route did not have any service changes in 2013.

- Riders are very aware of coach assignments on the route, as the number of seats varies by bus type. Standing all the way to Gig Harbor is an unpleasant experience. Seven of the ten trips carry loads more than the number of seats in a standard 40-foot bus.
- There are slightly more passengers on average per trip in the outbound direction, with about 43 versus 39. It is unclear how these passengers make a round trip.
- There are only about a dozen days per year when ridership is under 20 riders a trip.
- Fridays carry about 8 riders per trip less on average.

Figure 88 - Route 595 Map

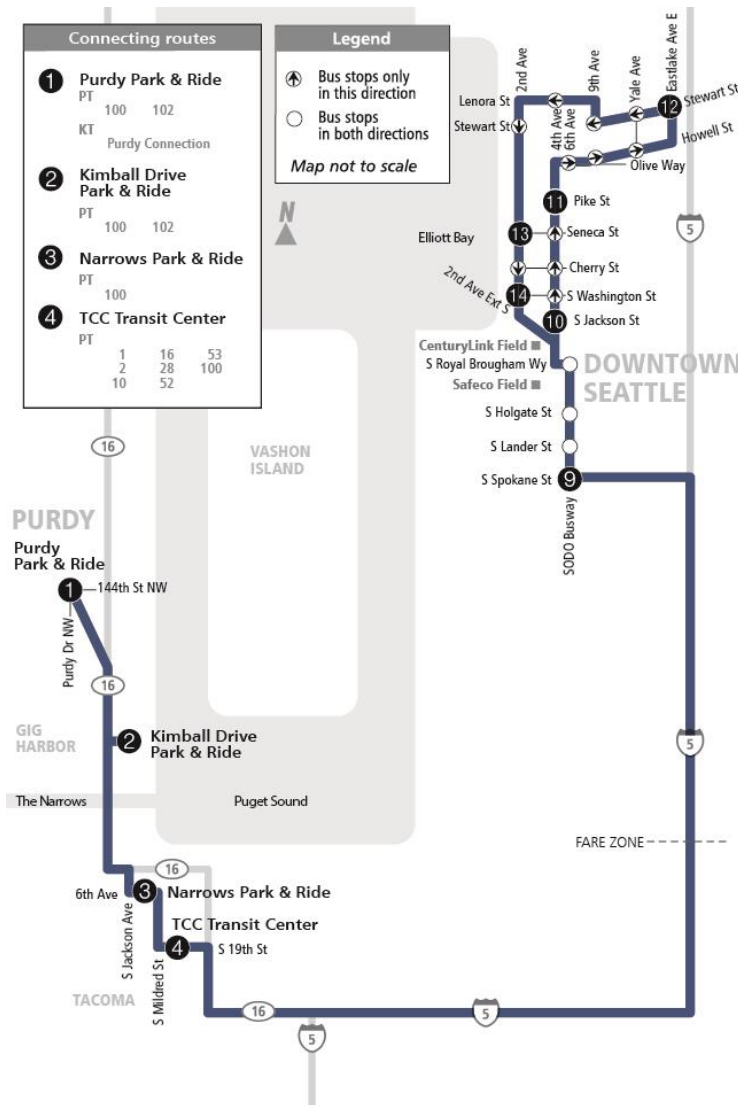


Figure 89 - Route 595 Average Daily Boardings (Weekday)

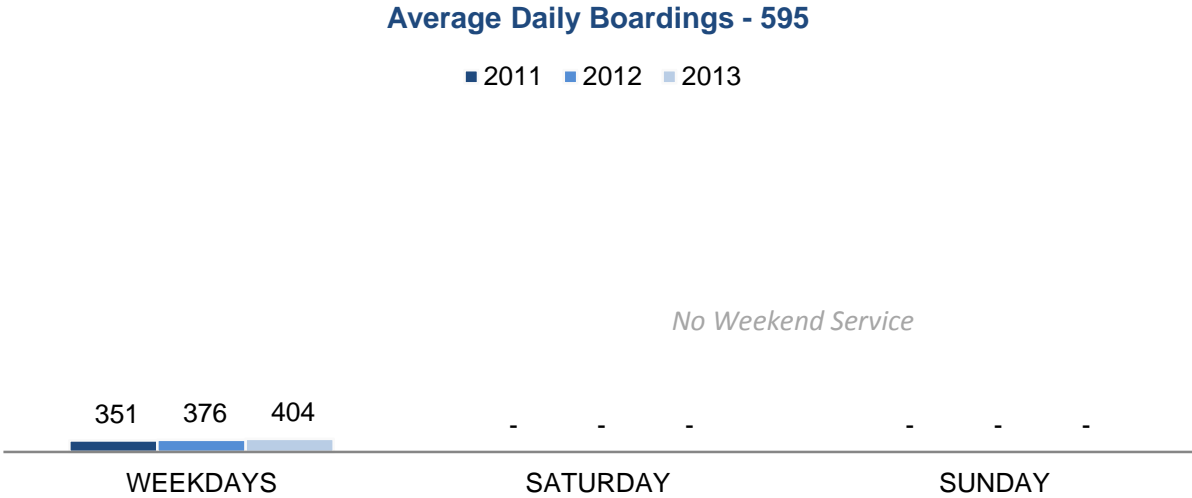
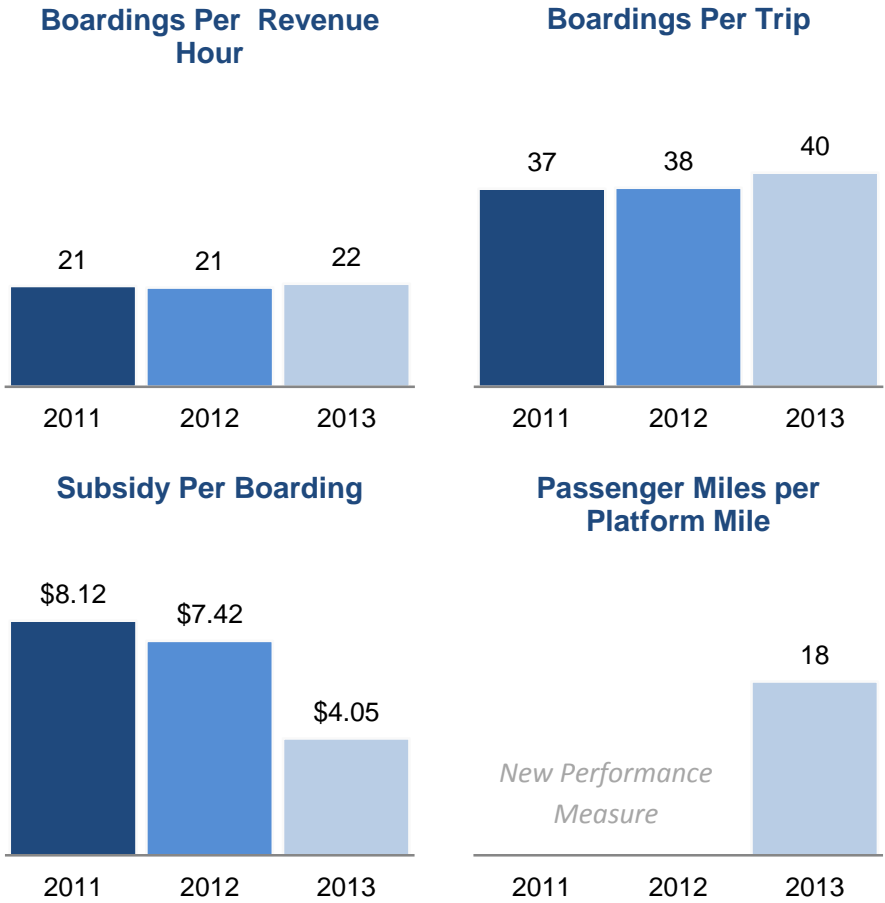


Figure 90 - Route 595 Performance Measures



Route 596 Bonney Lake – Sumner

Route 596 connects the Bonney Lake Park and Ride to the Sumner Sounder station. There are no intermediate stops. One roundtrip was added to accommodate an additional Sounder train in September 2013.

- Since September 2013, the average riders per trip dropped slightly due to passengers spread out their usage of trips with the new train.
- In the fall, about 2 less riders per trip take the bus in the morning.
- Route 596 has steady ridership, with only a handful of days when ridership drops below 15 riders a trip. Most of these days are minor holidays.

Figure 91 - Route 596 Map

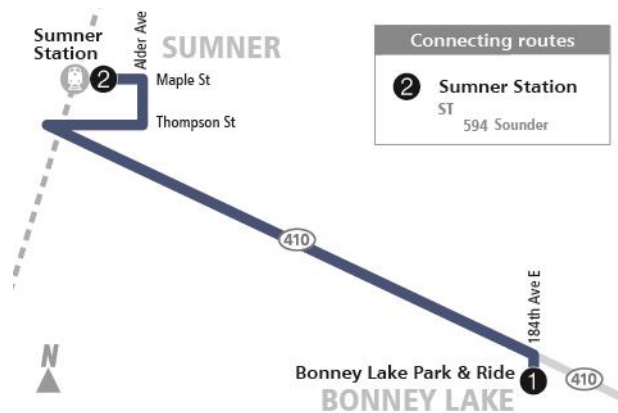


Figure 92 - Route 596 Average Daily Boardings (Weekday)

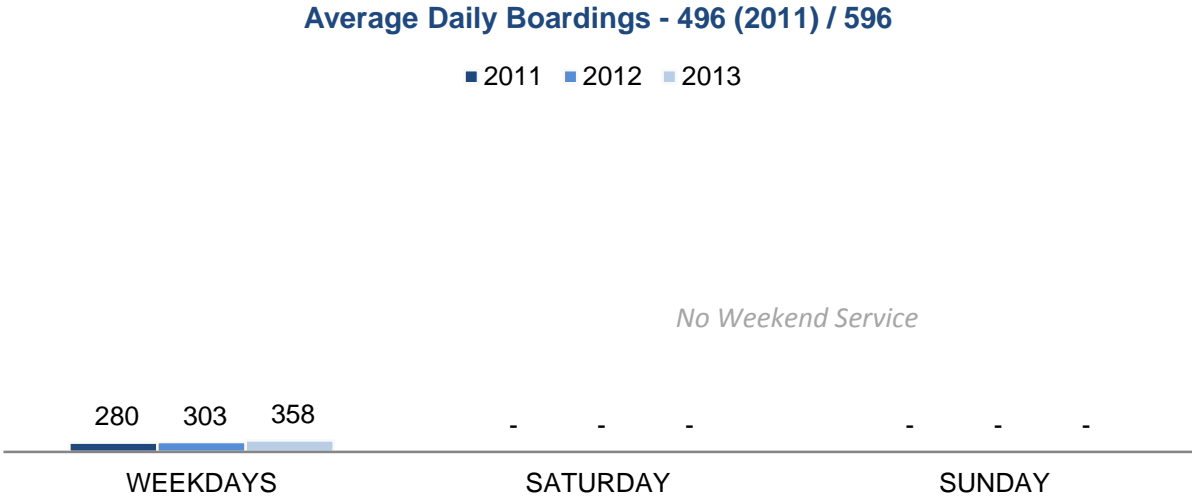
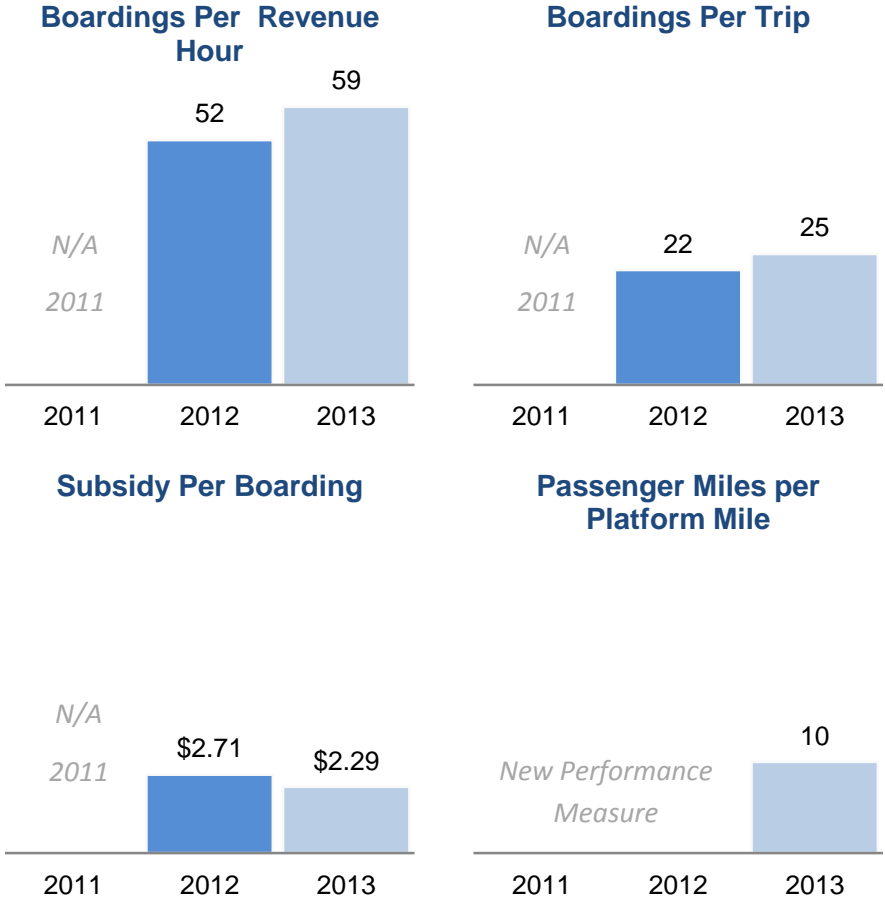


Figure 93 - Route 596 Performance Measures



Proposed Route 580 Lakewood – Puyallup

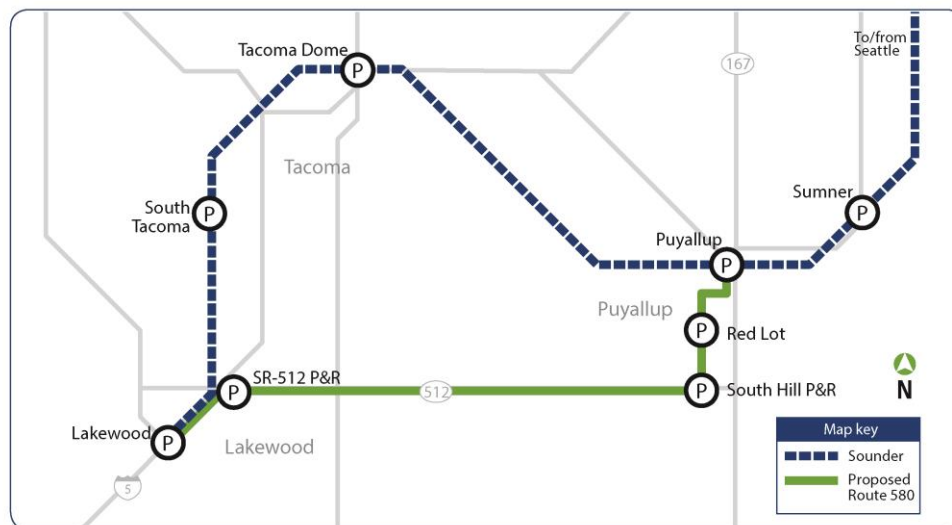
Proposed ST Express Route 580 would operate 20 trips per day between Lakewood Station and Puyallup Station with intermediate stops at SR-512 Park-and-Ride, South Hill Park-and-Ride, and Puyallup Fairgrounds Red Lot. The service would operate primarily during peak periods only. Service would be designed to meet all trains including the reverse-commute trains to provide additional opportunities for people to commute to Lakewood. Automatic passenger count (APC) data from Pierce Transit indicates there are not many boardings and alightings along 9th Avenue SE other than at the Red Lot and South Hill Park-and-Ride, which are the only stops along the 9th Avenue SE corridor that would meet the ST Express service standards for an ST Express stop.

This proposal would replace the current Sounder connector service that is operated by Pierce Transit between South Hill Park-and-Ride, the Red Lot and Puyallup Station. In addition, this new route would provide a connection between Lakewood Station to Sounder on the trips that do not operate to and from Lakewood Station by providing a connection to the train at Puyallup Station.

This new route would replace the service that is currently provided by Pierce Transit Route 495. In addition, Sound Transit will no longer need to operate the special Red Lot trips during the morning peak. There are approximately 30 people a day who ride to the South Hill Mall Transit Center, located on the south side of South Hill Mall. Pierce Transit plans to continue operation of Route 400 between South Hill Mall Transit Center, Puyallup Station and downtown Tacoma. This proposal does not propose a stop at the transit center due to the travel time required to serve it. The transit center and the park-and-ride are located on the west side of the mall.

Primary passenger loads will be between South Hill Park-and-Ride and Puyallup Station. Some trips will operate with a maximum load of around 50 passengers. The maximum load point will be between the Red Lot and Puyallup Station. Funding for this service will be provided by service efficiencies on ST Express routes 590, 592 and 594. This proposed new route will require three vehicles.

Figure 94 - Proposed Route 580 Map



CHAPTER THREE: TITLE VI EVALUATION

Introduction

The Federal Transit Administration (FTA) is responsible for ensuring that federally supported transit services and related benefits are distributed by applicants and recipients of FTA assistance in a manner consistent with Title VI, Section 601 of Title VI of the Civil Rights Act of 1964, which states:

No person in the United States shall, on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

Sound Transit provides regional transit service to many diverse communities throughout the Central Puget Sound area. Each year, the agency prepares a detailed update on the development of its services, which may include recommendations for major service changes in response to changing vehicle hours of a route by 25% or more; move a stop or station location by more than half a mile; or that trigger budget revisions that require review and approval by the Sound Transit Board or a committee of the Board.

Any one or combinations of these factors define a “major” service change that would be included in the SIP decision package for Board member review and action. This section of the SIP provides an assessment of potential impacts to minority, low income and limited English speaking communities associated with the 2015 service change.

Because Sound Transit generally provides long-distance regional service with few stops, the impacts are quantified only for residents of those census tracts where Sound Transit stops and stations are actually located. Maps assessing impacts to the three Title VI communities for the proposed ST Express Route 580 is included at the end of this chapter. The population of Title VI communities as a percentage of the total population of the Sound Transit district is shown in the table below.

Table 8 - Title VI Populations in Sound Transit District

Title VI Populations	% Sound Transit District Population
Minority	26.62%
Low Income	15.50%
Limited English Proficiency	4.28%

The scope of analysis for each area related to this service change has been determined by Section 2 of *Sound Transit Title VI Demographic and Service Profile Maps & Charts, Demographic Analysis Methodology* and outlines the following criteria.

Table 9- Service Area Definition for Title VI Analysis

Type	Service Area (miles)
Bus Stop without parking	0.5
Rail station without parking	1.0
Major bus facilities	2.5
Rail station with parking	5.0

Based on the results of this analysis, when alternative service and other mitigating factors are taken into account, it does not appear that any of the service changes have a disparate or disproportionate impact on Title VI populations in the Sound Transit district.

Proposed Route 580

The only major service change proposed in the 2015 SIP is the new ST Express Route 580. Route 580 would replace the current Route 495 Sounder connector service that is operated by Pierce Transit between South Hill Park-and-Ride, the Red Lot and Puyallup Station. In addition, this new route would provide a connection between Lakewood Station to Sounder on the trips that do not operate to and from Lakewood Station by providing a connection to the train at Puyallup Station. The findings from the Title VI analysis on Route 580 show that they do not disproportionately impact Title VI populations in the Sound Transit district.

Funding for this route will come from the spring 2015 Service Change package. Routes 590, 592, and 594 were revised in order to increase efficiency and more accurately reflect actual ridership. These changes did not change vehicle hours by more than 25%, move a stop or station location, or trigger a budget revision; therefore they did not require review and approval by the Sound Transit Board. Reinvestment of those hours to implement Route 580 will be subject to Board approval of the 2015 Service Implementation Plan.

Figure 95- Proposed Route 580 Minority Population

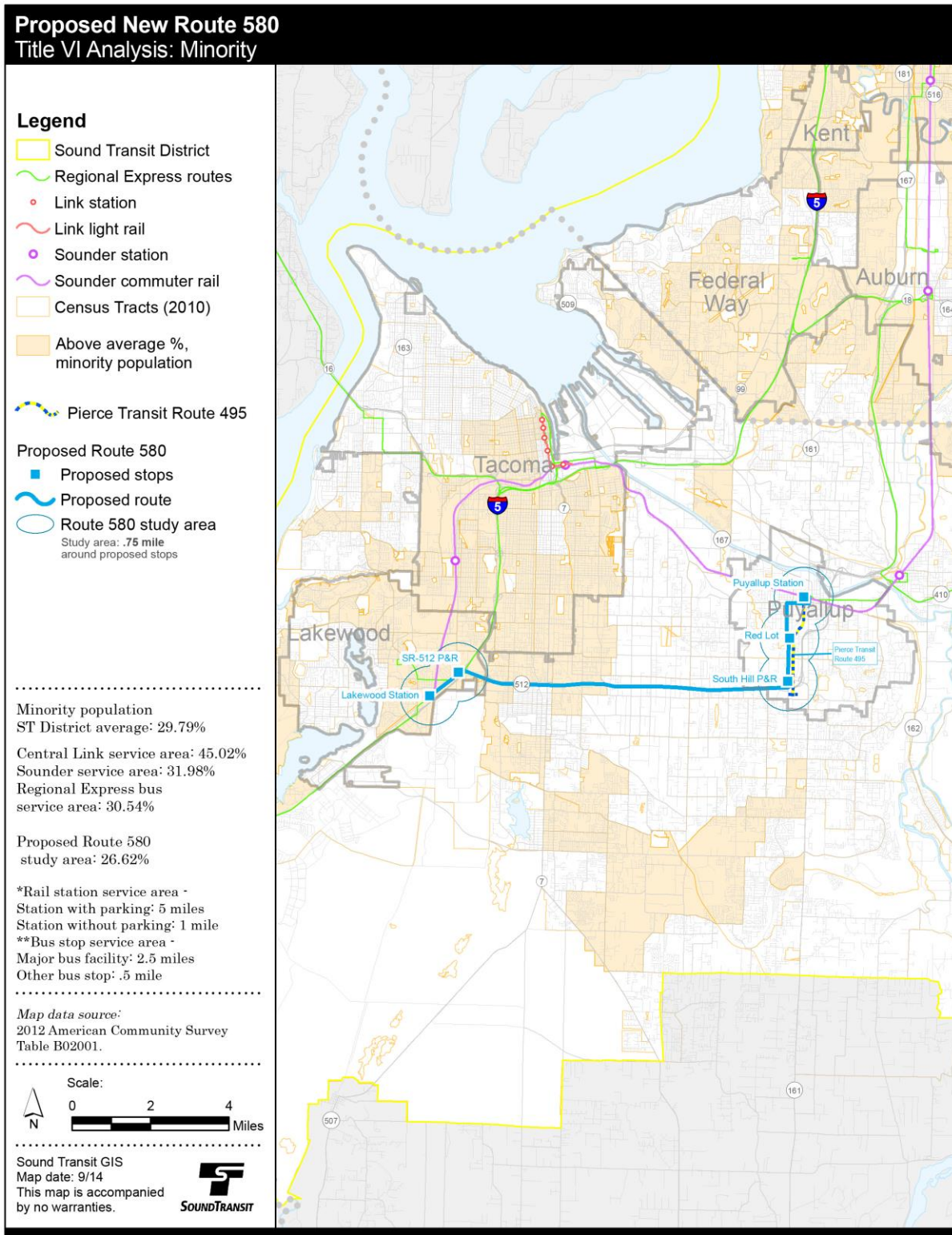


Figure 96 - Proposed Route 580 Low Income

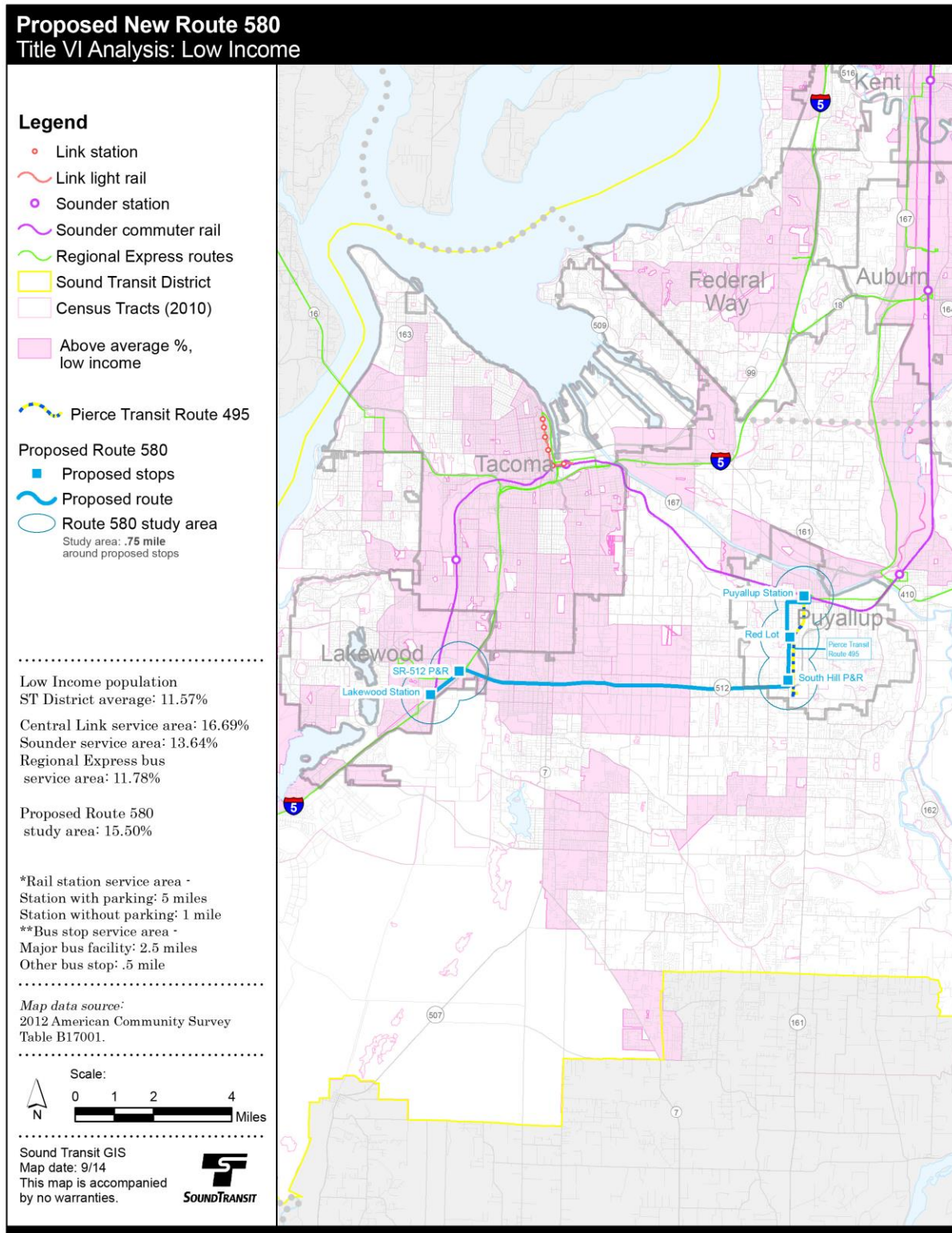


Figure 97 - Proposed Route 580 Limited English Proficiency



CHAPTER FOUR: PRELIMINARY SERVICE PLAN 2016-2020

Tacoma Link

Tacoma Link service levels are expected to remain stable through 2020. Large-scale special events, such as Tacoma Dome and Convention Center activities, may result in the need for additional service from time to time. It is also anticipated that fares will be implemented on Tacoma Link in 2016. Staff will monitor service to examine the effect fares have on the performance measures.

Central Link

Central Link service levels are expected to remain stable through September 2015. Extra trains may be operated for large-scale public events. Minor schedule and running time refinements are likely as ridership continues to increase and more experience is gained with operations. Testing for the University extension is expected to begin either at or sometime during the September 2015 service change. At that time, peak hour frequency will be improved to every six minutes when testing of the extension begins.

Table 10 - Link Light Rail Service Schedule through 2020 (For Planning Purposes Only)

Time of Day	Time	Headway (min.) Through 9/2015	Headway (min.) After 9/2015
Weekday			
Early/Late	5:00 a.m. to 6:00 a.m.	15	15
AM Peak	6:00 a.m. to 9:00 a.m.	7 to 8	6
Base	9:00 a.m. to 3:00 p.m.	10	10
PM Peak	3:00 p.m. to 6:30 p.m.	7 to 8	6
Base	6:30 p.m. to 10:00 p.m.	10	10
Early/Late	10:00 p.m. to 1:00 a.m.	15	15
Saturday			
Early/Late	5:00 a.m. to 8:00 a.m.	15	15
Base	8:00 a.m. to 10:00 p.m.	10	10
Early/Late	10:00 p.m. to 1:00 a.m.	15	15
Sunday			
Early/Late	6:00 a.m. to 8:00 a.m.	15	15
Base	8:00 a.m. to 10:00 p.m.	10	10
Early/Late	10:00 p.m. to 12:00 a.m.	15	15

Central Link Extensions

The University Link Extension will add 3.15 route miles and two new stations to Central Link. Capitol Hill Station will serve the state's most densely populated urban area, and the University of Washington Station will serve the largest educational institution in the Northwest. Together, the two stations will significantly increase ridership on Central Link and require increased passenger capacity. Testing for this alignment will begin in Fourth Quarter 2015 with revenue service anticipated to begin with the March 2016 service change.

On the south end of Central Link, construction of a 1.6 mile extension from Sea-Tac/Airport Station to a new terminus at South 200th Street is underway. The South 200th Street station, now officially named Angle Lake Station, will include a park-and-ride lot with approximately 1,100 stalls. For purposes of preliminary planning, the 2015 SIP assumes that the Angle Lake extension will be opened for service later in 2016.

The preliminary operations plan for the South 200th-to-UW Link service is summarized in Table 11. As peak ridership levels increase approaching 2018, revisions will need to be made by ST with consideration of operating two and three car consists. Ridership trends lately show year-over-year growth to be over 10% since October 2013.

Table 11 - 2014-2020 Central Link Service: Angle Lake to UW Operations Summary

	Pine Street Stub to SeaTac/Airport		University of Washington to Angle Lake				
	2014	2015	2016	2017	2018	2019	2020
Alignment Length	15.3	15.3	19.9	19.9	19.9	19.9	19.9
Stations	13	13	16	16	16	16	16
Projected End-to-End Travel Times	40	40	49	49	49	49	49
Minimum Cycle (turnaround) Time	92	92	114	114	114	114	114
Actual Cycle (turnaround) Time	98	98	114	114	114	114	114
Peak Headway	7.5	7.5	6	6	6	6	6
Number of Train Sets	13	13	19	19	19	19	19
Train Length:	2	2	2	2	2	2	2
Peak Cars in Service:	30	30	42	42	42	42	42
Fleet Size:	62	62	62	62	62	62	62
Spare Ratio:	107%	107%	48%	48%	48%	48%	48%
Peak 1 Hour Ridership Demand	1,700	1,800	2,600	2,900	3,000	3,100	3,200
Peak 1 hour Capacity	2,368	2,368	2,960	2,960	2,960	2,960	2,960
Design Load Factor	2	2	2	2	2	2	2
Actual Load Factor	1.44	1.62	1.76	1.96	2.03	2.09	2.16

(Source: ST Link Light Rail Project, Central Link Rail Fleet Management Plan 2010 to 2019, University of Washington to SeaTac/Airport With an Extension to S 200th Street dated December 4, 2011)

Sounder

North Line

Service levels are expected to remain unchanged on the North Line through 2020.

South Line

Table 12 - Sounder South Line Service Implementation Schedule

Roundtrip Easement #	Description	Proposed Start Date
2	Peak/peak direction round trip	Sep-16
3	Peak/reverse direction round trip	Sep-16
4	Off-peak round trip	Sep-17

Under an agreement between Sound Transit and BNSF Railway reached in 2010, four new South Line weekday round trips will be phased in between 2013 and 2017. The first new round trip was implemented in September 2013, increasing service from nine to ten round trips. The preliminary implementation schedule for the remaining three round trips is shown in Table 12 above, and the Sounder ridership/revenue estimates in the SIP reflect these start dates. The Tacoma-Lakewood segment of the South Line is largely single track, and there is limited platform space at King Street Station, so changes to some existing train times may be necessary as trips are added to accommodate train meets at passing sidings. Capital projects are in the planning stages to double track the South Line segment between the L Street Yard and Tacoma Dome Station (the Tacoma Trestle replacement project), and the segment between the 66th Street bridge in Tacoma and Bridgeport Way in Lakewood. These improvements are scheduled for completion in 2017, in time for the final new round trip.

ST Express

Preliminary ST Express service change concepts for 2015 through 2019 are described below. These proposals are shown for preliminary planning purposes and are subject to change.

2016

University Link Bus-Rail Integration

The extension of Link light rail to the University of Washington and Angle Lake is planned for 2016. Peak train frequency will increase from every 7.5 minutes to every 6 minutes, and travel time between Westlake Station and UW Station is expected to be just 8 minutes. Staff will evaluate the feasibility of at least two bus-rail service integration concepts: Restructuring ST Express Route 586 (Tacoma to UW) to operate via I-5 and the Seneca Street exit to Westlake Station (New Route 591), where connections would be made to the UW via light rail; and a potential restructure of SR-520 bus service that would make connections with light rail at UW Station and begin to develop ridership on the Northgate Link extension.

Angle Lake Link Bus-Rail Integration

With full-time service on South 188th Street now provided by King County Metro, the opening of Angle Lake Station provides an opportunity to evaluate the routing of ST Express Route 574 (Lakewood to SeaTac Airport) in the City of SeaTac. In addition to serving the new station, the potential re-route could serve major employment centers near International Boulevard and South 200th Street, such as the Federal Detention Center and the Alaska Airlines corporate headquarters.

Seattle Transit Operations

There is a regional effort consisting of Sound Transit, Community Transit, King County Metro, Seattle Department of Transportation (SDOT) and WSDOT to resolve issues of downtown Seattle transit coordination given all the construction and service revisions that are occurring through 2023. This effort includes development of eight solution teams focused on downtown issues:

- Interim Pathways (discuss SR-99 viaduct issues)
- Downtown Seattle Transit Tunnel
- D-2 Roadway
- Service Integration
- Surface Street Operation
- Layover
- Long-Term Service Integration

These teams work as needed either independently or in joint workshops to resolve these issues. They work under the direction of a Planning Team that provides guidance as needed. Overall coordination is led by a Management Team that is scheduled to meet monthly and an Executive Team that is scheduled to meet quarterly. These teams are intended to address transit issues from several major projects that will impact ST Express operations in Seattle starting in 2016, including:

- Completion of the SR-99 highway tunnel beneath downtown Seattle, the demolition of the Alaska Way Viaduct and the construction of a new waterfront surface arterial will affect all surface street traffic in downtown Seattle. Tolls required to use the tunnel will result in some SR-99 traffic diversion to downtown streets. Traffic from the Elliott Avenue corridor cannot use the tunnel, so it will likely shift either to downtown streets or the new waterfront surface arterial. At this time, tunneling has been stalled due to mechanical issues and is expected to resume in March 2015.
- The opening of *University Link* in 2016 requires more frequent light rail service in the Downtown Seattle Transit Tunnel to meet expected demand (see Table 5 in this chapter). The current volume of buses and trains in the tunnel during peak periods is not optimal and service delays are frequent. Some reduction in tunnel bus volume will be needed to accommodate expanded Link service, requiring an operations plan for buses that are moved to surface streets.
- The Seattle end of the SR-520 project is expected to be under construction during the 2016-2019 timeframe. The project will result in the closure of the Montlake Freeway Station, but it will eventually provide direct access HOV ramps at Montlake to and from the east and

continuous SR-520 HOV lanes in both directions connecting with Interstate 5. Construction activity and the final build-out will require revisions and potential restructuring of ST Express service. The timing of these changes depends on the funding plan and construction schedule for the project, which has not been finalized as of this writing.

East Link Construction

Construction of East Link in the last half of the decade will impact all bus service in the I-90 corridor and potentially increase travel times and delays on ST Express routes 550 and 554. The impacts result from the permanent closure of the D2 Roadway (an HOV-only roadway in the center of I-90 between Rainier Avenue and downtown Seattle), temporary closures of the I-90/Bellevue Way HOV ramps, and lane closures on Bellevue Way northbound between I-90 and 112th Avenue SE. Peak-direction travel times may increase when the reversible I-90 roadway closes for East Link construction and buses shift to the new HOV lanes on the outer roadways. However, some peak travel time improvements will be realized eastbound in the morning and westbound in the afternoon, since two-way HOV lanes will be provided for the first time.

Along I-90, construction impacts would occur for bus service at Rainier Avenue South and at Mercer Island. Bus service would continue at these locations during the East Link Construction, but buses would use the outer I-90 mainline roadways to access the Rainier Avenue South at Mercer Island stops. During light rail construction, buses would be rerouted to the I-90 mainline and this would likely effect on-time performance.

In addition to the travel time impacts to I-90 bus service, the existing 519-stall South Bellevue Park-and-Ride will close for an extended period during construction of the South Bellevue Link Station and its adjacent park-and-ride garage. Interim parking locations are being sought and it appears likely that a bus stop for Route 550 and King County Metro routes will be maintained at the South Bellevue site as a transfer point and to provide transit access to the adjacent neighborhood.

One potential leased lot is located north of downtown Bellevue on Bellevue Way NE at NE 17th Street. King County Metro reduced service on this corridor with the September 2014 service change. Staff is considering a potential revision on ST Express Route 550 that would serve this leased lot during construction of East Link.

Another routing revision due to construction will remove service from 112th Avenue in Bellevue. ST Express routes 555 and 556 will operate along Bellevue Way and ST Express Route 560 will operate on I-405 to the NE 6th Street direct access ramp.

East Link construction at the Overlake Transit Center will also affect ST Express. The current plan is to maintain transit center operations during construction, but to close the park-and-ride. Sound Transit staff is researching alternative parking locations for the loss of 222 parking stalls at Overlake Transit Center. Until alternative parking arrangements are found, there are no plans to change the service levels of existing Sound Transit routes serving Overlake Transit Center.

Sound Transit, together with King County Metro, WSDOT and the cities of Seattle, Mercer Island, Bellevue and Redmond will be working jointly to develop mitigation plans for transit service during East Link construction. Details of these plans will be included in future Service Implementation Plans.

2017-2020

The D-2 Roadway is expected to close for construction in 2019. There is a regional effort consisting of Sound Transit, Community Transit, King County Metro, Seattle Department of Transportation (SDOT) and WSDOT that is examining alternative routings between I-90 and downtown Seattle. Two alternatives are being examined for further evaluation. The first alternative is routing buses from I-90 via Rainier Avenue S and S Dearborn Street and the second alternative is via I-90 and 4th Avenue S. Work continues by the D-2 Roadway Solution Team on evaluating the alternatives.

Other specific proposals for 2017-2019 are still under development.

Unfunded Needs

The Sound Transit Board has adopted the 2014 *Service Standards and Performance Measures*. Changes to the service standards give staff guidance on when staff must take action to relieve overcrowding

During peak demand times, ST Express passenger loads often exceed bus seating capacity on individual trips. Standing loads are a normal occurrence and is not by itself cause for immediate action. Two indicators are used to measure the impact of passenger crowding, the load factor (ratio between seated and standing passengers) and the number of minutes passengers have to stand. The purpose of these guidelines is to assign priority for action at the trip level when conditions exceed the thresholds for either of these two indicators.

The financial model does include a savings of approximately \$3.0 million in 2020 as a part of the opening of a Sound Transit bus operations and maintenance facility that could be used to address overcrowding on ST Express bus service.

Load Factor

Corrective action should be evaluated whenever the following load factors are exceeded on individual bus trips on a regular basis (at least three days a week for weekday service, two times a month for Saturday or Sunday service):

Table 13 - Load Factor Standards by Bus Type

Bus Type	Number of Seats	Max. Passenger Load	Load Factor
40' High Floor	42	63	1.5
40' Low Floor	37	55	1.5
45' High Floor	57	70	1.23
60' Low Floor	56	81	1.45
42' Double Deck	77	95	1.23

Standing Time

Corrective action should be evaluated whenever standing time exceeds the following thresholds on a regular basis (at least three days a week for weekday trips, two times a month for Saturday or Sunday trips).

Table 14 - Standing Time Corrective Action Priority

Minutes of Passenger Standing Time	Action Priority
More than 45 minutes	High priority; mitigating action should be implemented as soon as possible; meets criteria for use of budget contingency if available
30 to 44 minutes	Medium priority; mitigating action should be implemented at next regular service change date if budget available
Less than 30 minutes	No immediate mitigating action required, but may be candidate for future service improvement

These guidelines may be relaxed during temporary surges in demand or for special event service.

Based on Sound Transit’s ridership forecasts, Table 15 indicates the number of added trips needed to lower the average maximum load to 100% during each half-hour period in the peak hours. The list also indicates needed trips that would bring the average maximum load to 80% during each hourly period during off-peak hours to improve passenger comfort. It also identifies a critical overcrowding that needs to be addressed immediately or potential critical overcrowding that might occur by 2020.

Table 15 -Unfunded ST Express Service Needs to Meet Existing and Projected Demand

Route/Line	Day	Critical Need	Immediate Need	Need By 2020
510 Everett-Seattle	Weekday		Add 2 SB trip between 5:00 and 6:30	Replace all trips with double-decked buses
511 Ash Way-Seattle	Weekday		Add 4 SB trips between 5:00 and 7:00 Add 1 NB trip between 14:30 and 15:00 Add 1 NB trip between 17:00 and 17:30	Replace all trips with double-decked buses
512 Everett-Seattle	Weekday		Add 1 NB trip between 19:00 and 20:00	Replace all trips with double-decked buses
512 Everett-Seattle	Saturday		Add 2 SB trips between 7:00 and 9:00 Add 2 NB trips between 16:00 and 18:00	Replace all trips with double-decked buses
512 Everett-Seattle	Sunday		Add 2 SB trips between 9:00 and 11:00 Add 3 NB trips between 16:00 and 19:00	Replace all trips with double-decked buses
522 Woodinville-Seattle	Weekday		Add 1 SB trip between 6:30 and 7:00 Add 1 NB trip between 16:30 and 17:00 Add 1 NB trips between 19:00 and 20:00	Add 2 NB trips between 15:30 and 16:30 Add 1 NB trip between 17:30 and 18:00
522 Woodinville-Seattle	Saturday		None	Add 2 NB trips between 16:00 and 18:00
522 Woodinville-Seattle	Sunday		None	Add 1 NB between 16:00 and 17:00
532 Everett-Bellevue	Weekday		Add 2 SB trips between 5:00 and 7:00	Add 1 SB trip between 7:30 and 8:00 Add 1 NB trip between 15:30 and 16:00 Add 1 NB trip between 17:00 and 17:30
535 Lynnwood-Bellevue	Weekday			
545 Redmond-Seattle	Weekday		Add 5 WB trips between 7:00 and 10:00 Add 1 WB trips between 16:30 and 17:00 Add 1 EB trip between 7:30 and 8:00 Add 2 EB trips between 15:30 and 16:30 Add 2 EB trips between 17:30 and 19:00	Add 1 WB trip between 6:30 and 7:00 Add 1 WB trip between 9:00 and 10:00 Add 2 WB trips between 15:30 and 16:30 Add 1 WB trip between 17:00 and 17:30 Add 1 EB trip between 8:30 and 9:00 Add 2 EB trips between 16:30 and 17:30 Add 1 EB trip between 18:00 and 19:00
545 Redmond-Seattle	Saturday		None	Add 1 EB trip between 18:00 and 19:00
550 Bellevue-Seattle	Weekday		Add 1 WB trip between 5:00 and 6:00 Add 1 WB trip between 17:30 and 18:00 Add 1 EB trip between 7:00 and 7:30 Add 2 EB trip between 8:30 and 10:00 Add 1 EB trip between 14:00 and 15:00 Add 2 EB trips between 16:30 and 17:30	Add 2 WB trips between 7:30 and 8:30 Add 1 WB trip between 15:00 and 15:30 Add 1 WB trip between 16:00 and 16:30 Add 1 EB trip between 6:30 and 7:00 Add 3 EB trips between 16:00 and 17:30 Add 1 EB trip between 18:00 and 19:00 Add 1 EB trip between 20:00 and 21:00
550 Bellevue-Seattle	Saturday		Add 2 EB trips between 7:00 and 9:00 Add EB trip departing Seattle at 5:37	Add 1 WB trip between 19:30 and 20:30 Add 1 EB trip between 15:00 and 16:00
550 Bellevue-Seattle	Sunday		Add 2 WB trips between 10:00 and 12:00 Add 1 WB trip between 16:00 and 17:00 Add 1 EB trip between 13:00 and 14:00 Add 2 EB trips between 15:00 and 17:00	Add 1 WB trip between 12:00 and 13:00 Add 1 WB trip between 15:00 and 16:00 Add 1 WB trip between 17:00 and 18:00 Add 1 WB trip between 19:00 and 20:00 Add 3 EB trips between 9:00 and 12:00 Add 1 EB trip between 14:00 and 15:00 Add 3 EB trips between 16:00 and 19:00
554 Issaquah-Seattle	Weekday		Add 3 WB trips between 6:30 and 8:00 Add 1 WB trip between 8:30 and 9:00 Add 1 EB trip between 15:30 and 16:00 Add 3 EB trips between 16:30 and 18:00	Add 1 WB trip between 5:00 and 6:00 Add 1 WB trip between 8:00 and 8:30 Add 1 WB trip between 9:00 and 10:00 Add 1 EB trip between 14:00 and 15:00

Table 15 -Unfunded ST Express Service Needs to Meet Existing and Projected Demand (Continued)

Route/Line	Day	Critical Need	Immediate Need	Need By 2020
554 Issaquah-Seattle	Sunday		Add 1 EB trip between 16:00 and 17:00 on days Seahawks play	None
555 Northgate-Issaquah	Weekday		None	Add 1 WB trip between 16:00 and 16:30
556 Issaquah-Northgate	Weekday		Add 1 WB trip between 6:30 and 7:00	Add 1 WB trip between 7:00 and 7:30
560 West Seattle-Bellevue	Weekday		None	Add 1 EB trip between 5:30 and 6:00
560 West Seattle-Bellevue	Saturday		Add 2 EB trips between 6:00 and 8:00	None
566 Auburn-Overlake	Weekday		Add 1 NB trip between 5:00 and 6:00	Add 2 NB trips between 6:00 and 7:00 Add 2 NB trips between 7:30 and 8:30 Add 3 SB trip between 15:30 and 17:00 Add 1 SB trip between 17:30 and 18:00
567 Kent-Overlake	Weekday		Add 2 NB trips between 5:30 and 6:30 Add 1 SB trip between 16:30 and 17:00	Add 1 NB trip between 6:30 and 7:00 Add 1 SB trip between 16:00 and 16:30
574 Lakewood-SeaTac	Weekday		Add 1 SB trip between 15:00 and 16:00 Add 1 SB trip between 23:00 and 24:00	None
574 Lakewood-SeaTac	Saturday		None	Add 1 NB trip between 3:00 and 4:00
574 Lakewood-SeaTac	Sunday		None	Add 1 NB trip between 2:00 and 3:00
577 Federal Way-Seattle	Weekday		Consider earlier trip from Federal Way Add 1 NB trip between 5:00 and 6:00 Add 2 NB trips between 6:30 and 7:30	Add 1 NB trip between 6:00 and 6:30
577 Federal Way-Seattle	Saturday		Convert Route 577 trips to Route 578	None
578 Puyallup-Seattle	Weekday		Add 1 NB trip between 8:30 and 9:30 Add 1 SB trip between 13:30 and 14:30 Add 1 SB trip between 19:00 and 20:00	Add 2 NB trips between 9:30 and 11:30 Add 2 SB trips between 11:30 and 13:30 Add 1 SB trip between 20:00 and 21:00
578 Puyallup-Seattle	Saturday		Convert Route 577 trips to Route 578	None
590 Tacoma-Seattle	Weekday		Add 1 NB trip between 5:30 and 6:00	Add 2 NB trips between 5:30 and 6:00
592 DuPont-Seattle	Weekday		None	Add 1 NB trip between 4:45 and 5:45 Operate trips between 14:30 and 15:00 with high-capacity coaches
594 Lakewood-Seattle	Weekday		None	Add 1 SB trip between 19:00 and 20:00 Operate high capacity bus between 22:00 and 23:00
594 Lakewood-Seattle	Saturday		Add 1 NB trip between 5:00 and 6:00 Add 1 NB trip between 10:00 and 11:00 Add 1 NB trip between 13:00 and 14:00 Add 3 SB trips between 15:00 and 18:00	Add 1 NB trip between 9:00 and 10:00 Add 1 NB trip between 11:00 and 12:00 Add 1 SB trip between 18:00 and 19:00
594 Lakewood-Seattle	Sunday		None	Add 1 SB trip between 16:00 and 17:00
595 Purdy-Seattle	Weekday		None	Add 1 NB trip between 4:00 and 5:00 Operate all trips with high-capacity coaches

CHAPTER FIVE: FINANCIAL PLAN, RIDERSHIP, AND REVENUE FORECAST

Ridership Forecasts

Ridership forecasts for Sound Transit services are developed through various modeling processes conducted and reviewed by an internal team of finance, long-range planning, modeling, service planning, and operations staff. The assumptions for each method of forecasting are summarized below.

Tacoma Link ridership forecasts through 2020 are based on a 1% annual growth rate, and assume no changes in service levels. The Sound Transit Board recently approved a \$1 adult fare for Tacoma Link that was to begin in September 2014; however implementation was deferred when the Tacoma Business Improvement Area provided funding for Sound Transit to continue the no fare service through September 2016.

Ridership forecasts for Central Link are provided by Planning, Environment and Project Development Department staff. Estimates are based on historical ridership growth, service levels operated and planned, assumed opening of the University Link and S. 200th Link extensions in 2016, and assumed levels of service on local and regional bus routes operating in the vicinity of the Link alignment.

Ridership forecasts for Sounder commuter rail are based on a regression model developed by a consultant under contract with the Planning, Environment, and Project Development department. The model accounts for the following variables: Historical ridership data, seasonal variability in ridership, number of platform hours operated and planned, fuel price, employment, and fares.

Ridership forecasts for ST Express are based on a regression model developed by a consultant under contract with the Planning, Environment, and Project Development department. The model accounts for the following variables: Historical ridership data, seasonal variability in ridership, number of platform hours operated and planned, fuel price, employment, fares, parking supply, and Lake Washington bridge tolls.

Paratransit ridership is estimated on the basis of historical system performance in the Link system area, which represents a three-quarter mile linear corridor along the Link alignment. An annual growth rate of 3% is used to forecast ridership in the corridor. After the Link expansion to the University of Washington campus and South 200th Street in the City of SeaTac, paratransit ridership is assumed to grow in proportion to the new service area of the expanded Link system.

Annual boardings and average weekday boardings for 2013 and forecasts for 2014-2019 are shown for each mode of service in Table 16 and Table 17, respectively.

Table 16 - Annual Boardings, 2013-2019 (Millions)

Mode	2013 Actual	2014 Forecast	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast	2019 Forecast
ST Express	16.60	17.10	17.20	17.40	17.10	17.40	17.70
Souder	2.97	3.00	3.10	3.20	3.20	3.30	3.40
Tacoma Link	0.96	0.94	1.00	1.00	1.00	1.00	1.00
Central Link	9.73	10.80	11.40	16.20	18.90	20.50	22.00
Paratransit	0.06	0.06	0.07	0.09	0.10	0.10	0.11
Total	30.33	31.90	32.77	37.89	40.3	42.3	44.21

Table 17 - Average Weekday Boardings, 2013-2019

Mode	2013 Actual	2014 Forecast	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast	2019 Forecast
ST Express	57,218	58,405	58,795	59,616	58,598	59,555	60,432
Souder	11,042	11,470	11,628	11,882	12,114	12,400	12,676
Tacoma Link	3,281	3,213	3,418	3,418	3,418	3,418	3,418
Central Link	28,988	32,300	34,100	48,500	56,600	61,400	65,900
Paratransit	169	174	179	254	278	286	295
Total	100,698	105,562	108,120	123,670	131,008	137,059	142,721

Projected Fares and Fare Revenue

Fare Revenue Assumptions

On Tacoma Link, no fares are currently collected. The Sound Transit Board approved a \$1 adult fare to take effect in late 2014. Since then, Sound Transit entered an agreement with the Tacoma Business Improvement Area to defer the implementation to fall 2016. The ridership and fare revenue forecasts have been revised in the 2015 SIP to reflect this change.

Link, Souder and ST Express fare revenue projections are based on ridership forecasts together with estimates of the average fare per boarding (AFB).

There is no fare revenue associated with paratransit operations.

Fare Structure

ST Express bus fare structure is zone-based; each county in the Sound Transit district is one zone. Single-ride fares for adult riders are currently \$2.50 for rides within one county and \$3.50 for inter-county travel. Corresponding monthly pass prices are \$90.00 and \$126.00. Senior/disabled fares are \$0.75 for travel within one county and \$1.50 for inter-county travel. Monthly passes are priced at \$27.00 and \$54.00, respectively. Youth fares are discounted 50 percent from the adult fare.

On Souder, the fare structure was revised in June 2007 from a zone system to station-to-station fares. The fare is a base \$2.55 and 5.5-cents per mile rounded to the nearest quarter. Regular adult fares range from \$2.75 to \$5.25. Monthly pass prices range from \$99.00 to \$189.00. Senior/disabled fares are approximately 50 percent of the adult fare and youth fares are discounted about 25 percent from the adult fare.

Central Link light rail fares were established in 2009 using a station-to-station fare structure. A fare increase went into effect on June 1, 2011 that revised the base fare to \$2.00 and five cents per mile rounded to the nearest quarter. Regular adult fares range from \$2.00 to \$2.75. Monthly pass prices range from \$72.00 to \$99.00. Senior/disabled fares are \$0.75 and monthly passes are available for \$27.00. Youth fares are \$1.25 and monthly passes are \$45.00.

Sound Transit is considering a low-income fare that could be implemented in March 2015. To implement this new fare category, all other fares would increase by 25-cents. The Sound Transit Board of Directors is scheduled to make a decision in November 2015.

Fare revenue projections are provided by the Finance Department.

Table 18 - Annual Fare Revenue 2012-2019 (\$ thousands)

Mode	2013 Actual	2014 Forecast	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast	2019 Forecast
ST Express	32,614	33,174	32,480	32,934	32,372	32,900	33,385
Souder	9,484	9,588	9,719	9,931	10,126	10,364	10,596
Tacoma Link	0	0	0	0	735	751	766
Central Link	14,846	16,632	14,626	16,675	26,100	30,000	33,000
Total	56,944	59,394	56,825	60,275	69,349	74,030	77,724

Operations and Maintenance Costs

Tacoma Link

Financial projections are based on annual Consumer Price Index (CPI) increases as provided by the Finance Department. Projections are broken down by salaries, services, materials, supplies, insurance, and agency overhead. There is no additional service assumed during the SIP six-year planning horizon (2014 – 2020).

Central Link

Approximately half of the operation and maintenance (O&M) expenses for Central Link light rail are related to the service provided by King County Metro staff under the terms of an inter-governmental agreement. Each year, Sound Transit and King County Metro staffs meet and agree on staffing levels and other budget items to arrive at an estimated purchased transportation budget.

Other scope elements retained by Sound Transit are modeled based on current security and safety requirements, maintenance of facilities, traction power consumption and estimated utility rates, and spare parts.

Downtown Seattle Transit Tunnel (DSTT)

Sound Transit's share of the DSTT operations and maintenance and debt service costs is 46 percent based on a negotiated agreement with King County. The O&M and debt service costs are split between ST Express and Central Link in proportion to the amount of service operated in the tunnel (currently 42.5% ST Express/57.5% Link). Link operating and maintenance costs are shown in Table 19. Sound Transit has been working with King County Metro on the appropriate level of bus service through the DSTT following the opening of University Link. A change in bus volumes in the DSTT could result in a change in the share that Sound Transit pays for DSTT operations and maintenance.

Souder Commuter Rail

Expenditures for operations and maintenance increase each year at the estimated rate of inflation, together with the cost of any added service. Expenditure projections also include Purchased Transportation costs (the costs billed to Sound Transit for the provision of commuter rail service by BNSF Railroad), maintenance of rail vehicles by Amtrak, services, materials and supplies, facilities maintenance, insurance, and administration. Souder operating and maintenance costs are shown in Table 19.

ST Express Bus

Purchased Transportation costs comprise the majority of operating and maintenance costs for ST Express. These are the costs billed to Sound Transit for the operation and maintenance of ST Express buses by Sound Transit's partner agencies. Every fall, Sound Transit staff provides an estimate of platform hours to be operated the following calendar year and each transit partner develops a total cost estimate for their assigned routes based on these hours. The final costs are negotiated with the transit partners to establish annual baseline costs. Bus Contingency hours are not included in the estimates and the Bus Contingency budget is managed by Sound Transit directly.

Other costs include Operations Department staff salaries and benefits, other staff costs (such as rent, office supplies, etc.), and costs allocated to Service Delivery by support departments (Executive, Board Administration, Facilities Maintenance, Legal, Communications, DECM and Finance & Information Technology). Costs also include a portion of DSTT debt service costs and operations and maintenance costs (see Central Link section above). Bus operating and maintenance costs are shown in Table 19.

The approximate 3 million decrease between 2019 and 2020 results from the Financial Planning model assuming that Sound Transit's payments to KCM for debt service. The model will be updated in spring 2015 and be revisited at that time.

Paratransit

Sound Transit is responsible for 50 percent of the trip costs of the paratransit trips having both origin and destination within the Central Link paratransit service area corridor and 50 percent of the registration and certification costs for those registered paratransit riders within the Central Link paratransit service corridor. The average system trip cost for all King County paratransit trips is used for trips within the Central Link service area. Paratransit operating and maintenance costs are shown in Table 19.

Table 19 - Operating and Maintenance Costs (Thousands)

Mode	2013 Actual (000)	2014 Adopted (000)	2015 Estimate (000)	2016 Estimate (000)	2017 Estimate (000)	2018 Estimate (000)	2019 Estimate (000)	2020 Estimate (000)
ST Express	105,802	115,518	116,785	123,272	122,993	126,612	129,756	126,817
Souder	38,157	43,688	44,254	48,057	51,751	54,281	55,818	58,313
Tacoma Link	4,005	4,584	4,609	5,030	5,252	5,329	5,511	6,623
Central Link	52,402	62,334	61,637	75,270	81,421	84,085	86,695	94,208
Paratransit	1,567	1,748	1,710	2,311	2,486	2,550	2,614	2,679
Total	201,933	227,871	228,994	253,940	263,903	272,858	280,392	288,640

GLOSSARY OF TERMS

Average Maximum Load: The average number of passengers on board a bus or train when it is at its most crowded point on a particular trip.

BNSF – Burlington Northern Santa Fe (Railway)

Boarding: A boarding is counted every time a person gets on a Sound Transit bus or train. For example, a person who rides Link from Rainier Beach to International District Station and transfers to Route 550 to go to Bellevue in the morning and does the opposite in the afternoon is counted as four boardings on the day of travel.

Boardings per platform hour: Total number of passenger boardings divided by the total platform hours. Indicates the productivity for each platform hour of service.

Boardings per trip: Total number of passenger boardings divided by the total number of trips. Indicates the productivity for each trip.

Deadhead time: The total time a transit vehicle is traveling from the operating base to the first passenger stop of the day, between the last stop and base, or when maneuvering between the last stop on one trip and the first stop on the next trip.

Directly operated: Transportation service provided directly by a transit agency, using their employees to supply the necessary labor to operate the revenue vehicles.

DSTT – Downtown Seattle Transit Tunnel

In-service hour: The time in which a transit vehicle is scheduled on a trip from the first time point to the last time point in the public timetable.

Layover time: The time between trips that allows an operator to get back on schedule before beginning the next trip. Sometimes this is referred to as “recovery time.”

O&M – Operations and Maintenance

Operating partner: With the exception of Tacoma Link, Sound Transit services are contracted to a third party to operate. At the time of writing, the four operating partners with whom Sound Transit contracts are Burlington Northern Santa Fe Railway (Sounder), King County Metro (ST Express and Central Link), Community Transit (ST Express), and Pierce Transit (ST Express). Tacoma Link is directly operated.

Passenger miles per platform vehicle mile: Total passenger miles divided by total platform vehicle miles.

Pass-up: When an operator declines boarding to a transit customer because the transit vehicle is at passenger capacity (seated and standing).

Peak direction: The direction of service in which the heaviest passenger loads are experienced. This direction is usually associated with a time of day, e.g., on Pierce County-Seattle routes, the peak direction is northbound in the morning and southbound in the afternoon.

Peak period: The time during which the heaviest passenger loads are experienced; it is generally defined as 6:00 a.m. – 9:00 a.m. and 3:00 p.m. – 6:00 p.m. on weekdays, but can vary by transit agency.

Platform hour: The total time a transit vehicle is providing service, which includes in-service hours, deadhead hours and layover hours. Typically, this is the total amount of time the transit vehicle is away from the operating base.

Purchased transportation cost: The total cost paid to the contracted operator of a service (e.g., King County Metro, Pierce Transit, BNSF).

Revenue hour: An hour in which a transit vehicle is in revenue service, i.e., picking up, dropping off, and/or carrying passengers. Vehicles are *not* in revenue service between base and their first stop, between their last stop and base, or when maneuvering between the last stop on one trip and the first stop on the next trip.

Revenue service: The time when a vehicle is available to the general public and there is an expectation of carrying passengers.

Revenue vehicle: Vehicle used to provide revenue service to passengers.

Service change: Thrice-yearly process of updating the transit system, which corresponds with transit operator shift changes. Service change can refer to the actual date(s) that changes go into effect or the entire period during which service operates in between two service change dates. Also referred to as a “shakeup.”

SIP – Service Implementation Plan

ST2 – Sound Transit 2; the voter-approved program of transit improvements passed in 2008

Street team: Customer outreach method in which staff communicates with customers through face-to-face interactions

Subsidy per boarding: Total operating cost less collected fare revenue divided by the total number of boardings. Indicates the average financial effectiveness of a route or mode on a per passenger basis.

Time point: A geographic location where a transit vehicle is scheduled at a particular time.

TIP – Transit Improvement Plan

Title VI: Title VI of the Civil Rights Act of 1964, which prevents transit agencies receiving federal assistance from discriminating in the provision of services on the grounds of race, color or national origin

Transit partner: See Operating Partner

APPENDIX A: MODAL HOURS AND MILES SUMMARY TABLES

Appendix A includes four tables that show the planned operations for each mode through 2020. For Sounder commuter rail, Tacoma Link and Central Link light rail, information includes revenue miles and hours, and platform hours and miles by train and passenger coach. ST Express information includes platform hours and includes total platform hours by each subarea.

Table 20 - ST Express Platform Hours Summary

		ST Express							
		2013	2014	2015	2016	2017	2018	2019	2020
		Actual	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated
510	Everett/Seattle	36,968	16,465	16,465	16,530	16,401	16,465	16,465	16,530
511	Lynnwood/Seattle	37,983	16,185	16,185	16,185	16,121	16,185	16,185	16,248
512	Everett/Lynnwood/Seattle	19,503	58,427	58,427	58,590	58,363	58,427	58,427	58,599
513	Eastmont/Seattle	6,884	9,040	9,040	9,040	9,004	9,040	9,040	9,075
522	Woodinville/Seattle	52,797	51,833	51,833	51,931	51,769	51,833	51,833	51,994
532	Everett/Bellevue	17,828	18,501	18,518	18,518	18,445	18,518	18,518	18,591
535	Lynnwood/Bellevue	23,174	23,142	22,939	22,975	22,856	22,939	22,939	23,021
540	Kirkland/U. District	9,985	8,244	8,244	8,244	8,212	8,244	8,244	8,276
542	Redmond/U. District	18,933	17,475	17,332	17,332	17,264	17,332	17,332	17,400
545	Redmond/Seattle	70,389	69,776	69,834	69,909	69,645	69,834	69,834	70,080
550	Bellevue/Seattle	53,678	54,849	54,849	54,949	54,735	54,849	54,849	55,029
554	Issaquah/Seattle	33,606	33,562	33,562	33,619	33,512	33,562	33,562	33,669
555	Northgate/Issaquah	5,893	5,768	5,768	5,768	5,745	5,768	5,768	5,791
556	Issaquah/Northgate	8,462	7,897	7,897	7,897	7,866	7,897	7,897	7,897
560	West Seattle/Airport/Seattle	36,157	38,714	38,714	38,773	38,647	38,714	38,714	38,841
566	Auburn/Overlake	33,153	29,243	29,243	28,972	27,762	27,036	27,036	27,142
567	Kent/Overlake	5,136	10,047	10,047	10,318	11,374	12,254	12,254	12,302
574	Lakewood/Sea-Tac	43,922	42,925	42,925	43,019	42,893	42,925	42,925	43,053
577	Federal Way/Seattle	16,503	17,153	17,153	17,185	17,126	17,153	17,153	17,207
578	Puyallup/Seattle	29,376	30,599	30,599	30,655	30,559	30,599	30,599	30,695
580	Lakewood/Puyallup	0	0	3,160	5,569	6,385	7,135	7,135	7,163
586	Tacoma/U. District	10,550	10,537	10,537	10,487	10,492	10,537	10,537	10,581
590-595	Lakewood/Tacoma/Seattle	127,805	124,905	121,003	120,589	120,170	120,463	120,463	120,881
596	Bonney Lake/Sumner	2,857	3,231	3,231	3,390	3,861	3,876	3,876	3,891
RL	Red Lot Service	534	523	215	0	0	0	0	0
ST Express Total		702,072	699,043	697,723	700,444	699,210	701,587	701,587	703,959
Schedule Maintenance		0	2,957	4,277	1,556	2,790	413	413	-1,959
Total ST Express Budgeted Hours		702,072	702,000	702,000	702,000	702,000	702,000	702,000	702,000

Table 21 - ST Express Platform Hours Summary by Subarea

		ST Express							
		2013	2014	2015	2016	2017	2018	2019	2020
		Actual	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated	Estimated
Snohomish County		120,909	120,350	120,292	120,533	119,961	120,292	120,292	120,730
East King County		320,489	317,703	317,491	317,858	316,724	317,662	317,662	318,702
South King County		69,464	71,449	71,449	71,575	71,326	71,278	71,278	71,511
Pierce County		191,326	189,541	188,490	190,479	191,198	192,355	192,355	193,015
ST Express Total		702,188	699,043	697,723	700,444	699,210	701,587	701,587	703,959

Table 22 – Sounder Commuter Rail Miles and Hours Summary

Sounder Commuter Rail									
Year	Train Statistics				Passenger Car Statistics				
	Revenue Hours	Platform Hours	Revenue Miles	Platform Miles	Revenue Hours	Platform Hours	Revenue Miles	Platform Miles	
Sounder North Line									
	2103 Actual	2,760	2,688	67,484	69,115	7,342	8,241	205,731	211,245
Estimated	2014	2,751	2,919	71,820	73,500	7,074	7,506	184,680	189,000
	2015	2,751	2,919	71,820	73,500	7,074	7,506	184,680	189,000
	2016	2,751	2,919	71,820	73,500	7,074	7,506	184,680	189,000
	2017	2,741	2,908	71,546	73,220	5,717	6,066	149,249	152,740
	2018	2,751	2,919	71,820	73,500	5,738	6,088	149,796	153,300
	2019	2,751	2,919	71,820	73,500	5,738	6,088	149,796	153,300
	2020	2,761	2,930	72,094	73,780	5,759	6,110	150,343	153,860
Sounder South Line									
	2013 Actual	6,127	6,776	208,805	213,121	42,360	46,756	1,444,309	1,473,950
Estimated	2014	6,241	7,614	230,597	236,226	49,452	53,153	1,612,181	1,651,591
	2015	7,072	7,614	230,597	236,226	49,452	53,153	1,612,181	1,651,591
	2016	7,149	7,639	236,595	241,304	49,145	53,328	1,654,164	1,687,136
	2017	7,358	8,057	265,887	267,786	50,612	56,244	1,859,208	1,872,508
	2018	8,391	9,214	303,425	305,331	58,691	64,345	2,121,977	2,135,326
	2019	8,391	9,214	303,425	305,331	58,691	64,345	2,121,977	2,135,326
	2020	8,424	9,249	304,597	306,510	58,919	64,594	2,130,181	2,143,579
Sounder Total									
	2013 Actual	8,887	9,464	276,289	282,236	49,702	54,997	1,650,040	1,685,195
Estimated	2014	8,992	10,533	302,417	309,726	56,526	60,659	1,796,861	1,840,591
	2015	9,823	10,533	302,417	309,726	56,526	60,659	1,796,861	1,840,591
	2016	9,900	10,558	308,415	314,804	56,219	60,834	1,838,844	1,876,136
	2017	10,099	10,964	337,433	341,006	56,329	62,310	2,008,457	2,025,248
	2018	11,143	12,133	375,245	378,831	64,429	70,433	2,271,773	2,288,626
	2019	11,143	12,133	375,245	378,831	64,429	70,433	2,271,773	2,288,626
	2020	11,185	12,180	376,691	380,290	64,677	70,704	2,280,524	2,297,439

Table 23 - Link Light Rail Miles and Hours Summary

Link Light Rail									
Year	Train Statistics				Passenger Car Statistics				
	Revenue Hours	Platform Hours	Revenue Miles	Platform Miles	Revenue Hours	Platform Hours	Revenue Miles	Platform Miles	
Central Link									
	2103 Actual	71,574	75,578	1,342,308	1,404,768	141,046	148,880	2,644,200	2,759,589
Estimated	2014	75,005	80,121	1,369,182	1,398,813	145,693	151,792	2,573,889	2,606,876
	2015	75,005	80,121	1,369,182	1,398,813	145,693	151,792	2,573,889	2,606,876
	2016	83,167	87,220	1,714,469	1,761,398	219,759	229,723	4,550,446	4,674,964
	2017	84,794	88,574	1,790,158	1,840,909	236,071	246,877	4,993,259	5,138,493
	2018	84,838	88,624	1,791,317	1,842,148	236,425	247,257	5,001,227	5,146,798
	2019	84,838	88,624	1,791,317	1,842,148	236,425	247,257	5,001,227	5,146,798
	2020	85,117	88,921	1,797,246	1,848,312	237,515	248,409	5,024,390	5,170,780
Tacoma Link									
	2013 Actual	9,835	9,969	75,996	76,278	9,835	9,969	75,996	76,278
Estimated	2014	9,770	9,904	75,718	75,998	9,770	9,904	75,718	75,998
	2015	9,770	9,904	75,718	75,998	9,770	9,904	75,718	75,998
	2016	9,799	9,933	75,944	76,225	9,799	9,933	75,944	76,225
	2017	9,748	9,881	75,544	75,824	9,748	9,881	75,544	75,824
	2018	9,770	9,904	75,718	75,998	9,770	9,904	75,718	75,998
	2019	9,770	9,904	75,718	75,998	9,770	9,904	75,718	75,998
	2020	9,823	9,957	76,130	76,412	9,823	9,957	76,130	76,412
Link Light Rail Total									
	2013 Actual	81,408	85,547	1,418,304	1,481,046	150,881	158,849	2,720,196	2,835,867
Estimated	2014	84,775	90,025	1,444,900	1,474,811	155,463	161,695	2,649,607	2,682,874
	2015	84,775	90,025	1,444,900	1,474,811	155,463	161,695	2,649,607	2,682,874
	2016	92,966	97,153	1,790,413	1,837,623	229,558	239,657	4,626,390	4,751,190
	2017	94,541	98,455	1,865,702	1,916,733	245,818	256,758	5,068,803	5,214,317
	2018	94,608	98,528	1,867,034	1,918,146	246,195	257,161	5,076,945	5,222,796
	2019	94,608	98,528	1,867,034	1,918,146	246,195	257,161	5,076,945	5,222,796
	2020	94,940	98,878	1,873,376	1,924,724	247,338	258,366	5,100,520	5,247,192

APPENDIX B: FLEET PLANS

Appendix B includes a table that shows the fleet plan through 2020. Each table includes a projection of total fleet size maximum peak pull, number of spares and the spare ratio.

Table 24 - ST Express Bus Fleet Through 2020

	Coach Number	Make	Year in Service	Type	2014	2015	2016	2017	2018	2019	2020
Existing Fleet	8000-8012	Gillig	1999	40-foot Diesel	12	2	0				
	9505 - 9519	New Flyer	1999	60-foot Diesel	4	0					
	9525-9536	New Flyer	2000	60-foot Diesel	5	0					
	9070-9089	Gillig	2001	40-foot Diesel	11	0					
	9400-9419	New Flyer	2001	40-foot LF CNG	20	20	0				
	9200	New Flyer	2003	40-foot LF Hybrid	1	1	1	1	1	0	
	9537-9552	New Flyer	2004	60-foot Diesel	16	16	16	16 ¹	0		
	9600-9621	New Flyer	2004	60-foot Hybrid	22	22	22	22	0		
	9090-9091	Gillig	2005	40-foot Diesel	2	2	2	2	2	0	
	9700-9712	MCI	2005	45-foot Diesel	13	13	13	13	13	13	13
	9092-9121	Gillig	2008	40-foot Diesel	30	30	30	30	30	30	30
	9622-9623	New Flyer	2008	60-foot Hybrid	2	2	2	2	2	2	2
	9713-9719	MCI	2008	45-foot Diesel	7	7	7	7	7	7	7
	9720-9722	MCI	2009	45-foot Diesel	3	3	3	3	3	3	3
	9624-9647	New Flyer	2010	60-foot Hybrid	24	24	24	24	24	24	24
	9553-9565	New Flyer	2010	60-foot Diesel	13	13	13	13	13	13	13
	9723-9739	MCI	2010	45-foot Diesel	17	17	17	17	17	17	17
	9566-9596	New Flyer	2011	60-foot Diesel	31	31	31	31	31	31	31
	9648-9651	New Flyer	2011	60-foot Hybrid	4	4	4	4	4	4	4
	9201-9222	Gillig	2012	40-foot LF Hybrid	22	22	22	22	22	22	22
	9122-9123	Gillig	2012	40-foot LF Diesel	2	2	2	2	2	2	2
	9800-9813	New Flyer	2012	60-foot Diesel	14	14	14	14	14	14	14
	51214-51218	New Flyer	2012	60-foot Diesel	5	5	5	5	5	5	5
9652-9659, 61401-61407	New Flyer	2014	60-foot Hybrid		15	15	15	15	15	15	
9814-9817, 51401-51403	New Flyer	2014	60-foot Diesel		7	7	7	7	7	7	
9124-9126	Gillig	2014	40-foot Diesel		3	3	3	3	3	3	
91501-91505	AD	2015	42-Double Deck		5	5	5	5	5	5	
Planned Fleet			2016	40-foot Hybrid			5	5	5	5	5
			2016	40-foot CNG			17	17	17	17	17
			2018	60-foot Diesel					16	16	16
			2018	60-foot Hybrids					22	22	22
			2019	60-foot Hybrid						3	3
Fleet Statistics	Total Assigned Fleet				280	280	280	280	280	280	280
	Peak Bus Requirements²				224	231	233	235	235	235	235
	Spares				56	49	47	45	45	45	45
	Spare Ratio (in assigned fleet)				25%	21%	20%	19%	19%	19%	19%

¹ A proposed grant submittal may cause these buses to be purchased in 2017 due to the time constraints of the grant.

² In 2013, Sound Transit moved Route 560 from KCM to PT and shifted additional trips from peak shoulders to peak; these action resulted in unexpected efficiencies causing an unusually high spare ratio. In 2015, Sound Transit anticipates creating new route in Pierce County and modifying peak service in King County requiring an additional seven vehicles which will have the effect of lowering the spare ratio. In 2016, Sound Transit anticipates Link construction impacting the South Bellevue Road Park and Ride and some impacts to the bus service due to additional Link service in the Seattle tunnel. These changes will utilize additional buses and will bring the spare ratio under 20%.

Draft 2015 Service Implementation Plan

Table 25 - Tacoma Link Fleet Through 2020

	Vehicle Number	Manufacturer	Year in Service	Type	2013	2014	2015	2016	2017	2018	2019	2020
Existing Fleet	1001-1003	Skoda	2003	66-foot LR	3	3	3	3	3	3	3	3
	Peak Vehicle Requirements (including ready reserve):				2	2	2	2	2	2	2	2
	Spares:				1	1	1	1	1	1	1	1
	Spare Ratio (in assigned fleet):				50%	50%	50%	50%	50%	50%	50%	50%

Table 26 - Central Link Fleet Through 2020

	Vehicle Number	Manufacturer	Year in Service	Type	2013	2014	2015	2016	2017	2018	2019	2020
Existing Fleet	101-135	Kinkisharyo	2009	95-foot LR	35	35	35	35	35	35	35	35
	136-162	Kinkisharyo	2011	95-foot LR	27	27	27	27	27	27	27	27
	Total Assigned Fleet				62	62	62	62	62	62	62	62
	Peak Vehicle Requirements (including ready reserve):				30	30	30	42	42	42	42	42
	Spares:				32	32	32	20	20	20	20	20
	Spare Ratio (in assigned fleet):				107%	107%	107%	48%	48%	48%	48%	48%

Table 27 - Sounder Fleet Through 2020

	Vehicle Number	Manufacturer	Year in Service	Type	2013	2014	2015	2016	2017	2018	2019	2020
Existing	901-911	GM	2000-2001	Locomotive	11	11	11	11	11	11	11	11
	101-111, 301-307	Bombardier	2000-2003	Cab Car	18	18	18	18	18	18	18	18
	201-240, 401-410	Bombardier	2000-2003	Coach	40	40	40	40	40	40	40	40
	921-923		2012	Locomotive	3	3	3	3	3	3	3	3
Planned	308-310		2014	Cab Car		3	3	3	3	3	3	3
	411-414		2014	Coach		4	4	4	4	4	4	4
	415-421		2015	Coach			3	3	3	3	3	3
Fleet Statistics	Total Locomotives on Property:				14	14	14	14	14	14	14	14
	Peak Vehicle Requirements (including ready reserve):				11	11	11	12	12	12	12	12
	Spares:				3	3	3	2	2	2	2	2
	Spare Ratio (in assigned fleet):				27%	27%	27%	17%	17%	17%	17%	17%
	Total Passenger Cars on Property:				58	65	68	68	68	68	68	68
	Peak Vehicle Requirements (including ready reserve):				52	52	52	57	57	57	57	57
	Spares:				6	13	16	11	11	11	11	11
	Spare Ratio (in assigned fleet):				12%	25%	31%	19%	19%	19%	19%	19%
	Total Locomotives on Property:				14	14	14	14	14	14	14	14
	Peak Vehicle Requirements (including ready reserve):				11	11	11	12	12	12	12	12
	Spares:				3	3	3	2	2	2	2	2
	Spare Ratio (in assigned fleet):				27%	27%	27%	17%	17%	17%	17%	17%

APPENDIX C: PUBLIC OUTREACH SUMMARY REPORT

We are now entering the public outreach phase of the 2015 SIP process. To that end, the Draft 2015 SIP and Draft Executive Summary have been posted on the Sound Transit Website.

The public is encouraged to come to the Sound Transit Open House or Public Hearing to review changes proposed in the Draft SIP for Sound Transit service in 2015.

The public may comment on the Draft SIP at the Open House or the Public Hearing, by phone at 1-866-940-4387 or via e-mail to fastride@soundtransit.org.

Open House

Wednesday, Oct. 29, 3:30-7:00 p.m.

Lakewood Station

11424 Pacific Hwy SW

Lakewood, WA 98499

Public Hearing

Thursday, Nov. 6, 12-12:30 p.m.

Union Station—Ruth Fisher Board Room

401 S. Jackson St.

Seattle, WA 98104