

# *Title VI Service Monitoring Report*



# TITLE VI SERVICE MONITORING REPORT

## Executive Summary

Sound Transit is required by the Federal Transit Administration (FTA) to measure the quality of service delivered to communities and to demonstrate resources are distributed in a way that does not discriminate on the basis of race, color or national origin. The FTA is responsible for ensuring the distribution of federally supported transit services and related benefits by applicants and recipients of FTA assistance in a manner consistent with Title VI, Section 601 of the Civil Rights Act of 1964.

Part of Sound Transit's compliance with FTA Circular 4702.1B is ongoing performance monitoring across all modes of service (ST Express, Link light rail and Sounder). This monitoring is meant to ensure Sound Transit provides service in an equitable manner. Specifically, Sound Transit monitors the following standards:

- Passenger Load (Crowding)
- On-Time Performance
- Customer Complaints
- Trips Operated as Scheduled
- Span of Service
- Frequency

The following analysis distinguishes routes where minority and low-income service area populations exceed the Sound Transit district average. These route classifications receive evaluation by metrics included in the Board adopted Sound Transit Service Standards and Performance Measures. Where service metrics on routes serving minority or low-income populations perform lower than non-minority or non-low-income routes, the agency identifies strategies for improving performance.

This document fulfills FTA's Title VI Program requirements for service quality monitoring of Sound Transit's published service standards.

## FINDINGS

The following Title VI Service Monitoring analysis, as directed by the FTA Circular 4702.1B, has highlighted areas within Sound Transit service that have opportunities for improvement. Based on analysis of a variety of data sources, it was determined that routes serving minority populations greater than the district average did not perform as well in the in the following categories:

### Express Bus

- On-Time Performance
- Overcrowding
- Average Headways during Peak, Base, and Reduced schedule time periods

### Commuter Rail

- On-Time Performance

Additionally, routes serving low-income populations greater than the district average did not perform as well in the following categories:

- Express bus
- On-time performance
- Weekday and Sunday span of service
- Average headways during peak and base schedule time periods

## **MITIGATION**

Mitigation strategies will focus on changes and improvements that can take place in the near future including the following: schedule adjustments, changes in vehicle allocation and trip additions. In the medium term time frame, capital projects such as bus-on-shoulder operations will provide some relief around the region's congested highway system.

The Title VI service monitoring will assess data on an annual basis to keep the agency informed and nimble as changes are needed. As new high-capacity transit lines are implemented, Service and Fare Equity Analyses<sup>1</sup> will be performed to understand how the network will evolve to the benefit of enhanced reliability.

<sup>1</sup> Pursuant to FTA circular C 4702.1B, transit providers that have implemented or will implement a New Start, Small Start, or other new fixed guideway capital project shall conduct a service and fare equity analysis. Service and fare equity analyses are conducted prior to implementing service and/or fare changes to determine whether the planned changes will have a disparate impact on the basis of race, color, or national origin. Low-income populations are not a protected class under Title VI. However, recognizing the inherent overlap of environmental justice principles in this area, and because it is important to evaluate the impacts of service and fare changes on passengers who are transit-dependent, FTA requires transit providers to evaluate proposed service and fare changes to determine whether low-income populations will bear a disproportionate burden of the changes.

# ***Introduction to Title VI Service Monitoring***

The Federal Transit Administration (FTA) requires Sound Transit to measure the quality of service delivered to communities and to demonstrate the distribution of resources in an equitable manner. This document fulfills FTA's Title VI Program reporting requirements for service quality monitoring. The FTA is responsible for ensuring applicants and recipients of FTA assistance distribute federally supported transit services and related benefits in a manner consistent with Title VI, Section 601 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 gathers data from operating partners on a monthly basis in order to understand the degree to which service aligns with targets set forth in the Board-adopted Sound Transit Service Standards and Performance Measures. Pursuant to rules established by the FTA, this data must be analyzed, presented to, and approved by Sound Transit's Board of Directors at least every three years to demonstrate the degree to which there is equitable distribution of services. Due to changing demographics, economic developments, transit expansions and numerous other factors, this analysis provides the agency the insight needed to make adjustments.

## **FTA CIRCULAR 4702.1B REQUIREMENTS**

- Transit providers shall assess the performance of each minority and non-minority route in the sample for each of the transit provider's service standards and service policies.
- Transit providers shall compare the transit service observed in the assessment to the transit provider's established service policies and standards.
- For cases in which the observed service for any route exceeds or fails to meet the standard or policy, depending on the metric measured, the transit provider shall analyze why the discrepancies exist, and take steps to reduce the potential effects.
- Transit providers shall evaluate their transit amenities policy to ensure the equitable distribution of amenities throughout the transit system.
- Transit providers shall develop a policy or procedure to determine whether disparate impacts exist on the basis of race, color, or national origin, and apply that policy or procedure to the results of the monitoring activities
- Transit providers shall brief and obtain approval from the transit providers' policymaking officials, generally the board of directors or appropriate governing entity responsible for policy decisions regarding the results of the monitoring program.
- Submit the results of the monitoring program as well as documentation (e.g., a resolution, copy of meeting minutes, or similar documentation) to verify the board's or governing entity or official(s)'s consideration, awareness, and approval of the monitoring results to FTA every three years as part of the Title VI Program.

## **SERVICE STANDARDS**

The following analysis first distinguishes routes where minority and low-income service area populations exceed the Sound Transit District average. These route classifications then receive evaluation by standards included in the Board-adopted *Service Standards and Performance Measures*:

### **Standards:**

- Passenger load
- On-time performance
- Customer complaints
- Trips operated as scheduled
- Span of service
- Frequency

Where service metrics on routes serving minority or low-income populations perform lower than non-minority or non-low-income routes or do not meet standards, the agency identifies strategies for improving performance.

## **REGIONAL CONTEXT**

The landscape of the Central Puget Sound region's demographics has been changing at a rapid pace. According to the Puget Sound Regional Council, the four-county region (consisting of King, Snohomish, Pierce, and Kitsap counties) is one of the fastest growing in the country, gaining 68,740 people over the last year. The region's total population is now 4.2 million. Since 2010, the region has gained more than 500,000 new residents.

Since 2010, the region added 362,800 new jobs, with the strongest job growth in King and Snohomish counties. Between 2010 and 2015, job growth in the region grew at an average annual rate of 2.7% per year. This rate of regional growth outperformed the national rate of 1.8% over the same period.

Amongst the 25 most populated metropolitan areas in the nation, the Puget Sound region has seen the highest transit ridership growth since 2010. Nationally, transit ridership has been flat since 2012. In the same time frame, Sound Transit's overall ridership grew to 150% - the highest in the nation. Transit boardings have increased faster than population. From 2010-2018, population grew 12%, while transit boardings grew 19%.

To help address this unprecedented growth, the region's voters approved the Sound Transit 3 ballot measure that provides the next phase of high-capacity transit improvements for Central Puget Sound. With this plan, the light rail system will more than double to 116 miles with more than 80 stations by 2041. Light rail will expand north to Everett, south to Federal Way and Tacoma, east to downtown Redmond, south Kirkland, and Issaquah and west to Ballard and West Seattle. Sound Transit 3 will also invest in Bus Rapid Transit (BRT) in the I-405 and SR 522 corridors. The plan also includes a program to improve bus speed and reliability in specific corridors. Finally, the plan will expand Sounder trains to serve Joint Base Lewis-McChord and DuPont.

# Methodology

## DEMOGRAPHIC ANALYSIS METHODOLOGY AND DATA DEFINITIONS

Sound Transit uses census demographic data to identify minority, low-income, and limited English proficiency communities for service monitoring and calculates the system-wide or mode specific average representation of these communities within the general population. The agency only uses minority or low-income status classifications to determine if it is necessary to mitigate and analyze a disparate impact or disproportionate burden. However, identifying limited English proficiency (LEP) residents helps Sound Transit to ensure that outreach efforts reach diverse customers. Sound Transit uses the 2010 designated Census Tracts as the geographic basis for assessing the populations.

Sound Transit uses the most recent five-year demographic estimates available from the American Community Survey (ACS). The ACS dataset identifies minority, low income and LEP populations as follows:

- **Minority:** Persons who self-identify as being one or more of the following ethnic groups: American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian and Other Pacific Islander.
- **Low-income:** Persons whose household income is at or below 150% of the federal poverty line.
- **Limited English Proficiency (LEP):** Persons who identify a language other than English as their primary language and are not fluent in English.
- **Minority and low-income routes:** FTA Circular 4702.1B generally defines a minority transit route as one in which at least one-third of the revenue miles are located in a census block, census block group, or traffic analysis zone where the percentage minority population exceeds the percentage minority population in the service area. FTA allows for flexibility in this designation, for example in the case of commuter-type service. There is no explicit guidance concerning the designation of low-income routes. Given the unique service characteristics of Sound Transit service – limited stops connecting regional urban and employment centers – Sound Transit defines minority and low-income routes as having a service area that exceeds the district average. Calculation of the service area is by a radial distance from each stop; the distance varies depending on the nature of the facility served. Figure 1 provides details on Sound Transit’s service area by stop type.

STOP TYPE	SERVICE AREA (MILES)
Bus stop without parking	0.5
Rail station without parking	1.0
Major bus facilities with parking	2.5
Rail station with parking	5.5

Figure 1: Sound Transit Service Area Definitions

- **Disparate impact, disproportionate burden:** FTA defines “disparate impacts” as facially neutral policies or practices that disproportionately affect members of a group identified by race, color or national origin, and the recipient’s policy or practice lacks a substantial legitimate justification. If the results of the analysis indicate a potential for disparate impacts, further investigation is required. Currently Sound Transit has no explicit definition for disparate impact/disproportionate burden in the context of service monitoring. Rather the agency applies the existing Sound Transit policy for major service changes and fare changes (Appendix H), which states:

-A **disparate impact** occurs when the minority percentage of the population adversely affected by a major service change is greater than the average minority percentage of the population of Sound Transit’s service area.

-A **disproportionate burden** occurs when the low- income percentage of the population adversely affected by a major service change is greater than the average low-income percentage of the population of Sound Transit’s service area.

In other words, any adverse effect above 0.0% on populations that exceed the Sound Transit service area average will result in a determination of disparate impact or disproportionate burden. The following sections describe the methodology for identifying each of the populations for the purposes of this analysis.

Unless otherwise noted all of the following measures apply to calendar year 2018.

## Sound Transit Population Estimates

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Using the demographic analysis and Title VI definitions previously outlined in this section, percentages for minority, low-income and LEP populations analyzed for the Sound Transit service area are identified by census tract and the district overall.

Calculate the population representation for any census tract by using the percentage of area that falls within the district or route's service area to estimate the specific number of people that fall within each of the populations analyzed. For example, if a census tract total is 10 acres and three acres are in the service area, then 30 percent of the tract's total population/respective populations analyzed to be within the service area. This methodology assumes an even distribution of population throughout the census tract.

Figure 2 shows the minority, income, and LEP averages for the Sound Transit district using the 2013 – 2017 American Community Survey dataset. While the FTA does not require consideration of LEP populations, understanding their distribution is helpful in advising outreach strategies. The maps on the following pages (Figures 4, 6, and 8) identify census tracts with minority, low-income, and LEP populations above the district average.

POPULATIONS ANALYZED	PERCENTAGE OF DISTRICT POPULATION
Minority	38.8%
Low-Income	17.7%
Limited English Proficiency	10.1%

Figure 2: Sound Transit District Populations

## **CORRIDOR DESCRIPTIONS**

### **ST Express bus**

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- Interstate 5 North Corridor: Includes routes 510, 511, 512, and 513 which provide service between Snohomish County and downtown Seattle.
- Interstate 405 North Corridor: Includes routes 532 and 535 which provide service between Snohomish County and downtown Bellevue.
- State Route 522 Corridor: Includes route 522, which provides service along SR-522 between Woodinville and downtown Seattle.
- State Route 520 Corridor: Includes routes 540, 541, 542, 545, 555, and 556 which provide service between East King County communities and downtown Seattle along SR-520.
- Interstate 90 Corridor: Includes routes 550 and 554, which provide service between East King County communities and downtown Seattle along I-90.
- Interstate 405 South Corridor: Includes routes 560, 566, and 567, which provide service between South King County and East King County, including Bellevue.
- Interstate 5 South Corridor: Includes routes 574, 577, 578, 586, 590, 592, 594, and 595, which provide service between South King County, Pierce County, and downtown Seattle.
- Sounder connectors: Includes routes 580 and 596, which provide service between Sounder train stations and Pierce County communities.

### **Sounder commuter rail**

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- Sounder North: Provides service between Snohomish County and downtown Seattle.
- Sounder South: Provides service between Pierce County and downtown Seattle.

### **Light rail**

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- Tacoma Link: Operates in a 1.6-mile at-grade corridor connecting Tacoma Dome Station within downtown Tacoma.
- Link: Operates in a 22-mile, mostly grade-separated, corridor between Angle Lake in SeaTac and the University of Washington in Seattle.





Figure 3: Sound Transit System Map

## Minority routes

There are 11 ST Express routes identified as serving a larger minority population than the district average.

All Sound Transit rail modes have service areas that exceed the Sound Transit district minority population. Classify the following routes s minority upon comparison of service area characteristics of each route to the Sound Transit district:



Figure 4: Minority Populations Facilities Served by ST

MODE	% MINORITY	MINORITY ROUTE
<b>ST District Average</b>	<b>38.8%</b>	<b>14</b>
<b>Express Bus</b>		
510	35.8%	
511	36.1%	
512	32.6%	
513	34.9%	
522	30.3%	
532	37.2%	
535	35.4%	
540	29.3%	
541	32.9%	
542	29.4%	
545	40.2%	Yes
550	39.8%	Yes
554	38.1%	
555	34.9%	
556	30.8%	
560	53.0%	Yes
566	51.3%	Yes
567	50.3%	Yes
574	51.1%	Yes
577	42.0%	Yes
578	37.2%	
580	43.3%	Yes
586	41.3%	Yes
590	38.4%	
592	44.8%	Yes
594	44.5%	Yes
595	32.0%	
596	19.1%	
<b>Commuter Rail</b>		
Souder-North	32.8%	
Souder-South	44.6%	Yes
<b>Light Rail</b>		
Link	52.2%	Yes
Tacoma Link	40.7%	Yes

Figure 5: Minority Population Percentage by Route Service Area

## Low-income routes

Two ST Express bus routes serving Snohomish County (510 and 513) and nearly all routes serving south King and Pierce counties (560 through 596) fall under the definition of low-income. No routes serving eastern King county (522 through 556) are classified as low-income, owing to the greater general prosperity of that area.

All Sound Transit rail modes have service areas that exceed the Sound Transit district low-income population average.

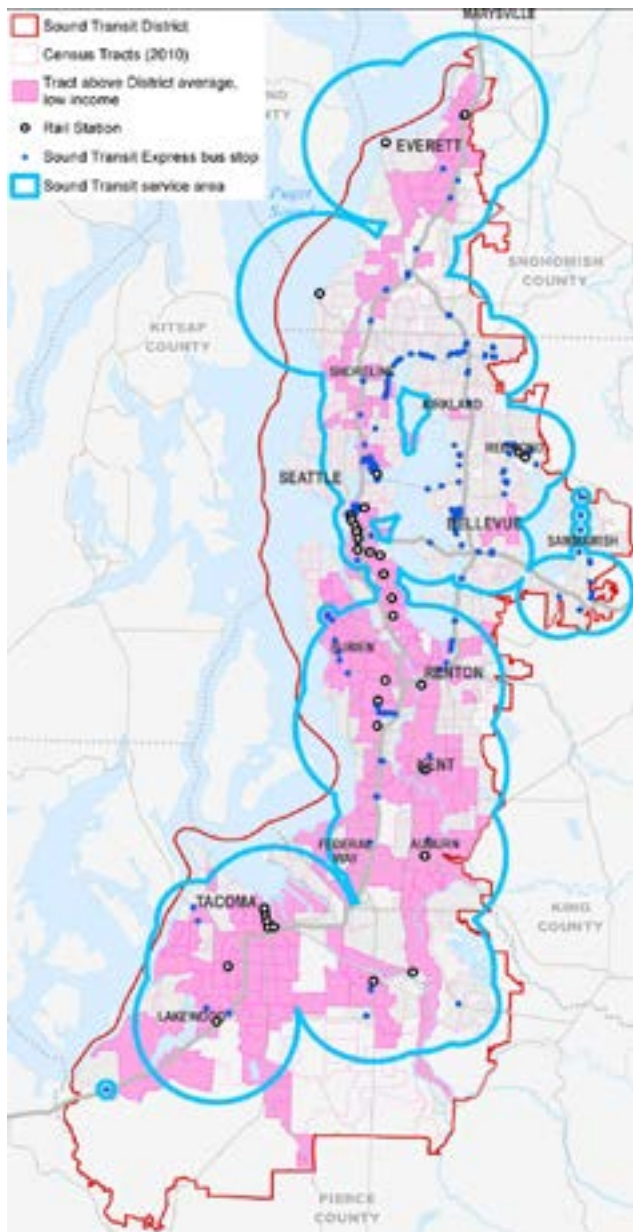


Figure 6: Low-Income Populations for Facilities Served by ST

MODE	% LOW-INCOME	LOW-INCOME ROUTE
<b>ST District Average</b>	<b>17.7%</b>	<b>17</b>
<b>Express Bus</b>		
510	20.4%	Yes
511	15.7%	
512	17.1%	
513	17.7%	Yes
522	13.4%	
532	14.7%	
535	11.6%	
540	13.6%	
541	13.9%	
542	13.6%	
545	12.5%	
550	14.0%	
554	13.2%	
555	13.5%	
556	14.5%	
560	19.0%	Yes
566	19.4%	Yes
567	17.0%	
574	27.0%	Yes
577	19.6%	Yes
578	20.2%	Yes
580	26.1%	Yes
586	30.1%	Yes
590	24.7%	Yes
592	25.5%	Yes
594	27.1%	Yes
595	19.3%	Yes
596	13.7%	
<b>Commuter Rail</b>		
Souder-North	17.7%	X
Souder-South	22.1%	X
<b>Light Rail</b>		
Link	23.3%	X
Tacoma Link	34.6%	X

Figure 7: Low-Income Populations Percentage by Route



## Limited English Proficiency

Limited English proficiency is shown in Figures 8 and 9 for the purpose of understanding outreach approaches but LEP populations are not included in the upcoming analysis.

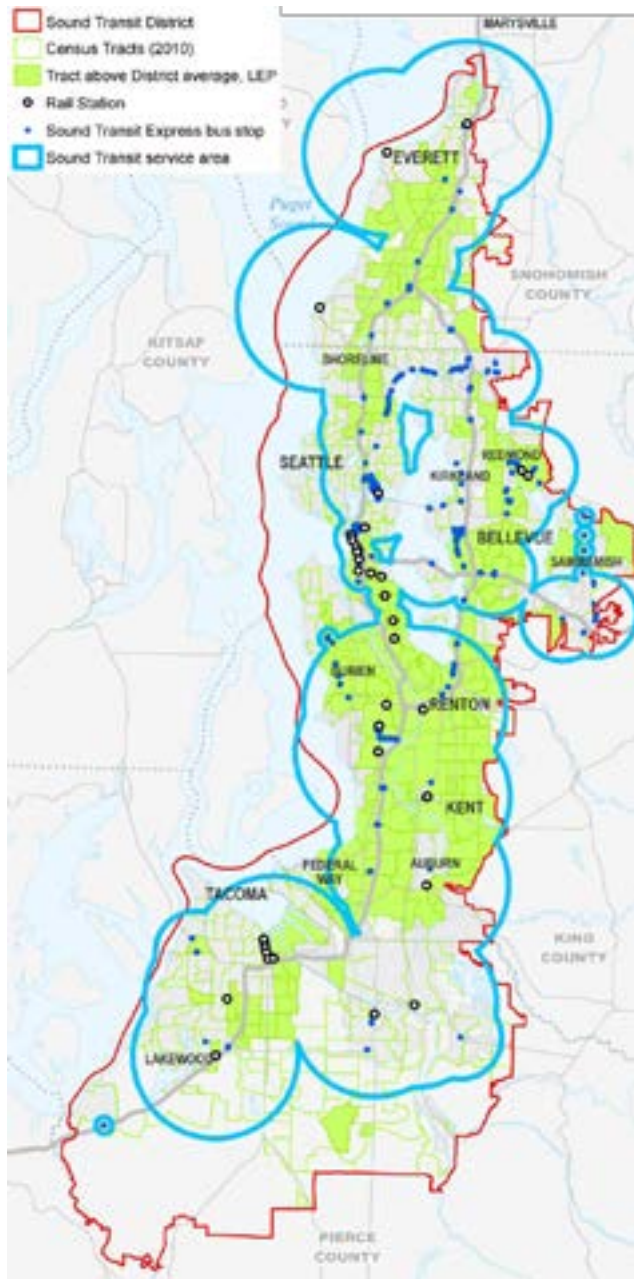


Figure 8: LEP Populations for Facilities Served by ST

MODE	% LEP
<b>ST District Average</b>	<b>10.1%</b>
<b>Express Bus</b>	
510	9.2%
511	9.7%
512	8.2%
513	9.2%
522	7.7%
532	10.1%
535	9.6%
540	5.9%
541	7.2%
542	5.8%
545	10.3%
550	10.4%
554	9.0%
555	9.0%
556	6.6%
560	16.4%
566	15.3%
567	15.4%
574	11.8%
577	10.1%
578	8.6%
580	7.9%
586	8.0%
590	7.2%
592	8.3%
594	8.4%
595	5.4%
596	2.0%
<b>Commuter Rail</b>	
Souder-North	9.4%
Souder-South	11.0%
<b>Light Rail</b>	
Link	14.7%
Tacoma Link	6.6%

Figure 9: LEP Percentage by Route

# Service Quality Review

The section below describes Sound Transit’s Board-approved *Service Standards and Performance Measures* document for measuring the performance and quality of service delivered to customers, as well as for assessing impacts on populations. For the combined summary of the disparate impact results refer to Appendix A: Disparate Impact Analysis and Appendix B: Disproportionate Burden Analysis.

## RECENT CHANGES TO SERVICE

Between 2015 and 2018, all modes saw substantial increases in resource allocations in order to meet the needs of an expanding economy, growing ridership, increased congestion, and commencement of operations for new rail investments. Figures 10 and 11 summarize the changes in platform hours by mode, and Appendix C: Changes in Service Delivery further details the changes implemented over recent years. A platform hour is any hour a transit vehicle is operating, which includes in-service hours, deadhead hours and layover hours.

In order to evaluate the degree to which these investments were distributed equitably, 2018 service quality indicators were compared for minority and low-income routes. Where adverse effects (which are quantified as anything above the averages for the district) lead to a determination of disparate impact or disproportionate burden, mitigation strategies were identified.

## STANDARDS









Sound Transit’s *Service Standards and Performance Measures* document outlines a set of measures that are used to design, evaluate and modify transit service. Planning and day-to-day management of transit service is based on the established service standards and performance measures in order to obtain efficient and effective service without sacrificing quality. The guidelines provide a multi-step process to identify the level and type of service that should be provided, as well as a process to implement any changes needed to meet established priorities.

ROUTE	ACTUAL ANNUAL PLATFORM HOURS		DIFFERENCE 2015-2018	MINORITY	NON-MINORITY
	2018	2015			
ST Express	780,901	722,817	58,084	22,929	35,155
Commuter Rail	79,140	63,192	15,948	16,510	-561
Light Rail	261,659	161,044	130,615	130,615	N/A

Figure 10: Change in Minority Route Platform Hours, 2015-2018

ROUTE	ACTUAL ANNUAL PLATFORM HOURS		DIFFERENCE 2015-2018	LOW-INCOME	NON-LOW-INCOME
	2018	2015			
ST Express	780,901	722,817	58,084	17,495	40,589
Commuter Rail	79,140	63,192	15,948	15,948	N/A
Light Rail	261,659	161,044	130,615	130,615	N/A

Figure 11: Change in Low-Income Route Platform Hours, 2015-2018

	Productivity				Service Quality			
	 Boardings per Trip	 Boardings per Revenue Hour	 Subsidy per Boarding	 Passenger Miles per Platform Mile	 Passenger Load	 On-Time Performance	 Customer Complaints	 Operated as Scheduled
<b>ST Express</b> FAST, FREQUENT REGIONAL BUS SERVICE (SEE PAGE 15)	<ul style="list-style-type: none"> <li>Monitored regularly and reported annually with a comparative analysis of each route's performance and a peer comparison analysis</li> <li>Annual targets are adjusted accordingly</li> </ul>				Standing passengers not to exceed 1.23 - 1.5 times total seats and limit standing time to 30 minutes	85% of trips arrive within five minutes of schedule, never early	Less than 15 complaints per 100,000 boardings	99.8% of scheduled trips operated
<b>Sounder</b> HIGH CAPACITY COMMUTER RAIL (SEE PAGE 19)	<ul style="list-style-type: none"> <li>Monitored regularly and reported annually with a peer comparison analysis</li> <li>Annual targets are adjusted accordingly</li> </ul>				Most riders have a seat, otherwise limit standing time to 30 minutes	95% of trips arrive at route terminals within seven minutes of schedule	Less than 15 complaints per 100,000 boardings	99.5% of scheduled trips operated
<b>Tacoma Link</b> LIGHT RAIL WITH MULTI-MODAL CONNECTIONS (SEE PAGE 21)	<ul style="list-style-type: none"> <li>Monitored regularly and reported annually with a comparative analysis by time of day and a peer comparison analysis</li> <li>Annual targets are adjusted accordingly</li> </ul>				Standing passengers permitted up to 1.85 times number of seats	90.5% of trips depart/arrive route terminals within three minutes of schedule	Less than 15 complaints per 100,000 boardings	98.5% of scheduled trips operated
<b>Link</b> FREQUENT, RELIABLE HIGH-CAPACITY LIGHT RAIL (SEE PAGE 24)	<ul style="list-style-type: none"> <li>Monitored regularly and reported annually with a comparative analysis by time of day and a peer comparison analysis</li> <li>Annual targets are adjusted accordingly</li> </ul>				Standing passengers not to exceed two times number of seats and limit standing time to 30 minutes	90% of headways within two minutes of schedule	Less than 15 complaints per 100,000 boardings	98.5% of scheduled trips operated

The *Service Standards and Performance Measures* document defines the criteria for making major or administrative service changes, as well as guidelines and driving factors for the type of changes needed to ensure Sound Transit services are meeting the demand for regional transit in the Puget Sound area.

Because standards vary by mode, a determination of disparate impact/disproportionate burden is made for routes within the mode rather than between modes.

## Passenger load

Maximum load factor is defined as the ratio as the maximum number of passengers observed on a transit vehicle trip relative to the number of seats. A maximum load factor greater than 1.0 means some passengers will be standing. The threshold for overcrowding varies by mode. Because ST Express, Sounder, and Link are regional services with long trip durations, a limit of 30 minutes of standing load is imposed on trips in addition to peak load factor limits of 1.23-1.5, 2.0, and 2.0, respectively. ST Express peak load factor limits vary according to the vehicle type, with 45-foot high floor and double decker buses having less space for standing room. Tacoma Link's load factor limit is 1.86, and typically only experiences overcrowding during special events.

One aspect of rider behavior that load factor metrics do not fully account for is self-balancing: during periods of high demand and frequent service, it is common to observe riders to decline boarding the first available bus in the expectation that later buses will be less crowded. In this situation, the passenger chooses a longer wait in order to have a seat for the trip.

Systematic passenger overcrowding conditions can occur when the frequency of service supplied is insufficient to meet demand, when poor schedule reliability leads to vehicle bunching, and/or vehicle passenger capacities are insufficient for a scheduled trip. Acute overcrowding can occur during periods of atypical demand (parades, weather events) or during disruptions to regular service. For a more detailed representation of findings please refer to Appendix D: 2018 Passenger Overcrowding Rate by Route.

### Findings

- Overcrowding was higher for minority routes of ST Express by 0.4%, resulting in a determination of a disparate impact for this category.
- Low-income routes experienced less overcrowding than their non-low-income peers by 0.6%.
- While the Sound Transit overcrowding standard is relatively strict at 0.0% across all modes, values greater than 1.0% on Link, Tacoma Link, 545, 550, and 580 do indicate that at least some overcrowding occurred on a regular basis.

### Mitigation

- ST Express: In March 2019, Route 550 experienced a drop in ridership relating to the closure of the Downtown Seattle Transit Tunnel to buses. Also in June 2018, trips were added to the Route 580 schedule to alleviate overcrowding and better match demand patterns. Sound Transit is closely monitoring these changes in order to establish whether additional corrective actions need to be taken. Trips will be added or scheduled adjustments made to Route 545 in March 2020 in an effort to alleviate overcrowding. For other routes, Sound Transit will work closely and continuously with operating partners to assign higher capacity vehicles to trips where they are most needed. Operating partners use automatic passenger counter data, field reports and customer comments to identify trips where higher capacity vehicles are most needed.
- Sounder: Overloading is most likely to occur during service disruptions, such as when trip cancellations divert passengers onto remaining trips. Because Sounder is peak-oriented and limited in train car and track capacity, there is limited ability to expand peak service and enhance system redundancy. Looking ahead, the ballot measure passed in 2016 called "ST3" includes funding for extending station platforms to facilitate 10-car trains.

PASSENGER OVERCROWDING RATE			
MODE	MINORITY	NON-MINORITY	DIFFERENCE
ST Express	1.3%	0.9%	0.4%
Commuter Rail	0.2%	0.6%	-0.4%
Light Rail	3.2%	N/A	N/A

Figure 13: Passenger Overcrowding Rate for Minority

PASSENGER OVERCROWDING RATE			
MODE	LOW-INCOME	NON-LOW-INCOME	DIFFERENCE
ST Express	0.7%	1.3%	-0.6%
Commuter Rail	0.4%	N/A	N/A
Light Rail	3.2%	N/A	N/A

Figure 14: Passenger Overcrowding Rate for Low-Income Routes

- Link: While overcrowding occurs most frequently on Link, there is limited ability to address the situation due to constraints of the existing light rail fleet size. However, the commencement of operations for the Northgate Link extension in 2021 will allow for the operation of four-car trainsets compared to the two- and three-car trainsets that operated in 2018. This will significantly increase the seating capacity available to passengers. Tacoma Link overcrowding is primarily tied to special events at the Tacoma Dome and University of Washington class schedules. When the Tacoma Link Extension opens in 2022, peak headways will improve to 10 minutes compared to 12 minutes in 2018. This will result in one additional train car per hour per direction.

## On-time performance

The calculation for on-time performance varies by mode:

- Among ST Express bus routes, “on-time” is defined as arriving no later than five minutes of each fixed timepoint’s scheduled time. Early departures are not permitted for fixed timepoint. In addition, many ST Express timetables include “estimated” timepoints primarily for situations in which a stop is drop-off only. Estimated timepoints are not included in on-time performance (OTP) reporting. The standard is 85% on-time.
- For Sounder “on-time” is defined as arriving at the final station of the route within seven minutes of the scheduled time. The standard is 95% on-time.
- For Tacoma Link “on-time” is defined as arriving at the final station within three minutes of the scheduled time and departing no later than three minutes of the scheduled time for the first station. The standard is 95% on-time.
- For Link “on-time” is defined as remaining within two minutes of the scheduled headway for each station. The standard is 90% on-time.

ON-TIME PERFORMANCE			
MODE	MINORITY	NON-MINORITY	DIFFERENCE
ST Express	80.7%	84.4%	-3.7%
Commuter Rail	92.1%	96.1%	-4.0%
Light Rail	94.8%	N/A	N/A

Figure 15: On-Time Performance for Minority Routes

ON-TIME PERFORMANCE			
MODE	LOW-INCOME	NON-LOW-INCOME	DIFFERENCE
ST Express	79.2%	86.2%	-7.0%
Commuter Rail	94.1%	N/A	N/A
Light Rail	94.8%	N/A	N/A

Figure 16: On-Time Performance for Low-Income Routes

For a more detailed graph of on-time performance findings for all routes refer to Appendix E: 2018 On-Time Performance by Route.

## Findings

- On-time performance was lower for minority routes of ST Express (3.7%) and Sounder (4.0%), resulting in a determination of a disparate impact for this category.
- Similar to the findings of minority routes, on-time performance was worse for low-income routes compared to non-low-income ST Express routes by 7.0% resulting in a disproportionate burden. Poor on-time performance can be partly caused by routes that depend on timed connections, such as Sounder connectors 567, 580 and 596. However the primary cause of poor on-time performance is due to Sound Transit Express routes operating on public roadways. As a result, travel speed and reliability are primarily influenced by variables beyond Sound Transit’s control, such as construction projects, job growth, population growth and social/technological changes (transportation network companies, intelligent transportation systems).
- Of 28 ST Express routes, 16 fell below the on-time performance standard of 85%. Of those that fell below the standard, one is considered minority but not low-income (567), three are considered low-income-only (578, 590, and 595), eight are considered both minority and low-income (560, 566, 574, 577, 580, 586, 592, 594) and four are considered neither minority nor low-income (540, 555, 556, 596). The Sounder South line, a minority and low-income route, was 92.1% on-time compared to the commuter rail standard of 95%.



- Much of the Puget Sound region's recent job growth has occurred in the Seattle/Bellevue/Renton urban areas while much of the affordable housing growth occurred in south King and Pierce counties. This vigorous economic growth and jobs-housing imbalance has fueled an

Commute routes	2013	2014	2015	2016	2017	Commute routes	2013	2014	2015	2016	2017
<b>Morning commutes</b>						<b>Evening commutes</b>					
I-5, Everett to Seattle SB	42%	28%	26%	19%	18%	I-5, Seattle to Everett NB	66%	46%	36%	21%	12%
I-5, Federal Way to Seattle NB	43%	30%	18%	18%	15%	I-5, Seattle to Federal Way SB	53%	40%	32%	21%	19%
I-405, Tukwila to Bellevue NB	65%	35%	20%	24%	22%	I-405, Bellevue to Tukwila SB	41%	26%	21%	18%	14%
I-90, Issaquah to Seattle WB	100%	98%	98%	97%	89%	I-90, Seattle to Issaquah EB	90%	100%	90%	97%	94%
SR 520, Redmond to Bellevue WB	50%	44%	63%	61%	50%	SR 520, Bellevue to Redmond EB	52%	52%	73%	71%	65%

Data source: WSDOT Multimodal Planning Division.  
Notes: The above HOV reliability performance standards are based on the peak hour, when average travel time is slowest. To meet the standard, a speed of 45 mph must be maintained for 90% of the peak hour. Numbers represent the percentage of the peak hour when speeds are faster than 45 mph. The WSDOT Multimodal Planning Division analyzes performance data for all complete segments of HOV lanes that have a loop detector. In some cases, data cannot be analyzed for the very beginning and ends of the lanes because there are no detectors at these locations. 1 The I-90 reversible HOV lane between I-5 and Mercer Island was replaced by 24-hour HOV lanes in both directions on June 4, 2017.

Figure 17: HOV Lane Reliability by Corridor, WSDOT 2018

overall increase in travel delay on roadways. In order to quantify evolving road conditions, the Washington State Department of Transportation (WSDOT) Corridor Capacity report publishes travel time changes for both general purpose and High Occupancy Vehicle (HOV) lanes on limited access highways in the state every year. One significant finding is that transit travel time in HOV lanes on I-5 and I-405 South is not appreciably faster than general purpose lanes. Figure 17 illustrates HOV reliability trends from 2013 to 2017.

- The I-5 corridor within Pierce and South King counties has experienced a rapid and acute increase in traffic congestion due to sharp rises in traffic volumes (during both peak and non-peak time periods) and construction projects. This corridor is traveled by with multiple ST Express routes that fall under the minority classification. Figure 18 illustrates that this is a significant contributor to delay for Routes 574, 586, 590, 592, 594 and 595, all of which performed below the 85% on-time standard in 2018.

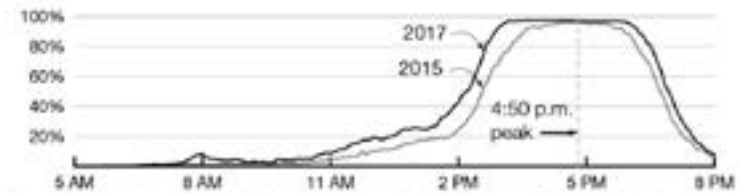
### Mitigation

- ST Express: Confronted with degradation in travel speeds for HOV and general purpose lanes, Sound Transit made substantial increases in run times, which were included in the September 2017 service change, adding about 15,000 hours to address reliability improvements.

Based on 2018 observations, it is apparent that additional resources need to be directed at ensuring scheduled travel times more accurately reflect current traffic conditions. Minority and low-income routes with the lowest performance will receive the greatest consideration for adjustments and additional and/or reallocated resources. These improvements to timetables will likely result in minor service changes. These minor service changes will be included in the 2020 Service Implementation Plan.

### Severe congestion on the Federal Way to Tacoma commute

2015 and 2017; Southbound; Percent of days the average speed was slower than 36 mph



Data sources and analysis: WSDOT Multimodal Planning Division and WSDOT Office of Strategic Assessment and Performance Analysis.

Fig. 18: On-Time Performance for All Routes

The findings from the 2018 Corridor Capacity report also highlight the importance of continually monitoring performance of HOV lanes and making policy adjustments where appropriate in order to maintain reliable travel times during peak periods. Sound Transit, WSDOT and its partners are working together to identify bottlenecks where capital improvements can be made in order to allow Bus-on-shoulder (BOS) operations.

- Sounder: Sound Transit leases track space from BNSF railroad, giving it greater control over on-time performance relative to public roadways. Yet freight traffic, grade-level crossings, maintenance issues and police activity near or around the rail line all contribute toward reduced travel time reliability on the Sounder South line. Improving travel time reliability will continue to be a focus with Sound Transit and its operating partners by developing opportunities to streamline service, reduce trespassing, and make schedule adjustments.

## Customer complaints

The customer complaints standard is the same across all modes: No more than 15 complaints submitted to Sound Transit customer service representatives and operating partners per 100,000 boardings. Complaints can relate to on-time performance, overcrowding and amenities, among other things.

COMPLAINTS PER 100K BOARDINGS			
MODE	MINORITY	NON-MINORITY	DIFFERENCE
ST Express	9.8	12.8	-3.0
Commuter Rail	9.5	13.7	-4.2
Light Rail	0.9	N/A	N/A

### Findings

- Average customer complaint rates were lower for minority (by 2.8%) and low-income routes (by 3.1%).

### Mitigation

- No mitigation is necessary for this measure.

Figure 19: Complaints per 100,000 Boardings, Minority Routes

CUSTOMER COMPLAINTS PER 100K BOARDINGS			
MODE	LOW-INCOME	NON-LOW-INCOME	DIFFERENCE
ST Express	10.1	12.9	-2.8
Commuter Rail	11.6	N/A	N/A
Light Rail	0.9	N/A	N/A

Figure 20: Complaints per 100,000 Boardings, Low-Income Routes

## Trips operated as scheduled

This metric tracks the percent of scheduled trips that actually operated. The standard for ST Express is 99.8% and 99.5% for rail modes. Traffic conditions, labor shortages, medical emergencies, and mechanical breakdowns can all contribute to the cancellation of a trip.

TRIPS OPERATED AS SCHEDULED			
MODE	MINORITY	NON-MINORITY	DIFFERENCE
ST Express	99.8%	99.8%	0.0%
Commuter Rail	99.5%	97.0%	2.5%
Light Rail	99.1%	N/A	N/A

### Findings

- For all modes, minority routes were just as likely or more likely to operate as scheduled in 2018.
- For all modes, low-income routes were just as likely or more likely to operate as scheduled in 2018.

### Mitigation

- No mitigation is necessary for this measure.

Figure 21: Trips that Operated as Scheduled, Minority Routes

TRIPS OPERATED AS SCHEDULED			
MODE	LOW-INCOME	NON-LOW-INCOME	DIFFERENCE
ST Express	99.8%	99.8%	0.0%
Commuter Rail	98.3%	N/A	N/A
Light Rail	99.1%	N/A	N/A

Figure 22: Trips that Operated as Scheduled, Low-Income Routes

## Span of service

The service span for ST Express should be coordinated with passenger activity and demand while coordinating and complementing local transit networks and other Sound Transit services. ST Express service span may vary between routes based on passenger demand and route performance.



Figure 23: Sound Transit Service Span Guidelines

Once service is in place, headways may be improved to provide more frequent service if route productivity consistently exceeds the system average or if passenger loads exceed Sound Transit's service standards.

The service span, or the hours of operation of an individual route, should be based on demand and relate to the operating times of the activity centers being served and the service span of the connecting local transit system. Some routes may operate only during weekday peak periods while others may operate all day, seven days a week. Other routes may operate all day on weekdays but provide no weekend service. As a general guide three levels of service are defined for different operating time periods.

- Peak service is generally between the hours of 6:00 a.m. and 9:00 a.m., and between 3:00 p.m. and 6:00 p.m.
- Base service is provided in the early morning from 5:00 a.m. and 6:00 a.m., in the mid- day period between 9:00 a.m. and 3:00 p.m., and in the early evening period between 6:00 p.m. and 8:00 p.m. on weekdays, and between 6:00 a.m. and 6:00 p.m. on Saturdays.
- Reduced service is between 8:00 p.m. and midnight on weekdays, from 6:00 p.m. to midnight on Saturdays and from 6:00 a.m. to midnight on Sundays. Reduced service is also operated on some holidays.

Some routes only operate during the peak period, while others only operate during off-peak times. For the purposes of this analysis span was defined as the first trip start time of the day to the last trip start time of the day. Routes in which no trips started between 11 a.m. and 1 p.m. were considered peak-only; daily total span was calculated as the sum of spans within each peak period. Refer to Appendix F: 2018 Span of Service by Day Type by Route for a more detailed look at hours of service provided by route.

### Findings

- The average span of service was higher for minority routes across all day types.
- Average span length for low-income routes was shorter on Weekdays by 1.7 hours and Sundays by six minutes compared to non-low-income routes. This resulted in a disproportionate burden.
- Eight low-income routes (510, 513, 577, 580, 586, 590, 592, and 595) operate mainly during peak periods, driving down the average span length overall. Most of these routes operate in corridors with a complimentary all-day route to cover a larger span of service.
- Four of the seven all-day low-income routes have weekday service spans exceeding 18 hours. ST Express routes which serve Sea-Tac International Airport (560, 574) have the longest spans due to the 24-hour operational nature of this important regional employment center.

### Mitigation

- Sound Transit is planning a major restructure in 2021 with the opening of Northgate Link Extension. The restructure will be focused on ST Express service and will include I-5 north, SR-522 and I-5 south corridors. Sound Transit will closely monitor passenger demand and work to match service span accordingly. Particular attention will be placed on earlier and later trips in order to expand the utility of the system for passengers.

AVERAGE HOURS OF SERVICE PER DAY				
	DAY TYPE	MINORITY	NON-MINORITY	DIFFERENCE
ST Express	Weekday	13.7	11.4	2.3
	Saturday	18.1	16.9	1.2
	Sunday	17.8	17.2	0.6
Commuter Rail	Weekday	9.6	3.0	6.6
Light Rail	Weekday	18.8	N/A	N/A
	Saturday	20.5	N/A	N/A
	Sunday	13.3	N/A	N/A

Figure 24: Avg. Hours of Service by Day Type, Minority Routes

AVERAGE HOURS OF SERVICE PER DAY				
MODE	DAY TYPE	LOW-INCOME	NON-LOW-INCOME	DIFFERENCE
ST Express	Weekday	11.3	13.1	-1.7
	Saturday	17.9	17.2	0.7
	Sunday	17.5	17.6	-0.1
Commuter Rail	Weekday	6.3	N/A	N/A
Light Rail	Weekday	18.8	N/A	N/A
	Saturday	20.5	N/A	N/A
	Sunday	13.3	N/A	N/A

Figure 25: Avg. Hours of Service by Day Type, Low-Income Routes

## Frequency

Headways are the time intervals in minutes between scheduled trips for a given direction of travel. Sound Transit schedules ST Express headways based on demand, clock-face scheduling and the maximum headway guideline, which is 30 minutes during peak periods and 60 minutes during off-peak periods for ST Express. The guideline is designed to keep wait times reasonable for passengers who require a transfer. Once service is in place, headways may be improved to provide more frequent service if route productivity consistently exceeds the system average or if passenger loads exceed Sound Transit's service standards.

AVERAGE HEADWAY				
MODE	TIME PERIOD	MINORITY	NON-MINORITY	DIFFERENCE
ST Express	Peak	22.4	22.3	0.1
	Base	30.2	25.4	4.9
	Reduced	36.5	33.9	2.6
Commuter Rail	Peak	25.8	30.0	-4.2
	Base	52.2	N/A	N/A
Light Rail	Peak	11.1	N/A	N/A
	Base	10.8	N/A	N/A
	Reduced	14.1	N/A	N/A

Figure 26: Average Headway by Time Period, Minority Routes

## Findings

- Average headways for Peak, Base, and Reduced time periods on minority routes were longer than their non-minority counterparts on ST Express by about 0.1 minutes (~six seconds), five minutes and three minutes, respectively. This means that average wait time for a passenger randomly arriving at a stop for a minority route would be longer, resulting in a disparate impact.
- Average headway of service was longer for low-income routes than non-low-income routes during Peak and Base time periods by about 4 minutes and 5 minutes, respectively. This results in a disproportionate burden.

AVERAGE HEADWAY				
MODE	TIME PERIOD	LOW-INCOME	NON-LOW-INCOME	DIFFERENCE
ST Express	Peak	24.3	20.7	3.6
	Base	29.8	25.1	4.7
	Reduced	35.1	35.2	-0.1
Commuter Rail	Peak	27.9	N/A	N/A
	Base	52.2	N/A	N/A
Light Rail	Peak	11.1	N/A	N/A
	Base	10.8	N/A	N/A
	Reduced	14.1	N/A	N/A

Figure 27: Average Headway by Time Period, Low-Income Routes

Figures 26 and 27 and Appendix G: 2018 Average Headway by Route compare the average headway of minority and/or low-income routes for the three time periods.

## Mitigation

- Sound Transit is planning a major restructure in 2021 with the opening of Northgate Link Extension. The restructure will be focused on ST Express service and will include I-5 north, SR-522 and I-5 south corridors. Sound Transit will closely monitor passenger demand and work to match schedule frequency accordingly, especially during off-peak periods when headways (and therefore average wait times) tend to be longer.

## ***Next Steps***

Sound Transit annually updates a Service Implementation Plan, which sets the targets for major improvements. There are two opportunities per year to adjust public timetables. A six-month lead-time is required to finalize schedules ahead of the change in order to provide partners sufficient time to plan staffing assignments and publish printed materials. The next opportunity to make changes to public timetables will occur with the March 2020 service change. The 2020 Service Implementation Plan will commit to analyzing ways to make improvements.

Looking further ahead, Sound Transit is working with WSDOT to improve travel times for all bus operators in the region through a series of projects to allow buses to drive on roadside shoulders in places and periods of acute congestion. A feasibility study is currently identifying a list of bus on shoulder projects for implementation by 2024.

Beyond the short-term, Sound Transit is in the midst of a \$54B BRT and rail expansion program which will greatly enhance the capacity, speed and reliability of regional transit options. A fully grade-separated Link light rail is planned to reach Federal Way in South King County by 2024 and Tacoma in Pierce County by 2030. BRT in South King County will also be implemented by 2024. Reliable service in a dedicated right-of-way will help address the relatively poor performance of service in south King and Pierce counties.

## ***Agency Monitoring***

With the forthcoming increases in service for the agency, Sound Transit is developing and implementing protocols to ensure ongoing monitoring and mitigations as part of our normal course of business, which will include the tracking of service monitoring. The Business and Labor Compliance Office is responsible for Title VI oversight and the Service Planning team is responsible for the agency's service planning. These two groups work together on a frequent basis to ensure the agency is assessing service monitoring frequently.

# Conclusion

This analysis has highlighted areas of Sound Transit service that exhibited a disparate impact or disproportionate burden in 2018. Through the disparate impact analysis process, it was determined that routes serving minority populations greater than the district average did not perform as well in the following categories:

- Express Bus
- On-Time Performance
- Overcrowding
- Average Headways during Peak, Base and Reduced schedule time periods
- Commuter Rail
- On-Time Performance

Additionally, the disproportionate burden analysis determined routes serving low-income populations greater than the district average did not perform as well in the following categories:

- Express Bus
- On-Time Performance
- Weekday and Sunday Span of Service
- Average Headways during Peak and Base schedule time periods

Mitigation strategies will focus on near-future improvements (schedule adjustments, changes in vehicle allocation, trip additions, bus assignments) as well as medium term capital projects (bus-on-shoulder operations) that can provide some relief around the region's congested highway system. As new high-capacity transit lines are implemented, the ST Express network will evolve around it to the benefit of enhanced reliability.

Sound Transit's vision is to maintain a world-class public transit operation and meet the challenges related to serving the evolving, diverse needs of passengers, communities and other transit providers.

To help meet the changing needs of a growing population in the region, Sound Transit will continue to expand transit service. Given the significant growth in the region, Sound Transit's vision can be achieved through continued coordination between the various transit service providers in order to ensure an integrated transit network.

Sound Transit will make a good faith effort to mitigate or reduce the adverse effects of any disparate impact on minorities or a disproportionate burden on low-income individuals.

# Appendix A: Disparate Impact Analysis

DISPARATE IMPACT ANALYSIS	TARGET	MINORITY ROUTES	NON-MINORITY ROUTES	DIFFERENCE	DISP. IMPACT
<b>Express Bus</b>					
On-Time Performance	85.0%	80.7%	84.4%	-3.7%	Yes
Trips Operated	99.8%	99.8%	99.8%	0.0%	No
Customer Complaints per 100k ons	15	9.8	12.8	-3.1	No
Passenger Overcrowding Rate	0.0%	1.3%	0.9%	0.4%	Yes
Weekday Span (hours)	Variable	13.7	11.4	2.3	No
Saturday Span (hours)	Variable	18.1	16.9	1.2	No
Sunday Span (hours)	Variable	17.8	17.2	0.6	No
Peak Headway (minutes)	30	22.4	22.3	0.1	Yes
Base Headway (minutes)	60	30.2	25.4	4.9	Yes
Reduced Headway (minutes)	60	36.5	33.9	2.6	Yes
<b>Commuter Rail</b>					
On-Time Performance	95.0%	92.1%	96.1%	-4.0%	Yes
Trips Operated	99.5%	99.5%	97.0%	2.5%	No
Customer Complaints per 100k ons	15	9.5	13.7	-4.2	No
Passenger Overcrowding Rate	0	0.002	0.006	-0.3%	No
Weekday Span (hours)	N/A	9.6	3.0	6.3	No
Saturday Span (hours)	N/A	N/A	N/A	N/A	No
Sunday Span (hours)	N/A	N/A	N/A	N/A	No
Peak Headway (minutes)	N/A	25.8	30.0	27.9	No
Base Headway (minutes)	N/A	28.8	N/A	N/A	No
Reduced Headway (minutes)	N/A	N/A	N/A	N/A	No
<b>Light Rail</b>					
On-Time Performance	90% /98.5%	94.8%	N/A	N/A	N/A
Trips Operated	98.5%	99.1%	N/A	N/A	N/A
Customer Complaints per 100k ons	15.0	0.9	N/A	N/A	N/A
Passenger Overcrowding Rate	0	0.032	N/A	N/A	N/A
Weekday Span (hours)	N/A	18.8	N/A	N/A	N/A
Saturday Span (hours)	N/A	20.5	N/A	N/A	N/A
Sunday Span (hours)	N/A	13.3	N/A	N/A	N/A
Peak Headway (minutes)	N/A	11.1	N/A	N/A	N/A
Base Headway (minutes)	N/A	10.8	N/A	N/A	N/A
Reduced Headway (minutes)	N/A	14.1	N/A	N/A	N/A

Figure 30: Disparate Impact Analysis Summary

## Appendix B: Disproportionate Burden Analysis

DISPROPORTIONATE BURDEN ANALYSIS	TARGET	LOW INCOME ROUTES	NON-LOW INCOME ROUTES	DIFFERENCE	DISP. BURDEN
<b>Express Bus</b>					
On-Time Performance	85.0%	79.2%	86.2%	-7.0%	Yes
Trips Operated	99.8%	99.8%	99.8%	0.0%	No
Customer Complaints per 100k ons	15	10.1	12.9	-2.8	No
Passenger Overcrowding Rate	0.0%	0.7%	1.3%	-0.6%	No
Weekday Span (hours)	Variable	11.3	13.1	-1.7	Yes
Saturday Span (hours)	Variable	17.9	17.2	0.7	No
Sunday Span (hours)	Variable	17.5	17.6	-0.1	Yes
Peak Headway (minutes)	30	18.8	17.1	1.6	Yes
Base Headway (minutes)	60	29.8	21.0	8.8	Yes
Reduced Headway (minutes)	60	22.1	32.9	-10.9	No
<b>Commuter Rail</b>					
On-Time Performance	95.0%	94.1%	N/A	N/A	No
Trips Operated	99.5%	98.3%	N/A	N/A	No
Customer Complaints per 100k ons	15	11.6	N/A	N/A	No
Passenger Overcrowding Rate	0.0%	0.4%	N/A	N/A	No
Weekday Span (hours)	N/A	6.3	N/A	N/A	No
Saturday Span (hours)	N/A	N/A	N/A	N/A	No
Sunday Span (hours)	N/A	N/A	N/A	N/A	No
Peak Headway (minutes)	N/A	27.9	N/A	N/A	No
Base Headway (minutes)	N/A	52.2	N/A	N/A	No
Reduced Headway (minutes)	N/A	N/A	N/A	N/A	No
<b>Light Rail</b>					
On-Time Performance	90% /98.5%	94.8%	N/A	N/A	No
Trips Operated	98.5%	99.1%	N/A	N/A	No
Customer Complaints per 100k ons	15.0	0.9	N/A	N/A	No
Passenger Overcrowding Rate	0.0%	3.2%	N/A	N/A	No
Weekday Span (hours)	N/A	18.8	N/A	N/A	No
Saturday Span (hours)	N/A	20.5	N/A	N/A	No
Sunday Span (hours)	N/A	13.3	N/A	N/A	No
Peak Headway (minutes)	N/A	11.1	N/A	N/A	No
Base Headway (minutes)	N/A	10.8	N/A	N/A	No
Reduced Headway (minutes)	N/A	9.6	N/A	N/A	No

Figure 31: Disproportionate Burden Analysis Summary



# Appendix C: Changes in Service Delivery

Between 2015 and 2018:

- A total of 58,000 platform hours were added to ST Express service. These additional hours were allocated toward schedule adherence, new trips, and two new routes, with Route 580 implemented in 2015 and Route 541 implemented in 2016. Together:
  - 800 platform hours were added to Snohomish County routes (510, 511, 512, 513, 532, 535)
  - 40,000 platform hours were added to east King County routes (522, 540, 541, 542, 545, 550, 554, 555, 556)
  - 3,900 platform hours were added to south King County routes (560, 566, 567, 577)
  - 13,300 platform hours added to Pierce County routes (574, 578, 580, 586, 590, 592, 594, 595, and 596).
- Sounder-North saw a decrease 500 annual vehicle platform hours due to shorter train lengths on certain trips
- Sounder South saw an increase of in 16,500 annual vehicle platform hours with the addition of new trips and vehicles added in 2017.
- The University of Washington and Angle Lake extensions opened in 2016, resulting in an increase in 130,600 annual vehicle platform hours for Link. Surging ridership on Link also led to train lengths increasing during this time period.
- Tacoma Link growth was flat.

ROUTE	ACTUAL ANNUAL PLATFORM HOURS		DIFFERENCE	MINORITY	LOW INCOME
	2015	2018			
<b>ST Express</b>	<b>722,817</b>	<b>780,901</b>	<b>58,084</b>		
510	19,504	19,600	96		Yes
511	17,506	18,660	1,154		
512	59,775	58,444	-1,331		
513	10,184	10,851	667		Yes
532	18,074	17,433	-641		
535	23,479	25,029	1,550		
522	54,256	56,213	1,956		
540	8,341	8,556	214		
541	-	10,876	10,876		
542	17,889	22,527	4,639		
545	72,289	80,285	7,996	Yes	
550	55,514	57,597	2,084	Yes	
554	33,641	41,503	7,863		
555	6,451	7,232	782		
556	8,332	9,268	936		
560	38,923	38,479	-444	Yes	Yes
566	30,901	32,183	1,282	Yes	Yes
567	10,802	12,627	1,824	Yes	
574	43,675	44,007	332	Yes	Yes
577	20,630	23,750	3,120	Yes	Yes
578	31,107	34,663	3,556		Yes
580	1,410	6,685	5,276	Yes	Yes
586	11,152	11,437	285	Yes	Yes
590	46,893	49,223	2,330		Yes
592	23,698	23,440	-257	Yes	Yes
594	47,312	48,744	1,432	Yes	Yes
595	7,649	7,470	-179		Yes
596	3,431	4,118	687		
<b>Commuter Rail</b>	<b>63,192</b>	<b>79,140</b>	<b>15,948</b>		
Sounder-North	7,670	7,109	-561		Yes
Sounder-South	55,522	72,032	16,510	Yes	Yes
<b>Light Rail</b>	<b>161,044</b>	<b>291,659</b>	<b>130,615</b>		
Link	281,813	151,196	130,617	Yes	Yes
Tacoma Link	9,846	9,848	-2	Yes	Yes

Figure 32: Changes in Service Delivery

# Appendix D: 2018 Passenger Overcrowding Rate by Route

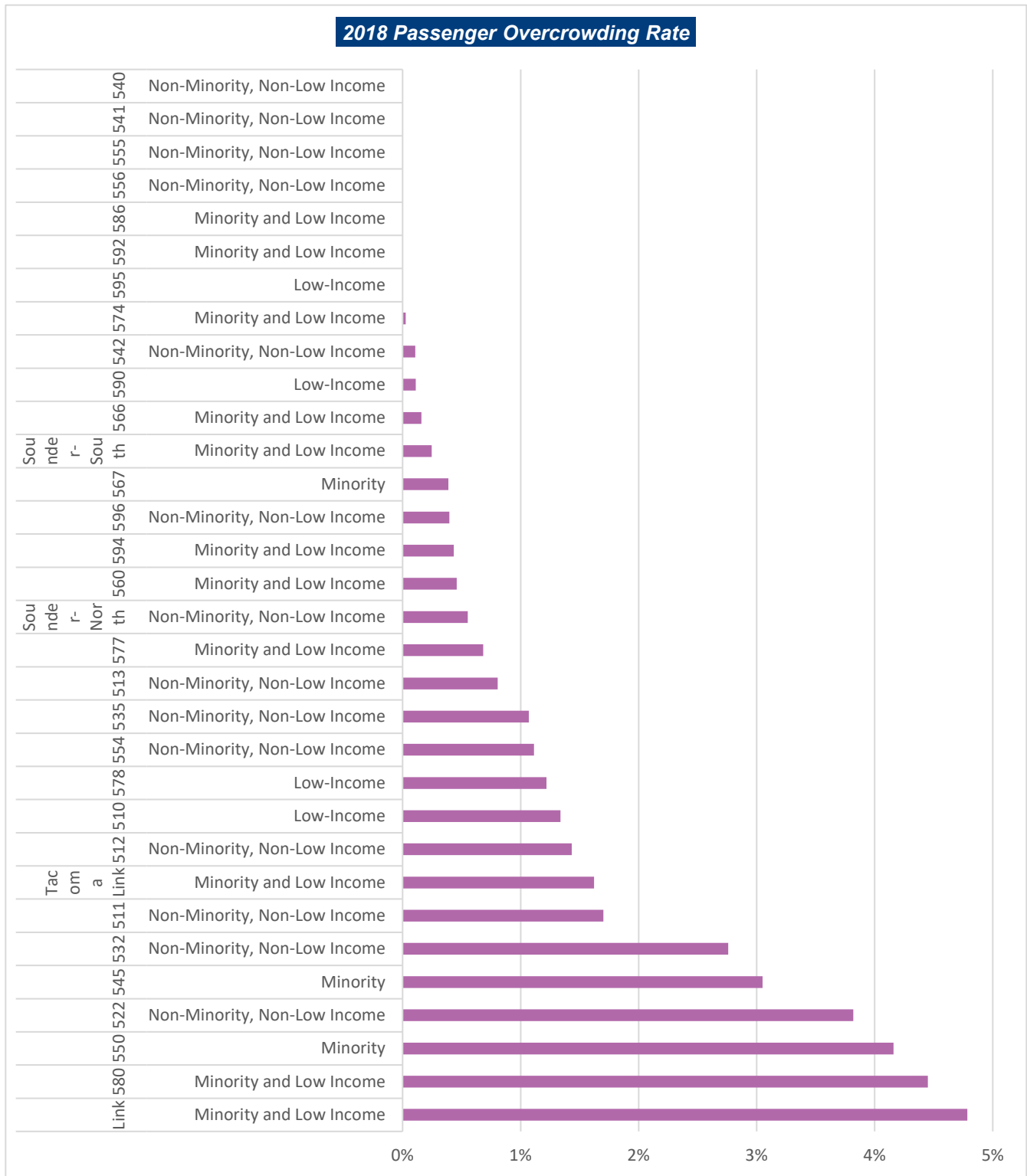


Figure 33: Passenger Overcrowding Rate for all Routes

# Appendix E: 2018 On-Time Performance by Route

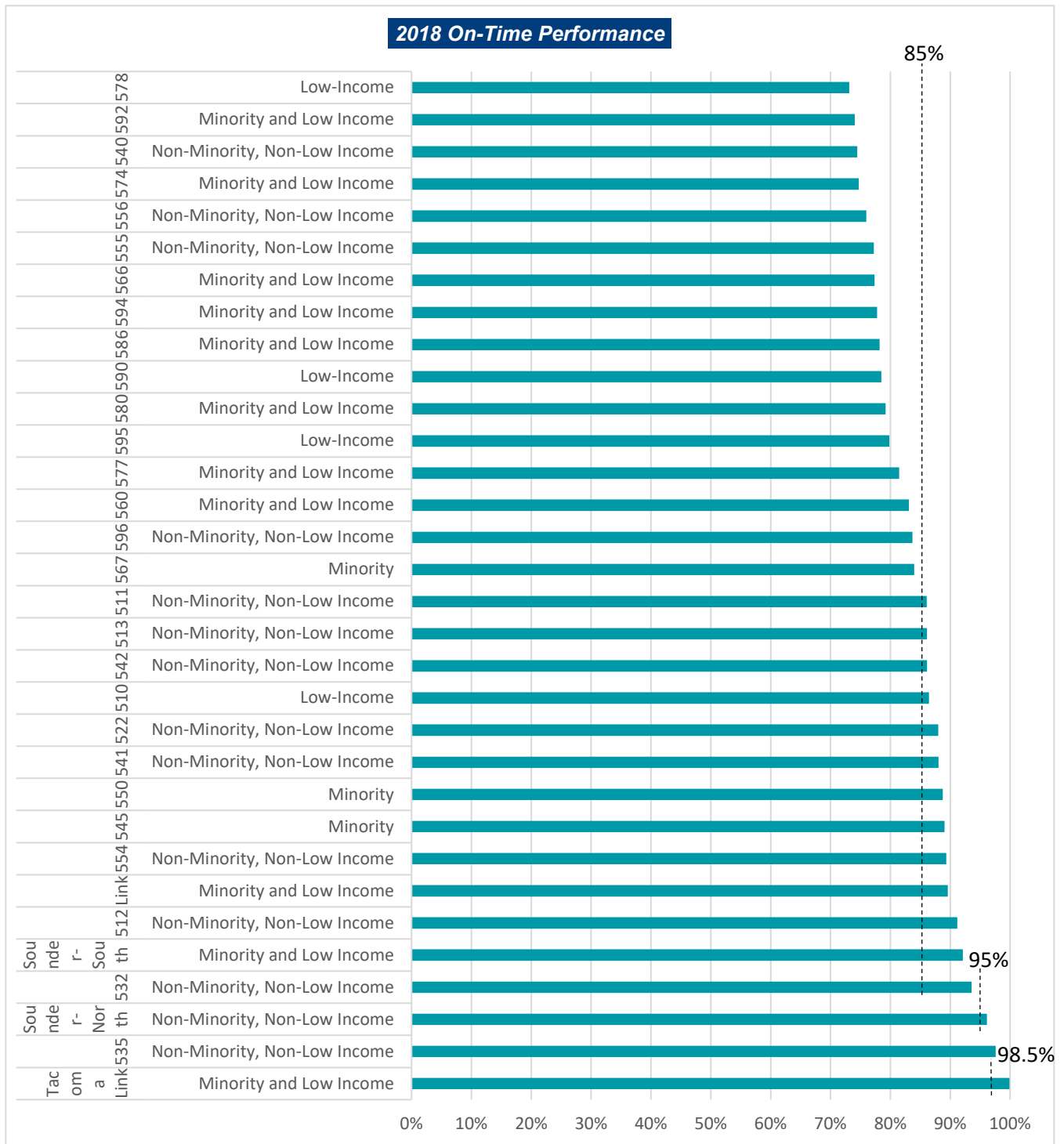


Figure 34: On-Time Performance for all Routes

# Appendix F: 2018 Span of Service by Day Type by Route

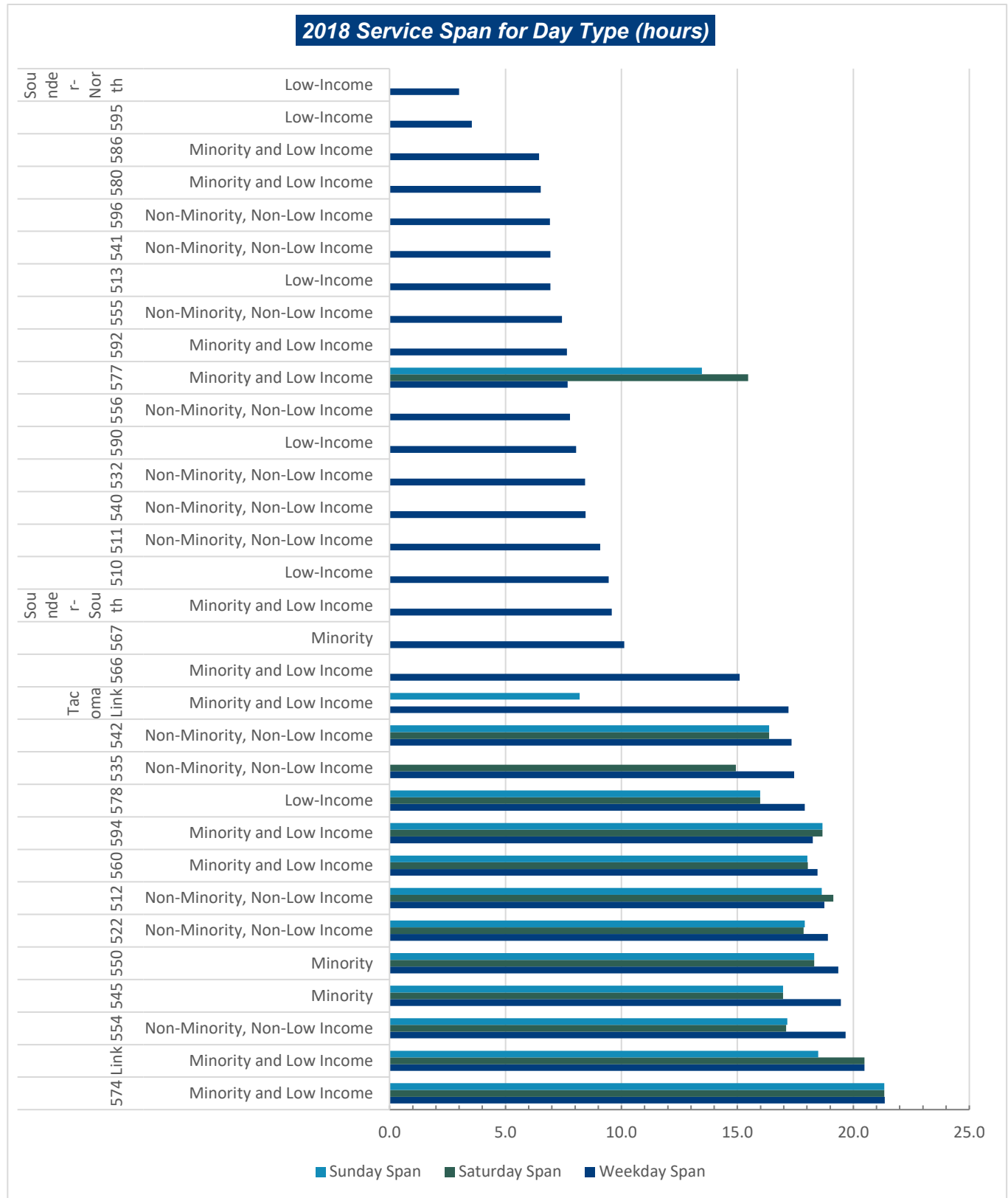
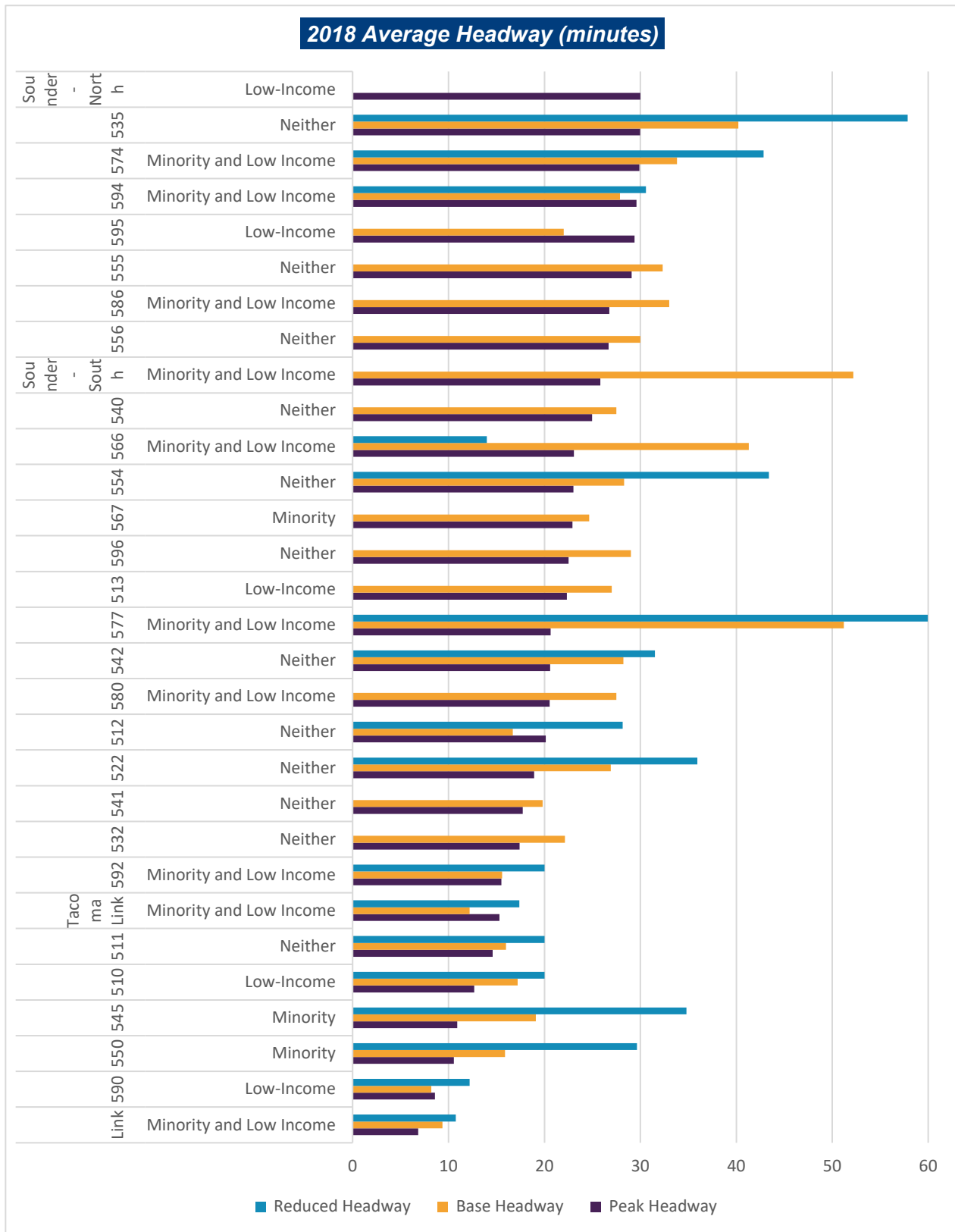


Figure 35: Hours of Service by Day Type

# Appendix G: 2018 Average Headway by Route



# Appendix H: RESOLUTION NOs. R2013-18 and R2013-19



## RESOLUTION NOs. R2013-18 and R2013-19

Establishing policies for conducting equity analyses of Major Service Changes and Fare Changes impacting minority and low income populations

MEETING:	DATE:	TYPE OF ACTION:	STAFF CONTACT:	PHONE:
Executive Committee Board	09/05/2013 09/26/2013	Recommend to Board Final Action	Leslie Jones, Diversity Programs Director Alec Stephens, Diversity Technical Advisor	206-398-5047 206-398-5019

### PROPOSED ACTION

Resolution No. R2013-18: Establishing policies for conducting equity analyses of Major Service Changes impacting minority and low income populations

Resolution No. R2013-19: Establishing policies for conducting equity analyses of Fare Changes impacting minority and low income populations.

### KEY FEATURES SUMMARY

- As a recipient of federal financial assistance, primarily from the Federal Transit Administration, Sound Transit must continue to ensure that it complies with Title VI of the Civil Rights Act of 1964, which protects individuals from discrimination on the basis of race, color and national origin in any program receiving federal funds.
- The resolutions address how Sound Transit will proceed with major service changes or fare changes in a manner that complies with Title VI.
- The resolutions incorporate practices that Sound Transit has used in the past in assessing major service changes and fare changes. In compliance with Title VI Guidelines by the Federal Transit Administration, Sound Transit is to set forth those practices as policies adopted by the agency's policy-making body.
- Major Service Changes. A Title VI "equity evaluation" shall be conducted for all major service changes, which are defined as any single change in service on an individual bus or rail route that would add or eliminate more than 25 percent of the route's weekly platform service hours, and/or move the location of a stop or station by more than a half mile.
- Fare Changes. A Title VI "equity evaluation" shall be conducted for all fare changes except for:
  1. Instances where Sound Transit has declared that all passengers will ride free.
  2. Temporary fare reductions that are mitigating measures for other actions.
  3. Promotional or temporary fare reductions lasting no more than six months.
- The resolutions establish thresholds for determining whether proposed major service changes or fare changes indicate disparate impacts to minority populations or disproportionate burdens to low income populations, and outlines efforts to be made to mitigate such impacts, and conduct outreach activities to affected populations to ensure the inclusion of affected people in the process prior to the adoption of the proposed changes.
- The resolutions provide that the Title VI equity evaluation, mitigation efforts, and outreach activities will be included as a part of the record for consideration by Sound Transit prior to final action on the proposed major service change or fare change.

### BACKGROUND

Section 601 of Title VI of the Civil Rights Act of 1964 states that:

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 receives federal financial assistance to design and build the regional transit system through grants primarily awarded and administered by the Federal Transit Administration. As an FTA grant recipient, Sound Transit cannot, on the basis of race, color, or national origin, either directly or through contractual means:

- Deny an individual any service, financial aid or benefit provided under the program to which he or she might otherwise be entitled;
- Make distinctions in the quality, quantity or manner in which the service or benefit is provided; or
- Segregate or separately treat individuals in any matter related to the receipt of any service or benefit.

As Sound Transit operates its transit services—Link Light Rail, Regional Express Bus, and Sounder Commuter Rail, and associated facilities—it must ensure that such services are provided in an equitable manner. This includes decisions by Sound Transit to make major changes to its transit services or changes in its fare structures.

The two resolutions set a policy framework under which Sound Transit will evaluate proposed major service changes or fare changes that may be recommended for Sound Transit Board approval as follows:

1. Sound Transit includes in its evaluation whether such changes adversely affect minority or low income populations;
2. Determine if the adverse effects result in "Disparate Impacts to Minority Populations", setting as a threshold effects that for the minority populations subject to the major service change are greater than the minority population in the Sound Transit District (currently, 31.13%); and/or result in "Disproportionate Burdens to Low Income Populations", setting as a threshold effects that for the low income populations subject to the major service change are greater than the low income population in the Sound Transit District (currently, 11.24%);
3. If the proposed changes result in disparate impacts to minority populations and/or disproportionate burdens to low income populations Sound Transit will examine and develop ways to mitigate or lessen the effect, and alert the affected Title VI stakeholders of the proposed changes to allow them to comment on the change and the impacts.
4. The Title VI evaluation of the proposed major service changes or fare changes, the impacts, mitigation efforts, outreach to impacted stakeholders, and public comments will be a part of the record before the Sound Transit Board when it makes its decision to approve the major fare change or fare change in question.
5. The Sound Transit Board may approve the change unaltered and Sound Transit may proceed to implement the change "if there is a substantial legitimate justification for the change(s) and Sound Transit can demonstrate that there were no alternatives that would have less of an impact on minority or low income populations and would still accomplish Sound Transit's legitimate program goals."

#### **FISCAL IMPACT**

Not applicable to this action.

**SMALL BUSINESS PARTICIPATION**

Not applicable to this action.

**EQUAL EMPLOYMENT WORKFORCE PROFILE**

Not applicable to this action.

**APPRENTICE UTILIZATION COMMITMENT**

Not applicable to this action.

**PUBLIC INVOLVEMENT**

Over 60 organizations and individuals in the Sound Transit region, representing minority and low income advocacy, interest and community based organizations, were sent a letter notifying recipients of the proposed policies and soliciting comments. The letter included a summary of the proposed actions along with copies of the draft resolutions, and offering to provide further information or respond to questions. The information also contained a discussion of Title VI, and the process for public comment not only to staff, but also the dates and times of the Executive Committee and the Sound Transit Board meetings when consideration of the policies is scheduled should they decide to provide comments directly to Boardmembers. In addition, this information was provided to Sound Transit's Diversity Oversight Committee for discussion and comments at their meeting, held on August 23, 2013.

As set forth in the policies, more extensive outreach will take place regarding proposed major service changes or fare changes to populations affected by the particular change.

**TIME CONSTRAINTS**

The policies will be included in the Sound Transit 2013 Title VI Submittal to FTA. The Board is scheduled to take final action on a motion to approve the submittal at its September 26, 2013 meeting. Submittal is to be sent to FTA by October 1, 2013. It would be preferable to include the adopted policies, however, draft policies pending Board approval could be included if further consideration is required by the Board.

**PRIOR BOARD/COMMITTEE ACTIONS**

Resolution No. R2011-15—Adopted an inclusive public participation policy to assure meaningful access to public involvement and community outreach programs for minority, low-income and limited English proficient populations.

**ENVIRONMENTAL REVIEW**

Jl 8/28/2013

**LEGAL REVIEW**

RM 8/29/2013

Resolution Nos. R2013-18 and R2013-19  
Staff Report

Page 3 of 3



**RESOLUTION NO. R2013-19**

A RESOLUTION of the Board of the Central Puget Sound Regional Transit Authority establishing policies for conducting equity analyses of Fare Changes impacting minority and low income populations, in accordance with Title VI requirements and guidelines for Federal Transit Administration recipients.

WHEREAS, the Central Puget Sound Regional Transit Authority, hereinafter referred to as Sound Transit, has been created for the Pierce, King, and Snohomish Counties region by action of their respective county councils pursuant to RCW 81.112.030; and

WHEREAS, Sound Transit is authorized to plan, construct, and permanently operate a high-capacity system of transportation infrastructure and services to meet regional public transportation needs in the central Puget Sound region; and

WHEREAS, in general elections held within the Central Puget Sound Regional Transit Authority district on November 5, 1996 and November 4, 2008, voters approved local funding to implement a regional high-capacity transportation system for the central Puget Sound region; and

WHEREAS, Sound Transit has made a commitment to the people within its 3-county region to seek community involvement as it plans, designs, builds, and operate a regional transit system; and

WHEREAS, Sound Transit is a recipient of federal funding primarily from the Federal Transit Administration; and

WHEREAS, consistent with Title VI of the Civil Rights Act of 1964, Sound Transit is committed to:

- Providing services without regard to race, color, or national origin,
- Promoting the full and fair participation of affected populations in transit decision making,
- Preventing denial, reduction, or delay in benefits related to programs and activities that benefit minority or low-income populations, and

WHEREAS, in accordance with Title VI requirements and guidelines for FTA recipients, Sound Transit conducts an equity evaluation of major service changes and all fare changes to determine whether such changes result in adverse impacts on minority populations or impose burdens on low-income populations; and

WHEREAS, Sound Transit is to then evaluate whether the major service change or whether the fare change results in disparate impacts on minority populations or disproportionate burdens on low-income populations; and

WHEREAS, Sound Transit is to ensure inclusive public participation and take all reasonable steps to remove, explore alternatives or otherwise mitigate and reduce the disparate impacts on minority populations or disproportionate burdens on low-income populations; and

WHEREAS, in accordance with the FTA's Title VI requirements and guidelines, Sound Transit is to establish a policy defining the threshold to determine whether any Fare Change results in disparate impacts to minority populations or disproportionate burdens to low-income populations; and

WHEREAS, Sound Transit engaged the public in developing these policies in a manner consistent with Sound Transit's inclusive public participation policy.

NOW THEREFORE BE IT RESOLVED by the Board of Directors of the Central Puget Sound Regional Transit Authority, that in accordance with Title VI of the Civil Rights Act of 1964, and FTA requirements and guidelines, this policy is enacted to establish policies to conduct an equity analysis of fare changes to assess the impact of such changes on Minority and Low-income populations.

BE IT FURTHER RESOLVED that all fare changes regardless of the amount of the increase or decrease (and including changes in payment type or payment media, and availability or duration of

paper or electronic transfers) will be subject to an equity analysis which includes an analysis of potential adverse effects on minority and low-income populations with the following exceptions:

1. Instances where Sound Transit has declared that all passengers will ride free.
2. Temporary fare reductions that are mitigating measures for other actions.
3. Promotional or temporary fare reductions lasting no more than six months.

BE IT FURTHER RESOLVED that when Sound Transit conducts an Equity Assessment of Fare Changes, the threshold for determining that the changes in question result in Disparate Impacts for minority populations or Disproportionate Burdens for low income populations are as follows:

1. Disparate Impact—a disparate impact occurs when the minority percentage of the population adversely affected by any fare change is greater than the average minority percentage of the population of Sound Transit's service area. As appropriate, Sound Transit will analyze any available information generated from ridership surveys indicating whether minority riders are disproportionately more likely to use the mode of service, payment type or payment media that would be subject to the fare change as a comparison in the analysis.
2. Disproportionate Burden—a disproportionate burden occurs when the low income percentage of the population adversely affected by any fare change is greater than the average low income percentage of the population of Sound Transit's service area. As appropriate, Sound Transit will analyze any available information generated from ridership surveys indicating whether low income riders are disproportionately more likely to use the mode of service, payment type or payment media that would be subject to the fare change as a comparison in the analysis.

BE IT FURTHER RESOLVED that if it finds that the fare change results in a potential disparate impact or potential disproportionate burden, then in accordance with Title VI of the Civil Rights Act

of 1964 and FTA requirements and guidelines, Sound Transit will consider steps to avoid, minimize or mitigate the adverse impacts and reanalyze the modified change(s) to determine if the impacts were removed or lessened.

BE IT FURTHER RESOLVED that prior to adopting the fare change(s), Sound Transit will include in its report the equity evaluation of the fare change(s), and that the public and Title VI stakeholders will be invited to provide comments regarding the change(s) including the steps to avoid, minimize or mitigate the adverse impacts and the modified change(s) to determine if the impacts were removed or lessened.

BE IT FURTHER RESOLVED that If Sound Transit chooses not to alter the proposed fare change(s), the implementation of the fare change(s) may proceed if there is a substantial legitimate justification for the fare change(s) and Sound Transit can demonstrate that there were no alternatives that would have less of an impact on minority or low income populations and would still accomplish Sound Transit's legitimate program goals.

ADOPTED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on September 26, 2013.

  
Pat McCarthy  
Board Chair

ATTEST:

  
Marcia Walker  
Board Administrator