



METRO BUS – SOUND TRANSIT LINK INTEGRATION STUDY Assessment of Ridership and Customer Satisfaction

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King County Department of Transportation
Metro Service Planning
Service Development Section

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METRO BUS – SOUND TRANSIT LINK INTEGRATION STUDY

Assessment of Ridership and Customer Satisfaction

March 2017

This report was prepared by King County Metro Transit.
Customer satisfaction research was conducted by Pacific Market Research, LLC



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EXECUTIVE SUMMARY

The March 2016 Metro Transit service change evaluated in this report was both a major step forward and a learning opportunity for Metro as we move toward our future transit system: an integrated network of fast, frequent, reliable, and easy-to-use services that get people where they want to go, when they want to go.

After two decades of planning and construction, Link light rail service was extended to Capitol Hill and the University of Washington in early 2016. Building on direction from the County Executive, King County Metro worked in partnership with Sound Transit to engage the public in shaping a set of bus service changes to better serve the destinations riders want to reach, expand high-frequency bus services, provide more reliable service, and integrate bus and rail services as the two new stations opened.

This “Link Connections” project resulted in one of the largest service changes in Metro history, reflecting Link’s connection of the two busiest transit markets in the state—downtown Seattle and the University of Washington. The March 2016 service change affected 48 routes that provided more than 1.1 million hours of service annually before the change and grew by 193,000 annual service hours as part of the change—largely because of investments by the City of Seattle. The service revisions impacted almost one-third of the service hours in the entire Metro system.

Link Connections was not the first major restructure of Metro bus service in recent years. However, the size and scope of the changes made it an important benchmark and focal point for Metro at a time when transit ridership is reaching record highs in the Puget Sound Region. The recent adoption of the METRO CONNECTS long-range vision and the passage of Sound Transit 3 in fall 2016 reflect regional priorities that include continued expansion and integration of transit services to provide high-quality public transportation throughout King County. The Link Connections project is an example of the type of projects that Metro will continue as we seek to achieve the vision of METRO CONNECTS: an integrated system of fast, frequent, reliable, all-day services that move people with ease between and within our vibrant communities. When trains, buses, and other modes all work together, we all get the most out of our public infrastructure investments.

Summary of the Changes

The Link Connections project was focused on Metro bus changes that would connect riders to frequent, reliable, light rail service to Capitol Hill and the University of Washington at the two new stations. Key features of the service changes included:

- **Link light rail replaced Metro express bus service between downtown Seattle and the University District:** Link provides a reliable 8-minute trip between downtown Seattle and the University of Washington with trains coming every 6 to 10 minutes all day, avoiding freeway and surface-street traffic. To avoid duplicating Link service, routes 71 and 73 were changed to no longer serve downtown Seattle, and Route 72 was discontinued.
- **Frequency was improved on 10 routes.** Service on routes 8, 45, 48, 49, 62, 65, 67, 70, 75 and 372 was improved to every 15 minutes compared to every 30 minutes previously on routes serving the same areas, or to every 10 to 12 minutes compared to every 15 minutes previously.
- **Six new bus routes were created:** Metro created routes 38, 45, 62, 63, 78, and Sound Transit created Route 541. These routes replaced portions of discontinued routes or provided new connections, such as routes 62 and 63 from northeast Seattle to South Lake Union.

- **Peak-only services were created or improved:** Metro added trips to existing peak-only routes 74, 76, 77, and 316, and created new routes 63, 64. Sound Transit’s new Route 541 is also peak-only.
- **Seven bus routes were discontinued:** Metro discontinued seven routes that duplicated Link or had low ridership, and reinvested the service hours in other routes. Routes 16, 25, 30, 66, 68, 72 and 242 were discontinued. Most riders still have transit options provided by other new or improved routes.
- **Routes were shortened to improve reliability.** Metro separated two long routes that were prone to delay, breaking them into four shorter routes. Route 8 was divided into routes 8 and 38, and Route 48 was split into routes 45 and 48.
- **Express services were improved:** Metro expanded express routes 26, 28, and 372 to provide faster trips and longer hours of operation.

A Look at the Results

This report assesses the ridership impacts and customer response to these network changes—something Metro has been following closely in the year since the revisions. The evaluation is based on the work plan required by Ordinance 18133 and approved by Motion 14565. It focuses on Metro service and bus riders, and includes information about Link light rail service where that information is vital to understanding the full impact of the changes.

This report is an important step in understanding the impacts of the Metro service changes on customers and how people are using the redesigned transit system. Section I of the report presents an overview of changes, key findings, and detailed ridership data. Section II summarizes customer satisfaction with the bus network changes based on surveys conducted before and after the changes. These two sections together provide a comprehensive view of how customers are reacting to the service changes. It can take up to three years for travel patterns to fully adjust, so this report gives only a first indication of patterns that will continue to evolve over time.

Summary of Findings

- **The changes made to integrate bus service with the new Link stations had a positive impact on rider satisfaction.**
 - In surveys onboard routes affected by the service changes, more respondents said they were satisfied with Metro after the service change (76 percent) than said they were satisfied in the surveys before the service change (70 percent).
 - More respondents said transit service was better after the service changes (32 percent) than not as good (22 percent).
 - Experiences improved across the board. Out of 38 service elements measured in onboard surveys, respondents were more satisfied with 35 of them in the “after” survey than in the “before” survey. Ten of these increases were statistically significant, while none of the other three elements had significant declines.
 - The biggest improvements were seen with the waiting time between transfers (the percent of respondents “very satisfied” or “satisfied” was up 11 percent), the bus not leaving the stop late and getting to the destination on time (up 9 percent each), and midday and evening service frequency (up 8 percent each).

- Many of the ratings with the lowest satisfaction involved bus stops, such as: protection from the weather (49 percent satisfied after the service change) and seating availability at bus stops (53 percent). Off-peak service frequency also received some of the lowest ratings: on weekends (50 percent) and during evenings and night (53 percent).
- Transferring was a key focus of the survey, and satisfaction was about the same after the service changes as before. Satisfaction was highest for the number of transfers needed (71 percent satisfied), the distances between stops when transferring (71 percent), and the helpfulness of drivers in ensuring connections (69 percent). The lowest ratings regarding transfers were for the bus coming on time when transferring (53 percent), and transfer information at the bus stops (53 percent).
- **Overall transit ridership increased following the service changes. Link ridership increased dramatically, and bus ridership decreased as expected.**
 - Total net transit ridership on Link and on Metro bus routes directly impacted by Link is up 12 percent on weekdays, 25 percent on Saturdays, and 20 percent on Sundays. Those percentages reflect an increase of 17,900 daily weekday rides, 21,400 daily Saturday rides, and 12,700 daily Sunday rides.
 - Link ridership increased by 27,500 (76 percent) daily weekday rides, 22,800 (85 percent) daily Saturday rides, and 15,100 (71 percent) daily Sunday rides over the previous year.
 - Bus ridership on routes directly impacted by Link decreased by 9,700 (8 percent) daily weekday rides, 1,400 (2 percent) daily Saturday rides, and 2,300 (6 percent) daily Sunday rides. This was expected because Link replaced some of the most productive and highly used bus routes in northeast Seattle and Capitol Hill, including the 10, 43, 49, 71, 72, and 73.
- **Ridership grew in neighborhoods close to Link stations. Bus ridership generally declined in areas close to Link stations where many riders have likely switched from buses to Link. However, Link ridership has more than offset the reduction in bus ridership. Bus ridership also grew where Metro made investments in more frequent service.**
 - The U District had 17,800 (29 percent) more daily weekday transit boardings and alightings (bus plus Link), with 18,100 new Link boardings and 300 fewer bus boardings. Given that several thousand riders have switched from buses to Link for the trip between the U District and downtown Seattle, the reduction of only 300 bus riders indicates significant bus/Link transfer activity as well as large gains on other bus routes serving the U District.
 - Capitol Hill had 8,700 (34 percent) more daily weekday transit boardings and alightings (bus plus Link), with 13,300 new Link boardings and a reduction of 4,600 bus boardings. The loss in bus ridership in Capitol Hill indicates that riders who have switched from buses to Link have not yet been replaced by new bus riders. Metro made relatively fewer changes to service on Capitol Hill than in other areas.
 - Most northeast Seattle neighborhoods had higher ridership after the service changes. Notable examples include the Bryant neighborhood which had 800 (18 percent) higher boardings and alightings after the change.
- **Travel times in most areas decreased or remained the same as a result of the changes, largely as a result of Link's fast travel times and frequent service on Metro routes connecting to Link. The most significant improvement was for crosstown trips in northeast Seattle.**

- Link provides much faster connections between the U District, Capitol Hill, and downtown Seattle than the prior bus routes did. Link travels between UW Station and Capitol Hill Station in four minutes¹, compared to approximately 10 to 15 minutes by bus; and between Capitol Hill Station and Westlake Station in two minutes, compared to 10 to 15 minutes by bus.
- The most significant improvements in travel times have been for crosstown trips in northeast Seattle, where new frequent Route 62 provides many new travel opportunities that are both shorter distance and less time-consuming than before.
- **On-time performance improved where Metro made investments in reliability and in simplified routes.**
 - Riders who took former routes 8 and 48 have seen modest to significant improvements in reliability on the shorter routes that replaced them.
 - The replacement of express bus service with Link light rail has resulted in a noticeable improvement in reliability for riders traveling between the U District and downtown Seattle. Link is on time about 90 percent of the time while routes 71, 72, 73 and 74 were on time less than 70 percent of the time.

Lessons Learned

- **Public engagement is vital to shape service proposals, raise awareness, and help riders navigate the system when service changes.**
 - Metro conducted an extensive public engagement effort that generated nearly 20,000 comments and survey responses. However, we heard from individuals who felt outreach was insufficient or was not effective at reaching them. Additional resources during the planning period would have helped to get the word out to more riders. In addition, Metro should continue to build on the successes of the Metro bus-Link integration outreach process by partnering with community groups, using multiple outreach and media channels, and seeking a variety ways to get feedback from as many people as possible.
 - Metro and Sound Transit “street teams” were present before and after the changes in key locations, actively helping riders learn about the changes and become familiar with new travel patterns.
 - Extensive marketing and public outreach helped to raise awareness of the changes. Distribution of ORCA cards to thousands of existing and potential riders helped people transfer between buses and Link. ORCA card distribution is especially important for integrating bus and light rail because cash transfers are not possible between the two systems.
 - Strong partnerships with organizations such as Sound Transit, the City of Seattle, the University of Washington, and Seattle Children’s helped employees and students learn about, prepare for, and adapt to changes.
- **It is difficult to predict how ridership and travel times may change after a service change. Setting aside resources to deal with unexpected issues is vital to ensuring long-term success.**
 - Metro held a small reserve of service hours to address overcrowding, respond to customer concerns, and add service to address issues that appeared immediately after the change. This

¹ Not including walk time between tunnel platform and surface streets

enabled us to respond by adding trips and address other immediate rider concerns. Reserving or setting aside service hours for follow-up changes should be a part of future major service restructuring projects.

- Metro initially assigned a mix of 40-foot (standard) and 60-foot (articulated) buses to some routes. On some routes, this resulted in overcrowding and pass-bys on trips that had standard buses. Over the long term, we will continue to review and adjust the assignment of buses to focus articulated buses to the busiest routes when possible. However, bus size assignments should be reviewed more closely when planning service for future major service changes.
- Metro underestimated ridership on some routes that connect to UW Station, leading to some overcrowding immediately following the service change in March. We also failed to anticipate a large jump in ridership on Route 70, serving South Lake Union, in June 2016. In most cases, we responded to crowding by adding trips and taking action to ensure the consistent assignment of 60-foot articulated coaches where possible. In future restructures, Metro should maintain contingency funds to respond to these instances and should also consider providing higher service levels on routes connecting with Link stations.
- Where ridership patterns changed significantly, some bus schedules were no longer accurate. For example, some running times ended up being too high where ridership had declined, leading to early operation and buses needing to pause on route to stay on schedule. Other routes became busier, resulting in slower travel times. In future planning, more attention should be paid to areas where schedule adjustments may be needed in addition to routing changes.
- **Internal and external coordination is vital to ensuring successful delivery of service changes.**
 - Internal Metro preparations such as Operations training and information sharing across the agency were successful, resulting in largely smooth rollout of the new changes and well-prepared customer service staff.
 - Bus stop facilities at UW Station were completed on time and have been working well. However, earlier coordination with partner agencies such as the City of Seattle and the University of Washington would have allowed a smoother process for the construction and delivery of the facilities improvements.
- **Some riders remain dissatisfied due to the major impacts to their travel patterns. In particular, many riders do not like having to transfer where they had direct connections previously.**
 - Though riders are using Metro's revised bus network to connect with Link at UW Station and overall transit ridership is up, some remain displeased about no longer having direct service to downtown Seattle throughout the day.
 - The transfer environment and frequency of connecting services is a major consideration in how riders respond to changes. Metro should continue to work closely with Sound Transit to ensure that Link stations and other facilities are designed to make transfers as easy as possible. This is vital as design work continues on many transit facilities along the North, East, and South Link extensions and as design work begins on lines outlined in Sound Transit 3, and as Metro develops plans for service to future Link stations.
- **The improved outcomes validate what the public recommended during our public outreach and we focused on in the restructure: increasing the frequency and reliability of service.** Even

after the change, frequent service remained our customers' top recommendation for improving service.

What's Next?

Metro continues to monitor route performance and customer comments in the restructure area and make improvements. We made adjustments soon after the service change, such as adding trips to Route 70 in response to a large jump in ridership. We will continue to make adjustments and will apply what we learned to future service restructures—especially those associated with new Link extensions. We will also continue to utilize the Service Guidelines' annual evaluation process as a tool to monitor and modify routes as needed.

Metro and Sound Transit continue working together closely to plan upcoming service changes and find innovative ways to improve transit service. Regional transit integration remains a high priority as the Link light rail system expands and Metro begins work to make the METRO CONNECTS vision a reality.

INTRODUCTION

Project Background

Sound Transit opened the initial segment of Link light rail between Sea-Tac Airport and Westlake Station in downtown Seattle in 2009. Link light rail was extended to Capitol Hill and the University of Washington in March 2016. The new, grade-separated extension of Link significantly changed the transit landscape in this corridor by enabling fast, frequent and reliable all-day service. Building on direction from the County Executive, King County Metro worked in partnership with Sound Transit to engage the public in shaping a set of bus service changes to better serve the destinations riders want to reach, expand high-frequency bus services, provide more reliable service, and integrate bus and rail services as the two new stations opened.

Before the new service began, beginning in November 2014, Metro and Sound Transit conducted an extensive public engagement process that helped determine how the bus network should change to complement Link. After King County Council approval, the resulting changes began on March 26, 2016. The March 2016 service change was one of the largest in Metro history. The change affected 48 routes that provided more than 1.1 million hours of service annually before the change and grew by 193,000 annual service hours as part of the change—largely because of investments by the City of Seattle. The service revisions impacted almost one-third of the service hours in the entire Metro system.

Organization of this Report

This report assesses ridership impacts and customer response to Metro’s Link Connections bus network changes. It is based on the work plan required by Ordinance 18133 and approved by Motion 14565. It focuses on Metro service and bus riders, and includes information about Link light rail service where that information is vital to understanding the full impact of the changes.

This report is an important step in understanding the impacts of the Metro service changes on customers and how people are using the redesigned transit system. It is divided into two sections, and each section presents an overview and key findings, followed by detailed results.

- **Section I** evaluates transit ridership and performance following the Link extension and restructuring of the bus network. This assessment is based primarily on data collected from March 26, 2016 to June 17, 2016, the first part of Metro’s spring 2016 service change. It does not reflect service additions made since the service change.
- **Section II** summarizes customer satisfaction with the bus network changes. This assessment is based on surveys that were conducted before and after the service change in several different ways—onboard buses, via phone and internet, and at bus stops near new Link stations.

It takes up to three years for travel patterns to fully adjust to a major change, so this report gives only a first indication of ridership impacts that will continue to evolve. For example, after Link opened between downtown Seattle and Sea-Tac Airport, Metro observed an initial drop in bus ridership followed by a several-year pattern of growth. Metro continuously monitors ridership through our regular service evaluation processes.

Goals

The goals of the Link Connections project were outlined in a transit integration report that Metro and Sound Transit produced in response to an Executive Order from King County Executive and Sound Transit Board Chair Dow Constantine. The primary goals were:

- Provide convenient transfers to and from Link at the UW and Capitol Hill stations.
- Improve bus connections to Link and expand high-frequency bus service for neighborhoods north and northeast of the university.
- Improve bus connections to Link, First Hill Streetcar and expand high-frequency bus services for neighborhoods adjacent to Capitol Hill.
- Provide more reliable, expanded opportunities for transit travel to and from the UW, Capitol Hill, downtown Seattle and throughout the region.
- Reduce transit and general-purpose delay by reducing the number of buses traveling into and through downtown Seattle in the U Link corridor.

Additional goals were:

- Minimize duplication between Metro bus service and Link.
- Redistribute resources within the project area to improve service and extend the benefits of Link.
- Retain commuter service that has high ridership and where riders would have significantly longer trips if they had to transfer to Link.
- Provide new frequent east-west connections in northeast Seattle.
- Provide new connections to emerging commuter markets such as South Lake Union.
- Increase overall ridership.

Other Goals for Service Restructuring

Several policy documents provide guidance when Metro proposes service changes, including Metro's Strategic Plan for Public Transportation and Service Guidelines.

Metro's Service Guidelines provide policy guidance about planning and designing service and service changes, including specific guidance about Restructuring Service. Key excerpts from the Service Guidelines that outlined goals for the Link Connections project include:

"Under all circumstances, service restructures will have the goals of focusing frequent service on the service segments with the highest ridership and route productivity, creating convenient opportunities for transfer connections between services, and matching capacity to ridership demand to improve the productivity and cost-effectiveness of service.

"Under service addition conditions, service restructures will have the added goals of increasing service levels and ridership."

Summary of March 2016 Service Change

The March 2016 service change directly affected 38 routes and indirectly affected 10 routes. Routes indirectly affected are those that changed in March 2016 but were not directly associated with the Link Connections project. These 48 routes comprised over 1.1 million annual service hours before the change and grew by an additional 193,000 annual service hours as part of the change, largely because of investments by the City of Seattle.

Highlights of the service change include:

- Link light rail replaced Metro express bus service between downtown Seattle and the University District. Link provides a reliable 8-minute trip between downtown Seattle and the University of Washington with trains coming every 6 to 10 minutes all day, avoiding freeway and surface-street traffic. To avoid duplicating Link, routes 71 and 73 were changed to no longer serve downtown Seattle, and Route 72 was discontinued.
- Frequency was improved on 10 routes:
 - 10 routes provide higher frequency than before: 8, 45, 48, 49, 62, 65, 67, 70, 75 and 372.
 - Five routes upgraded to 15-minute frequency during midday on corridors that previously had 30-minute frequency: 62, 65, 67, 75 and 372.
 - Three routes upgraded to 10-to-12 minute frequency during the middle of the day on corridors that previously had 15-minute frequency: 8, 48 and 49.
 - New, frequent east-west service along NE 65th Street in northeast Seattle provided by Route 62.
- Six new bus routes were created: Metro routes 38, 45, 62, 63, 78 and Sound Transit Route 541.
- Peak-only services were created or improved:
 - 22 new weekday trips on four peak-only routes to downtown Seattle: 74, 76, 77 and 316.
 - Two new peak-only routes to South Lake Union from northeast Seattle: 63 and 64.
 - Additional peak period service between Overlake and the U District provided by new Sound Transit Route 541.
- Seven bus routes were discontinued and replaced with new service or connections: 16, 25, 30, 66, 68, 72 and 242.
 - New connections between Fremont, Wallingford and northeast Seattle neighborhoods were created on new Route 62.
- Routes were shortened to improve reliability: Route 8 was split into routes 8 and 38, and Route 48 was split into routes 45 and 48.
- Express services were improved:
 - All-day express service on Routes 26 and 28.
 - Improved frequency, longer hours of operation and new weekend service on Route 372.
 - New all-day Sound Transit Route 542 connecting the U District, Overlake and Redmond.

Table 1 lists changes for each route and reasons for the changes. Table 2 shows service levels before and after the change.

Table 1: Route Changes and Reasons for Change

Route	Change	Reasons for Change
D	Separated from C Line, extended to Pioneer Square, improve frequency	Improve reliability, increase ridership and serve more of downtown Seattle
E	Improved frequency and added peak trips	Relieve overcrowding and improve ridership
5	Added express trips, improve frequency	Relieve overcrowding and improve ridership

Route	Change	Reasons for Change
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station and replace Route 43 on E John St/E Thomas St
10	Revised to serve E John St and Capitol Hill Station, improve frequency	Improve connections to Link at Capitol Hill Station, improve ridership and replace Route 43 on E John St and Bellevue Ave E
11	Improved frequency	Improve ridership and replace Route 10 service on E Pine St
12	Improved frequency	Improve ridership.
15	Added trips	Relieve overcrowding and improve ridership
16	Discontinued route and replace with Routes 26 and 62.	Provide new connections on new Route 62, increase frequency on most productive segments
18	Added trips	Relieve overcrowding and improve ridership
25	Discontinued route and partially replace by Route 78	Eliminate poorly performing service and reallocate to high performing services
26/26X	Combined local and express routes, extended route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center.
28/28X	Combined Local and Express Routes, use new pathway via north Fremont (N 39th St)	Improve off-peak speed to downtown Seattle, simplify route structure
30	Discontinued	Eliminate poorly performing service and reallocate to high performing services
31/32	Revised to serve Wallingford Av N and N 35th St	Replaces Route 26 Local service in lower Wallingford
38	New route replacing Route 8 south of Mount Baker Transit Center	Improve reliability
40	Improved frequency	Increase ridership
41	Improved frequency	Increase ridership
43	Reduced route to peak only	Reduce duplication with Link and other Metro bus routes
44	Improved frequency	Increase ridership and improve connections to Link at UW Station
45	New route, replacing north part of Route 48 (U. District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station
47	Restored route deleted during service reductions	Provide peak and midday service to west Capitol Hill
48	Shortened route to operate between U District and Mount Baker Transit Center only, improved frequency	Improve reliability, replace Route 43 service along 23rd/24th Ave E

Route	Change	Reasons for Change
49	Improved frequency	Increase ridership and improve connections to Link at Capitol Hill Station
62	New frequent all-day route connecting Northeast Seattle, Green Lake, Wallingford, Fremont, South Lake Union and downtown Seattle	Improve east-west service in North Seattle, provide new connections, improve ridership
63	New peak-only route connecting Maple Leaf, Green Lake, South Lake Union and First Hill	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
64	Revised to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
65	Revised to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station
66	Discontinued route and replace with Routes 63 and 67	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
67	Revised to better serve Maple Leaf and improve frequency	Replace Route 66 and 68 service, increase ridership and improve connections to Link at UW Station
68	Discontinued route and replaced with routes 67 and 372	Eliminate duplication and simplify network
70	Increased frequency and operate at night and on Sundays (replaced Rts 71, 72, 73)	Simplify network and improve ridership
71	Shortened route to operate between Wedgwood and U District only.	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station
72	Discontinued route and replaced with Route 372	Reduce duplication with other Metro routes, eliminate unreliable service and concentrate resources on high frequency network
73	Shortened route to operate between Jackson Park and U District only, reduced span and eliminated service in one direction during each peak period	Reduce duplication with Link, improve efficiency, eliminate unreliable service and improve connections to Link at UW Station
74	Revise to better serve western part of U District and added trips	Improve service to western part of U District
75	Increased frequency	Increase ridership and improve connections to Link at UW Station
76	Added trips	Relieve overcrowding and provide faster service at edge of peak period
77	Added trips	Relieve overcrowding and provide faster service at edge of peak period
78	New route replacing Route 25 in Laurelhurst	Improve connections to Link at UW Station

Route	Change	Reasons for Change
242	Discontinued.	Eliminate duplication with Sound Transit Route 542 and reallocate resources from poorly performing service to new markets
316	Added trips	Relieve overcrowding and improve ridership
355	Revised to better serve western part of U District	Provide a combined service with Route 74 for commuters
372	Improved frequency and provided new night and weekend service.	Replace Route 72 between Lake City and U. District and improve connections to Link at UW Station
373	Added trips	Improve connections to Link at UW Station, and mitigate peak period service reduction on Route 73
522	New stop added in Maple Leaf	Improve ridership and provide fast connection to downtown Seattle from Maple Leaf
541	New route connecting Overlake and U District.	Improve ridership and improve connections to Link at UW Station
542	Added midday service between Redmond and U District.	Improve ridership and improve connections to Link at UW Station

Table 2a: Service Levels Before and After March 2016 Service Change – Weekdays

Route	Spring 2015							Spring 2016							
	Begin	End	Frequency					Begin	End	Frequency					
			First - 9 AM	9 AM - 3 PM	3 PM - 7 PM	7 PM - 10 PM	10 PM - Last			First - 9 AM	9 AM - 3 PM	3 PM - 7 PM	7 PM - 10 PM	10 PM - Last	
8	4:45	0:00	15-30	15	15	30	30	5:00	0:30	10-30	12	10-12	20	30	
10	5:00	1:00	10-30	15	8-10	30	30-60	5:00	1:00	10-30	15	8-10	15	15-30	
11	5:00	1:15	15-30	30	15-30	30	60	5:00	1:15	15-30	15	15	30	30	
12	6:00	23:00	10-30	15	10-30	30	60	6:00	0:00	10-30	15	10-15	15	30	
16	4:45	1:00	15-30	20	15-30	30	30	See Routes 26X and 62							
25	6:00	18:00	60	60	60	See Route 78									
26	5:15	1:15	20-30	30	20-30	30	30	See Routes 26X and 62							
26X	Peak	Peak	7 trips		6 trips				5:15	1:15	10-30	30	15-30	30	30
28	5:00	0:00	20-30	30	20-30	30	30	See Routes 28X and 62							
28X	Peak	Peak	11 trips		8 trips				5:00	0:15	7-30	30	10-30	30	30
30	Peak	Peak	30		30	See Route 74									
31	6:00	19:30	15-30	30	20-30				6:00	19:15	15-30	30	20-30		
32	5:45	0:00	15-30	30	20-30	30	30	5:45	0:00	15-30	30	20-30	30	30	
38	See Route 8							5:00	1:00	10-15	15	15	30	30	
43	5:30	1:00	15-30	15	10-15	30	30	Peak	Peak	30		30			
44	5:00	1:30	10-20	15	10-12	15	15-30	5:00	1:30	8-20	12	8-10	15	15-30	
45	See Route 48							5:15	1:00	8-15	15	8-10	15	15-30	
47	Did not operate							5:00	19:00	18-30	35	20-40			
48	5:30	0:45	8-30	15	10-15	15	30	5:15	1:00	8-30	10	5-10	15	30	
49	5:00	2:15	15-30	15	15	15	30	5:00	3:30	12-30	12	12	15	15-30	
62	See Routes 16, 26, 28 and 71							5:00	1:15	7-30	15	10-15	15	15-30	
63	See Routes 66, 67							Peak	Peak	7 trips		8 trips			
64	Peak	Peak	7 trips		7 trips				Peak	Peak	7 trips		8 trips		
65	5:00	23:30	10-30	30	15-30	30	60	5:00	0:30	10-15	15	10-15	15-30	30	
66	5:15	1:00	15-30	30	30	30-60	60	See Route 67							
67	6:45	22:00	15-30	30	15-30	30		4:45	1:00	10-30	15	15	15-30	30	
68	6:15	18:00	15-30	30	15-30	See Routes 67 and 372									
70	6:30	19:00	12-15	15	10-15	Rts 71/72/73		5:00	1:00	10-15	15	8-15	15	15-30	
71	4:45	0:45	30	30	30	30	30	6:30	22:00	30	30	30	30		
72	5:00	1:15	30	30	30	60	60	See Route 372							
73	4:45	0:00	30	30	30	60	60	6:30	22:15	15-30	30	15-30	30		
74	Peak	Peak	8 trips		8 trips				Peak	Peak	10 trips		10 trips		
75	5:30	0:30	10-30	30	10-15	30	30	5:15	1:15	10-15	15	10-15	15-30	30	
76	Peak	Peak	8 trips		8 trips				Peak	Peak	15 trips		13 trips		
77	Peak	Peak	9 trips		8 trips				Peak	Peak	10 trips		8 trips		
78	See Route 25							6:15	18:30	30-40	35-40	40			
242	Peak	Peak	6 trips		6 trips	See Routes 63, 541 and 542									
316	Peak	Peak	7 trips		7 trips				Peak	Peak	10 trips		9 trips		
355	Peak	Peak	9 trips		9 trips				Peak	Peak	9 trips		9 trips		
372	5:30	21:45	6-30	30	10-30	30-60		5:15	1:15	5-30	15	10-15	30	30	
373	Peak	Peak	9 trips		10 trips				Peak	Peak	15 trips		14 trips		
541	Did not operate							Peak	Peak	15-20		15-20			
542	Peak	Peak	15-30		15-30				Peak	Peak	15-20	30	15-20		
SERVICE IMPROVEMENT															
SERVICE REDUCTION															
SERVICE DID NOT OPERATE															

Table 2b: Service Levels Before and After March 2016 Service Change – Saturdays

Route	Spring 2015						Spring 2016					
	Begin	End	Frequency				Begin	End	Frequency			
			First - 9 AM	9 AM - 7 PM	7 PM - 10 PM	10 PM - Last			First - 9 AM	9 AM - 7 PM	7 PM - 10 PM	10 PM - Last
8	5:30	23:30	15-30	15	30	30	5:30	0:30	15-30	15	20	30
10	6:15	1:00	15	15	30	30	6:00	1:00	15	15	15	15-30
11	6:00	1:15	30	30	30-60	60	6:00	1:15	30	15	30	30-60
12	6:15	23:00	30	15	30	60	6:00	0:00	30	15	15	30
16	5:45	1:00	20	20	30	30	See Routes 26X and 62					
25												
26	6:00	1:00	60	30	30	30	See Routes 26X and 62					
26X	See Route 26						6:30	1:15	30	30	30	30
28	6:30	0:15	60	30	30	60	See Routes 28X and 62					
28X	See Route 28						6:00	0:30	30	30	30	30
30												
31	7:30	18:30	30	30			7:30	18:30	30	30		
32	6:00	0:00	30	30	30	30	6:00	0:15	30	30	30	30
38	See Route 8						5:45	0:15	15-30	15	30	30
43	5:45	1:00	30	15	30	30	See Routes 8, 10, and 48					
44	5:30	1:30	15-30	15	15	15-30	5:30	1:30	15-30	12	15	15-30
45	See Route 48						5:45	1:00	15-30	15	15	15-30
47	Did not operate						7:00	18:45	35	35		
48	6:00	0:30	15-30	15	15-30	30	6:00	1:15	10-30	10	15	30
49	6:00	2:15	15-30	15	15	30	6:00	3:30	12-15	12	15	15-30
62	See Routes 16, 26, 28 and 71						5:45	1:15	15-30	15	15	15-30
63												
64												
65	6:15	23:45	30-60	30	30	60	6:15	0:30	15-30	15	20-30	30
66	5:30	1:15	30	30	30	60	See Route 67					
67	See Route 66						6:00	1:00	15-30	15	15-30	30
68	9:00	18:00		30			See Routes 67 and 372					
70	10:00	17:30		15	Rts 71/72/73		6:15	1:00	15	15	15	15-30
71	5:45	1:15	30	30	30	30	7:00	22:00	30	30	30	
72	6:00	1:00	30	30	60	60	See Route 372					
73	6:00	0:30	30	30	60	60	7:15	22:15	30	30	30	
74												
75	5:45	0:15	30	30	30	60	6:00	1:15	15-30	15	15-30	30
76												
77												
78												
242												
316												
355												
372	See Route 68						6:15	0:30	15-30	15	15-30	30
373												
541												
542												
SERVICE IMPROVEMENT												
SERVICE REDUCTION												
SERVICE DID NOT OPERATE												

Table 2c: Service Levels Before and After March 2016 Service Change – Sundays

Route	Spring 2015						Spring 2016					
	Begin	End	Frequency				Begin	End	Frequency			
			First - 9 AM	9 AM - 7 PM	7 PM - 10 PM	10 PM - Last			First - 9 AM	9 AM - 7 PM	7 PM - 10 PM	10 PM - Last
8	6:00	0:00	30	30	30	30	6:00	0:30	30	20-30	30	30
10	6:15	1:00	30	30	30	30	6:00	1:00	15	15	15	15-30
11	6:00	1:15	60	30	60	60	6:00	1:15	30	30	30	30-60
12	6:45	23:00	30	30	30-60	60	6:00	0:00	30	30	30	30
16	5:45	1:00	30	30	30	30	See Routes 26X and 62					
25												
26	6:00	1:00	60	30	30	30	See Routes 26X and 62					
26X	See Route 26						6:30	1:15	30	30	30	30
28	6:30	0:15	60	30	30	60	See Routes 28X and 62					
28X	See Route 28						6:00	0:30	30	30	30	30
30												
31												
32	6:00	0:00	30	30	30	30	6:00	0:15	30	30	30	30
38	See Route 8						5:45	23:45	30	30	30	30
43	5:45	1:00	30	15	30	30	See Routes 8, 10, and 48					
44	5:30	1:30	15-30	15	15	15-30	5:30	1:30	15-30	15	15	15-30
45	See Route 48						5:45	1:00	15-30	15	15	15-30
47	Did not operate						7:00	18:45	35	35		
48	6:15	0:00	30	30	30	30	6:00	1:15	15-30	15	15	30
49	6:00	2:15	30	15	30	30	6:00	3:30	15-30	15	15	30
62	See Routes 16, 26, 28 and 71						5:45	1:15	15-30	15	15	15-30
63												
64												
65	6:15	23:45	30-60	30	30	60	6:30	0:15	30	30	30	30
66	7:15	1:15	30-60	30	30-60	60	See Route 67					
67	See Route 66						6:00	1:00	30	30	30	30
68												
70	See Routes 71, 72, 73						6:00	1:00	15	15	15	15-30
71	6:15	1:15	30	30	30	30	See Route 62					
72	6:00	1:00	60	60	60	60	See Route 372					
73	5:30	0:30	60	60	60	60	See Route 67					
74												
75	6:00	0:15	30	30	30	60	6:00	0:45	30	30	30	30
76												
77												
78												
242												
316												
355												
372	Did not operate						6:15	0:45	30	30	30	30
373												
541												
542												
SERVICE IMPROVEMENT												
SERVICE REDUCTION												
SERVICE DID NOT OPERATE												

SECTION I: RIDERSHIP ASSESSMENT

KEY FINDINGS

Below are significant findings of the ridership assessment; background and detailed information are provided in the chapters that follow.

- **Overall transit ridership increased following the service changes. Link ridership increased dramatically, and bus ridership decreased as expected.**
 - Total net transit ridership on Link and on Metro bus routes directly impacted by Link is up by 12 percent on weekdays, 25 percent on Saturdays, and 20 percent on Sundays. Those percentages reflect an increase of 17,900 daily weekday rides, 21,400 daily Saturday rides, and 12,700 daily Sunday rides.
 - Link ridership increased by 27,500 (76 percent) daily weekday rides, 22,800 (85 percent) daily Saturday rides, and 15,100 (71 percent) daily Sunday rides.
 - Bus ridership on routes directly impacted by Link decreased by 9,700 (8 percent) daily weekday rides, 1,400 (2 percent) daily Saturday rides, and 2,300 (6 percent) daily Sunday rides. This was expected because Link replaced some of the most productive and highly used bus routes in northeast Seattle and Capitol Hill, including the 10, 43, 49, 71, 72, and 73.
- **Riders are making more transfers between Metro and Link, particularly at UW Station.**
 - Based on ORCA data, between 5,500 and 6,000 daily weekday transfers occur between buses and Link at UW Station, and between 900 and 1,100 daily weekday transfers occur between bus and Link at Capitol Hill Station.
 - UW Station has become the second busiest Link station (behind Westlake Station), with about 18,100 weekday boardings and alightings. Capitol Hill Station has become the third busiest Link station with about 13,300 weekday boardings and alightings.
- **Transit ridership grew in neighborhoods close to Link stations. Bus ridership generally declined in areas close to Capitol Hill and University of Washington Link stations where many riders have likely switched from buses to Link. However, Link ridership has more than offset the reduction in bus ridership. Bus ridership also grew where Metro made investments in more frequent service.**
 - The U District neighborhood has 17,800 (29 percent) more daily weekday transit (Link + bus) boardings and alightings, including 18,100 new Link boardings and a reduction of 300 bus boardings. Given that several thousand riders have switched from buses to Link for the trip between the U District and downtown Seattle, the reduction of only 300 bus rides indicates significant bus/Link transfer activity as well as large gains on other bus routes serving the U District.
 - Capitol Hill has 8,700 (34 percent) more daily weekday transit (Link + bus) boardings and alightings. Link has attracted 13,300 new weekday boardings and alightings while buses have lost 4,600 (-18 percent) weekday boardings and alightings. The loss in bus ridership in Capitol Hill indicates that riders who have switched from buses to Link have not yet been replaced by new bus riders. Metro made relatively fewer changes to service on Capitol Hill than in other areas of the restructure.

- Most northeast Seattle neighborhoods have experienced higher bus ridership as a result of the service changes. The Bryant neighborhood has experienced the highest increase in weekday boardings and alightings with over 800 (18 percent) more daily boardings and alightings.
- **Metro’s focus on investments in frequent all-day transit service has resulted in higher ridership on these services, and the reorientation of two peak-only routes to South Lake Union is also showing positive results.**
 - Frequent² transit services gained 49,700 (26 percent) more weekday rides. Metro shifted more resources into frequent services operating every 15 minutes or better throughout the week, and riders choose frequent service over infrequent service. Infrequent transit services carry 14,900 (77 percent) fewer weekday riders as there are now fewer infrequent services than before.
 - Peak-only routes³ to downtown Seattle from northeast Seattle gained about 300 daily weekday rides. New Route 63 and revised Route 64 provide a new fast trip from northeast Seattle to South Lake Union and carried a combined 970 daily weekday rides in spring 2016. Early ridership data from fall 2016 show a 25 percent increase in rides on Routes 63 and 64, to about 1,250 daily weekday rides, as growth continues in South Lake Union and more potential riders learn about the new service.
- **On-time performance has improved where Metro made investments in reliability and in simplified routes.**
 - The replacement of express bus service with Link improved reliability for riders traveling between the U District and downtown Seattle. Link is on time about 90 percent of the time while Routes 71, 72, 73 and 74 were on time less than 70 percent of the time⁴.
 - Routes 8 and 48 were each split into two shorter routes in order to improve reliability. Route 48 riders have seen significant improvements in on-time performance and actual time between buses, while Route 8 riders have seen modest improvements. Route 8 continues to be impacted by severe traffic congestion on Denny Way and is currently the focus of a capital project to improve transit reliability there. The split of Route 8 was complicated by a broader set of changes in southeast Seattle that were made in fall 2016, unrelated to the Link extension.
- **Travel times in most areas decreased or remained the same as a result of the changes. This is largely a result of Link’s speed and frequent service on routes connecting to Link. The frequent service has resulted in shorter wait times and has made transferring less time-consuming.**
 - Link provides much faster connections between the U District, Capitol Hill, and downtown Seattle than the prior bus routes. Link travels between UW Station and Capitol Hill Station in four minutes⁵, compared to approximately 10 to 15 minutes by bus; and between Capitol Hill Station and Westlake Station in two minutes, compared to 10 to 15 minutes by bus.
 - The most significant improvements in travel times have been for crosstown trips in northeast Seattle, where new frequent Route 62 provides many new travel opportunities that are both shorter distance and less time-consuming than before.

² Frequent routes arrive every 15 minutes or better until 6 PM on weekdays.

³ Peak-only routes to downtown Seattle are: 74, 76, 77, 316 and 355.

⁴ Figures calculated at UW Station for Link and at University Way NE and NE 45th Street for Routes 71, 72, 73 and 74.

⁵ Not including walk time between tunnel platform and surface streets

CHANGES IN ROUTE-LEVEL TRANSIT RIDERSHIP AND PRODUCTIVITY

Overall Ridership and Productivity Changes

Bus routes that were changed directly (defined as “primary” in Table 3) lost rides as a result of riders switching to Link. This change occurred despite service hour investments made by the City of Seattle. The loss in ridership coupled with the increase in service hours resulted in reduced productivity on these routes by seven to nine rides per hour, collectively. The loss in ridership and productivity was expected for two reasons:

- Link replaced the most productive, highest ridership portions of Routes 10, 43, 49, 71, 72 and 73.
- When new resources are added in any area, there is almost always an immediate drop in productivity followed by a more gradual increase, as it takes riders time to change travel habits in response to the increased service.

When Link opened in the Rainier Valley in 2009, Metro bus service also saw temporary losses in ridership and productivity. These losses were reversed during the following few years as riders increased their use of the redesigned system. A similar pattern is likely to emerge in Capitol Hill, the U District, and northeast Seattle.

Routes considered “secondary” to the Link-related routes are those that changed in March 2016 but were not directly associated with the Link integration effort. These routes are included to give a full picture of ridership changes that occurred following the service restructure. However, other factors clearly were involved in ridership changes on these secondary routes. Overall, these routes gained ridership as a result of significant increases in service hours, with about half of the new hours devoted to D Line improvements. As with the other major investments, productivity fell between four and seven rides per hour even as ridership increased.

Sound Transit improved bus service between the U District and Overlake by creating new Route 541 and adding midday service to Route 542. This boosted ridership by over 1,100 daily rides at a cost of almost 14,900 annual hours of service. Productivity fell by three rides an hour, but as with Metro routes, productivity is likely to improve in the long term as ridership grows.

Link saw huge increases in ridership and productivity, as expected. Link now connects the largest transit markets in the county—downtown Seattle and the U District—with a stop in the densest neighborhood of Seattle—Capitol Hill. The service hour investment required for the Link extension was limited, due to the short length, high travel speeds, and limited stops.

Table 3: Overall Ridership and Productivity Gains

	Change in Daily Ridership			Change in Annual Hours of Service			Change in Rides/Hour		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Primary	-9,667	-1,386	-2,348	68,524	17,841	18,333	-7.23	-6.96	-9.00
Secondary	6,390	2,532	3,952	60,047	8,669	13,868	-4.58	-5.12	-7.13
Sound Transit Bus	1,096			16,574			-3.09		
Link	27,519	22,805	15,088	13,770	1,404	1,450	70.92	100.82	68.04
ALL	25,338	23,951	16,692	158,915	27,914	33,651	-1.43	-0.13	-3.52

Primary Routes: 8, 10, 11, 12, 16, 25, 26, 28, 30, 31, 32, 38, 43, 44, 45, 47, 48, 49, 62, 63, 64, 65, 66, 67, 68, 70, 71, 72, 73, 74, 75, 76, 77, 78, 238, 242, 316, 355, 372, 373

Secondary Routes: 5, 15, 17, 18, 40, 41, 131, 132, D Line

Sound Transit Bus Routes: 522, 541, 542

Ridership and productivity changes by service frequency

Riders told us during public outreach that they wanted more frequent service, so Metro’s service changes focused largely on providing frequent service (every 15 minutes or better) in more areas. This focus is consistent with industry-wide best practices and Metro’s own policies in the Strategic Plan and Service Guidelines.

The result was a large increase in riders on corridors with frequent service, and decreases in riders on corridors with infrequent service. Ridership decreased a small amount on corridors with only peak-only service, as more riders are relying on all-day service over specialized peak-only service. A major reason for these overall patterns of change was a shift in resources between types of service.

The collection of corridors with frequent service, including Link, had significant ridership gains. Metro, the City of Seattle, and Sound Transit invested about 275,000 annual service hours in frequent weekday service in response to public feedback. Each additional annual service hour invested in frequent service has attracted about 46 additional boardings.

Corridors with infrequent service had significant ridership losses, and the amount of service hours invested in infrequent service is lower as well. Approximately 34 rides have been lost for every annual hour reduced from infrequent service. This is very consistent with historic ridership patterns; frequent routes generally tend to be more productive than infrequent routes.

Peak-only routes serving northeast Seattle⁶ gained about 700 daily rides on a net investment of about 24,000 annual hours of service. Overall, productivity on these routes fell by about nine rides per hour. However, as much of the new service hours were invested in emerging (South Lake Union) or suburban (Overlake) job markets, ridership growth may occur more slowly on these routes than on routes that serve more traditional job markets.

⁶ Northeast Seattle peak-only routes analyzed were: 63, 64, 74, 76, 77, 242, 316, 355 and Sound Transit Route 541.

Table 4: Ridership and Productivity Changes by Frequency

Corridors with Service:	Change in Corridor Boardings	Change in Annual Hours of Service	Boardings/Hour
	Weekdays	Weekdays	
Frequent	12,674,315	274,790	46.12
Infrequent	-3,790,656	-115,755	32.75

Frequent = Service operating every 15 minutes or better during the daytime

Infrequent = Service operating less often than every 15 minutes during the daytime

Route-level ridership and productivity changes

This section describes route-level changes in ridership and productivity following the bus-Link integration project. Given the extent of the changes, before-and-after comparisons for specific routes must be considered along with other changes in the areas the routes serve. Changes at the neighborhood and corridor level are presented in the following chapter and help highlight how combinations of route changes impacted specific areas.

Many of the routes that have had the largest ridership and productivity declines are those where Link now provides a faster alternative. Many riders have shifted from bus service to Link. This shift was expected and would have occurred to some extent even if Metro had not made bus route changes. However, Metro's restructure was designed to reduce duplication with Link and make connections with Link and other destinations more attractive, bringing new riders to the system.

For many routes that have gained ridership, productivity dropped as a result of investments of more service hours to provide more frequent service, longer hours of operation, or improved reliability. Based on the results of previous restructures, such as those around the RapidRide C and D lines, Metro expects that ridership will grow and productivity will improve on many of these routes over the next couple of years. The route-level ridership numbers differ slightly from those shown in Metro's Annual System Evaluation (formerly called the Service Guidelines Report). The numbers in these tables cover all days including *non-typical* days such as Presidents Day and Memorial Day, they include adjustments to add up to the system-wide totals, and they are not rounded.

Routes with significant ridership gains

The routes listed in Table 5 gained a total of more than 750 weekday rides. (New routes are not included, except where an existing route was split into two routes.)

Table 5: Routes with Significant Ridership Gains

Route	Change in	Reasons for change						
	Weekday Rides	More frequent	Riders Switching	Connections with Link	South Lake Union Growth	Improved Reliability	Faster Service	New Connections
8/38	750	X		X	X	X		
11	1,350	X	X					
44	1,250	X		X				
45/48	1,080	X		X		X		
65	1,330	X	X	X				
67	2,610	X	X	X				
70	3,300	X	X		X			
372	2,620	X	X	X				
373	750	X	X	X				
Link	27,500	X	X			X	X	X

Routes with significant ridership losses

The routes listed in Table 6 lost more than 750 weekday rides. Discontinued routes are not included.

Table 6: Routes with Significant Ridership Losses

Route	Change in	Reasons for change			
	Weekday Rides	Riders Switching	Fewer Activity Centers Served	Less Frequent	Shorter Hours of Operation
10	-1,230	X			
26/26X	-830		X		
28/28X	-1,120		X		
43	-5,890	X		X	X
71	-3,330	X	X		X
73	-4,370	X	X		X

New routes

The three new frequent routes 38, 45 and 62 replaced parts of former routes 8, 16, 26, 28 and 48. Each of these routes are carrying similar levels of ridership as the routes they replaced, but have seen changes in ridership along each segment. Segment-level ridership is discussed in the following chapter on neighborhood-level ridership.

New all-day Route 78 has the fewest riders of any all-day route in north Seattle because of the limited market and the low ridership potential of the area it serves.

New commuter Route 63 carried about 400 rides per weekday in spring 2016. As this is a new route serving a growing employment market (South Lake Union), we expect that ridership will grow over time as more riders try it out.

Discontinued routes

Routes 16, 25, 66, 68, 72 and 242 were all discontinued and replaced by other routes. These six routes accounted for 15,400 daily weekday rides in spring 2015. Based on overall ridership change, it appears that many of these riders have found suitable alternatives.

Table 7: Weekday Annual Hour, Daily Rides and Productivity by Route

Route	Destinations (post-change)		ANNUAL HOURS			DAILY RIDES			PRODUCTIVITY (RIDES/HOUR)		
	From	To	Spring 2015	Spring 2016	Change	Spring 2015	Spring 2016	Change	Spring 2015	Spring 2016	Change
5	Shoreline Col.	Seattle CBD	38,922	47,179	8,257	7,897	8,324	427	53.20	46.38	-6.82
8	Seattle Center	Mount Baker	53,619	47,781	-5,838	9,634	7,749	-1,885	47.49	42.64	-4.85
10	Capitol Hill	Seattle CBD	21,292	24,058	2,766	4,523	3,298	-1,225	56.59	37.82	-18.77
11	Madison Pk	Seattle CBD	16,405	22,629	6,224	3,345	4,699	1,354	53.33	54.59	1.26
12	Interlaken Pk	Seattle CBD	18,728	21,419	2,691	3,366	3,339	-27	48.15	42.92	-5.23
15	Blue Ridge	Seattle CBD	5,160	6,844	1,684	1,026	1,263	237	50.98	48.55	-2.43
16			41,408	0	-41,408	4,689	0	-4,689	29.84	0.00	-29.84
17	Loyal Heights	Seattle CBD	3,755	4,734	979	820	919	99	56.18	51.06	-5.11
18	North Beach	Seattle CBD	4,675	5,487	812	908	984	76	51.49	47.08	-4.41
25			6,915	0	-6,915	509	0	-509	19.54	0.00	-19.54
26	Northgate	Seattle CBD	22,321	23,324	1,003	3,603	2,776	-827	42.44	31.29	-11.15
28	Carkeek Park	Seattle CBD	26,028	24,491	-1,537	3,991	2,870	-1,121	40.41	31.07	-9.34
30			5,625	0	-5,625	509	0	-509	20.22	0.00	-20.22
31	Magnolia	U. District	13,226	13,955	729	1,847	1,690	-157	36.58	31.17	-5.41
32	Seattle Center	U. District	17,956	19,750	1,794	2,729	2,571	-158	39.90	34.18	-5.72
38	Rainier Beach	Mount Baker	0	18,891	18,891	0	2,640	2,640	0.00	36.69	36.69
40	Northgate	Seattle CBD	52,675	70,817	18,142	8,973	11,125	2,152	44.81	41.31	-3.50
41	Lake City	Seattle CBD	45,587	49,550	3,963	9,691	10,456	764	56.03	55.48	-0.55
43	U. District	Seattle CBD	37,593	8,563	-29,030	6,974	1,088	-5,886	51.72	34.07	-17.66
44	Ballard	U District	34,685	41,702	7,017	6,893	8,145	1,252	55.43	52.61	-2.83
45	Loyal Heights	U District	0	44,942	44,942	0	7,050	7,050	0.00	41.06	41.06
47	Summit	Seattle CBD	0	5,800	5,800	0	560	560	0.00	26.60	26.60
48	Mount Baker	U District	61,131	47,472	-13,659	11,830	5,860	-5,970	49.95	32.31	-17.64
49	U District	Seattle CBD	33,753	42,746	8,993	7,100	7,054	-46	59.04	44.59	-14.45
62	Sand Point	Seattle CBD	0	58,885	58,885	0	6,597	6,597	0.00	29.45	29.45
63	Northgate	First Hill	0	5,989	5,989	0	383	383	0.00	16.82	16.82
64	Jackson Park	First Hill	6,284	6,470	186	769	584	-184	32.09	23.88	-8.20
65	Jackson Park	U District	20,958	29,056	8,098	3,050	4,378	1,328	36.84	39.53	2.70
66			22,317	0	-22,317	3,144	0	-3,144	37.42	0.00	-37.42
67	Northgate	U District	9,864	28,817	18,953	1,617	4,228	2,610	42.22	38.58	-3.64
68			11,287	0	-11,287	2,044	0	-2,044	45.98	0.00	-45.98
70	U. District	Seattle CBD	25,771	44,745	18,974	4,473	7,769	3,296	45.86	46.74	0.88
71	Wedgwood	U District	23,133	12,540	-10,593	4,924	1,598	-3,326	56.15	33.53	-22.62
72			21,133	0	-21,133	4,643	0	-4,643	58.00	0.00	-58.00
73	Jackson Park	U District	25,821	9,512	-16,309	5,697	1,324	-4,373	58.47	35.53	-22.94
74	Sand Point	Seattle CBD	5,560	8,758	3,198	1,243	1,240	-2	59.16	37.27	-21.89
75	Northgate	U District	24,490	31,755	7,265	4,424	4,717	293	47.17	38.97	-8.20
76	Wedgwood	Seattle CBD	5,317	11,767	6,450	1,145	1,453	308	56.98	32.48	-24.49
77	North City	Seattle CBD	4,551	5,316	765	1,053	932	-121	61.24	45.95	-15.29
78	Laurelhurst	U District	0	3,519	3,519	0	221	221	0.00	16.59	16.59
131	Burien	Seattle CBD	20,698	22,001	1,303	3,048	3,077	30	39.08	37.02	-2.06
132	Burien	Seattle CBD	25,805	25,783	-22	3,086	2,815	-271	31.51	29.07	-2.45
238	Woodinville	Kirkland	16,523	19,742	3,219	746	935	188	11.93	12.58	0.65
242			5,710	0	-5,710	384	0	-384	17.65	0.00	-17.65
316	Meridian Park	Seattle CBD	4,085	7,012	2,927	965	980	15	62.24	36.69	-25.54
355	Shoreline Coll.	Seattle CBD	7,570	7,399	-171	869	964	95	29.56	33.22	3.65
372	UW Bothell/CC	U District	30,526	49,530	19,004	4,720	7,343	2,623	39.03	37.54	-1.48
373	Aurora Village	U District	6,373	8,147	1,774	863	1,614	751	31.87	47.43	15.56
522	Woodinville	Seattle CBD	41,163	42,843	1,680	5,327	5,306	-21	33.00	31.58	-1.42
541	Overlake	U District	0	10,027	10,027	0	617	617	0.00	15.69	15.69
542	Redmond	GreenLk P&R	17,200	22,067	4,867	1,732	2,232	500	25.68	25.79	0.11
674	Carkeek Park	Seattle CBD	41,064	65,993	24,929	11,171	14,047	2,876	72.54	56.53	-16.01
Link	UW Station	Sea-Tac Airport	47,940	61,710	13,770	36,058	63,577	27,519	191.80	262.71	70.92
			1,032,602	1,191,517	158,915	208,054	233,393	25,338	51.38	49.95	-1.43

Table 8: Saturday Annual Hour, Daily Rides and Productivity by Route

Route	Destinations (post-change)		ANNUAL HOURS			DAILY RIDES			PRODUCTIVITY (RIDES/HOUR)		
	From	To	Spring 2015	Spring 2016	Change	Spring 2015	Spring 2016	Change	Spring 2015	Spring 2016	Change
5	Shoreline College	Seattle CBD	6,624	7,461	837	4,899	4,755	-143	39.50	33.91	-5.59
8	Seattle Center	Mount Baker	9,061	7,119	-1,942	6,401	4,657	-1,745	37.89	35.05	-2.84
10	Capitol Hill	Seattle CBD	3,158	3,710	552	2,595	2,349	-246	44.85	34.37	-10.49
11	Madison Park	Seattle CBD	2,249	3,721	1,472	1,887	3,005	1,118	44.99	43.03	-1.97
12	Interlaken Park	Seattle CBD	2,584	3,201	617	1,069	1,239	170	22.16	20.86	-1.30
16			7,109	0	-7,109	3,200	0	-3,200	24.12	0.00	-24.12
26	Northgate	Seattle CBD	2,556	3,701	1,145	1,551	1,521	-30	32.51	22.03	-10.48
28	Carkeek Park	Seattle CBD	2,372	3,038	666	1,408	969	-439	31.88	17.13	-14.74
31	Magnolia	U. District	1,877	1,865	-12	822	754	-68	23.58	22.22	-1.35
32	Seattle Center	U. District	2,946	3,039	93	1,827	1,503	-324	33.25	26.50	-6.75
38	Rainier Beach	Mount Baker	0	3,672	3,672		1,753	1,753	0.00	25.53	25.53
40	Northgate	Seattle CBD	8,785	11,346	2,561	5,782	6,683	901	35.04	30.64	-4.40
41	Lake City	Seattle CBD	5,976	7,271	1,295	5,287	5,556	269	47.34	40.96	-6.39
43	U. District	Seattle CBD	5,184	529	-4,655	4,041	210	-3,831	42.74	19.07	-23.67
44	Ballard	U. District	5,353	6,935	1,582	4,592	5,462	870	45.76	40.23	-5.54
45	Loyal Heights	U. District	0	7,243	7,243		4,104	4,104	0.00	28.90	28.90
47	Summit	Seattle CBD	0	675	675		223	223	0.00	18.10	18.10
48	Mount Baker	U. District	8,892	7,695	-1,197	5,730	4,131	-1,599	34.57	37.46	2.90
49	U. District	Seattle CBD	5,738	7,267	1,529	5,128	5,996	869	48.30	43.87	-4.43
62	Sand Point	Seattle CBD	0	9,820	9,820		3,844	3,844	0.00	21.00	21.00
65	Jackson Park	U. District	2,606	4,421	1,815	1,531	2,366	835	31.47	29.50	-1.97
66			3,648	0	-3,648	2,026		-2,026	29.55	0.00	-29.55
67	Northgate	U. District	0	4,227	4,227		2,527	2,527	0.00	30.07	30.07
68			1,500	0	-1,500	895		-895	32.00	0.00	-32.00
70	U. District	Seattle CBD	2,697	6,361	3,664	1,406	4,111	2,706	28.44	34.81	6.37
71	Wedgwood	U. District	4,542	2,381	-2,161	3,938	1,190	-2,748	46.47	26.84	-19.63
72			3,692	0	-3,692	3,373		-3,373	48.99	0.00	-48.99
73	Jackson Park	U. District	3,710	2,314	-1,396	3,583	1,374	-2,209	51.78	31.84	-19.93
75	Northgate	U. District	2,677	4,937	2,260	2,267	2,517	250	45.34	27.90	-17.44
131	Burien	Seattle CBD	3,041	3,331	290	1,877	1,826	-51	33.09	29.46	-3.63
132	Burien	Seattle CBD	3,753	4,016	263	1,867	1,877	10	26.66	25.02	-1.64
238	Woodinville	Kirkland	1,218	1,218	0	199	191	-9	8.67	8.67	0.00
372	Lake City	U. District	0	4,121	4,121	0	2,089	2,089	0.00	27.21	27.21
522	Woodinville	Seattle CBD	5,079	5,091	12	2,834	2,871	37	29.02	29.32	0.31
674	Carkeek Park	Seattle CBD	6,367	9,790	3,423	7,324	8,871	1,547	62.32	49.11	-13.21
Link	UW Station	Sea-Tac Airport	7,904	9,308	1,404	26,783	49,588	22,805	176.20	277.03	100.82
			132,898	160,824	27,926	116,124	140,111	23,988	45.44	45.30	-0.13

Table 9: Sunday Annual Hour, Daily Rides and Productivity by Route

Route	Destinations (post-change)		ANNUAL HOURS			DAILY RIDES			PRODUCTIVITY (RIDES/HOUR)		
	From	To	Spring 2015	Spring 2016	Change	Spring 2015	Spring 2016	Change	Spring 2015	Spring 2016	Change
5	Shoreline College	Seattle CBD	4,267	7,453	3,186	3,184	4,031	847	44.41	30.36	-14.05
8	Seattle Center	Mount Baker	6,066	5,184	-882	4,185	3,288	-897	41.09	37.30	-3.78
10	Capitol Hill	Seattle CBD	2,254	4,135	1,881	1,326	2,055	729	34.74	30.40	-4.34
11	Madison Park	Seattle CBD	1,820	2,569	749	1,527	1,872	344	50.83	43.60	-7.23
12	Interlaken Park	Seattle CBD	1,872	2,152	280	640	630	-10	20.29	17.38	-2.91
16			5,360	0	-5,360	2,138	0	-2,138	23.77	0.00	-23.77
26	Northgate	Seattle CBD	2,847	4,130	1,283	1,375	1,128	-247	28.89	15.97	-12.92
28	Carkeek Park	Seattle CBD	2,691	3,395	704	1,417	779	-638	31.53	13.55	-17.98
32	Seattle Center	U District	3,395	3,450	55	1,696	1,579	-117	29.90	27.45	-2.44
38	Rainier Beach	Mount Baker	0	2,156	2,156	0	1,075	1,075	0.00	29.75	29.75
40	Northgate	Seattle CBD	5,813	10,427	4,614	3,408	4,820	1,412	35.08	27.46	-7.62
41	Lake City	Seattle CBD	3,691	6,422	2,731	3,115	3,769	654	50.00	34.84	-15.16
43	U. District	Seattle CBD	4,843	474	-4,369	3,258	95	-3,163	40.49	8.32	-32.17
44	Ballard	U District	5,067	6,684	1,617	3,213	3,960	747	38.13	36.00	-2.13
45	Loyal Heights	U District	0	7,774	7,774	0	3,932	3,932	0.00	31.16	31.16
47	Summit	Seattle CBD	0	734	734	0	204	204	0.00	16.59	16.59
48	Mount Baker	U District	5,596	6,793	1,197	3,603	2,291	-1,312	37.68	25.92	-11.75
49	U. District	Seattle CBD	4,884	6,507	1,623	4,446	4,193	-252	53.64	39.14	-14.50
62	Sand Point	Seattle CBD	0	10,954	10,954	0	3,161	3,161	0.00	17.19	17.19
65	Jackson Park	U District	3,646	3,054	-592	1,369	1,615	247	22.64	30.39	7.75
66			3,637	0	-3,637	1,753	0	-1,753	29.26	0.00	-29.26
67	Northgate	U District	0	3,078	3,078	0	1,724	1,724	0.00	32.28	32.28
70	U. District	Seattle CBD	0	6,835	6,835	0	3,281	3,281	0.00	28.67	28.67
71	Wedgwood	U District	4,442	0	-4,442	3,004	0	-3,004	40.49	0.00	-40.49
72			2,524	0	-2,524	2,128	0	-2,128	50.10	0.00	-50.10
73	Jackson Park	U District	4,300	0	-4,300	3,306	0	-3,306	45.70	0.00	-45.70
75	Northgate	U District	2,868	3,195	327	1,884	1,515	-369	39.25	28.66	-10.59
131	Burien	Seattle CBD	3,369	3,711	342	1,464	1,485	21	25.84	23.60	-2.24
132	Burien	Seattle CBD	4,092	4,486	394	1,557	1,456	-101	22.76	19.24	-3.52
238	Woodinville	Kirkland	1,089	1,089	0	114	122	9	6.34	6.98	0.64
372	Lake City	U District	0	3,192	3,192	0	1,533	1,533	0.00	28.80	28.80
522	Woodinville	Seattle CBD	5,648	5,636	-12	2,104	2,144	40	21.61	22.06	0.46
674	Carkeek Park	Seattle CBD	7,127	9,728	2,601	5,967	7,087	1,120	49.88	42.73	-7.15
Link	UW Station	Sea-Tac Airport	8,178	9,628	1,450	21,397	36,485	15,088	151.75	219.79	68.04
			111,386	145,025	33,639	84,578	101,310	16,732	44.04	40.52	-3.52

METRO BUS RIDERSHIP RESULTS BY NEIGHBORHOOD AND CORRIDOR

This chapter describes changes in bus ridership (boardings plus alightings) by neighborhood and corridor between the spring 2015 and spring 2016 service changes, highlighting areas where activity has increased or decreased as a result of the changes. We note some areas where ridership has changed as a result of service changes made in fall 2015 or changes that were not related to the Link restructure.

The maps on the next two pages illustrate changes by neighborhood and corridor. Following the maps is a detailed summary of changes in each neighborhood. Each neighborhood summary includes:

- A map of the area analyzed
- A description of bus route changes
- Changes in activity (boardings plus alightings) along each corridor
- Explanation of why we think ridership has changed.

Readers may also find it helpful to reference the route-level frequency information presented earlier in this report.

Please note:

- Corridors are numbered in this report for easy reference to information, but these numbers do not match those in Metro's Service Guidelines.
- This section is based on weekday ridership only. Metro does not have sufficient weekend ridership data to draw conclusions about weekend neighborhood-level changes.

Fig. 1

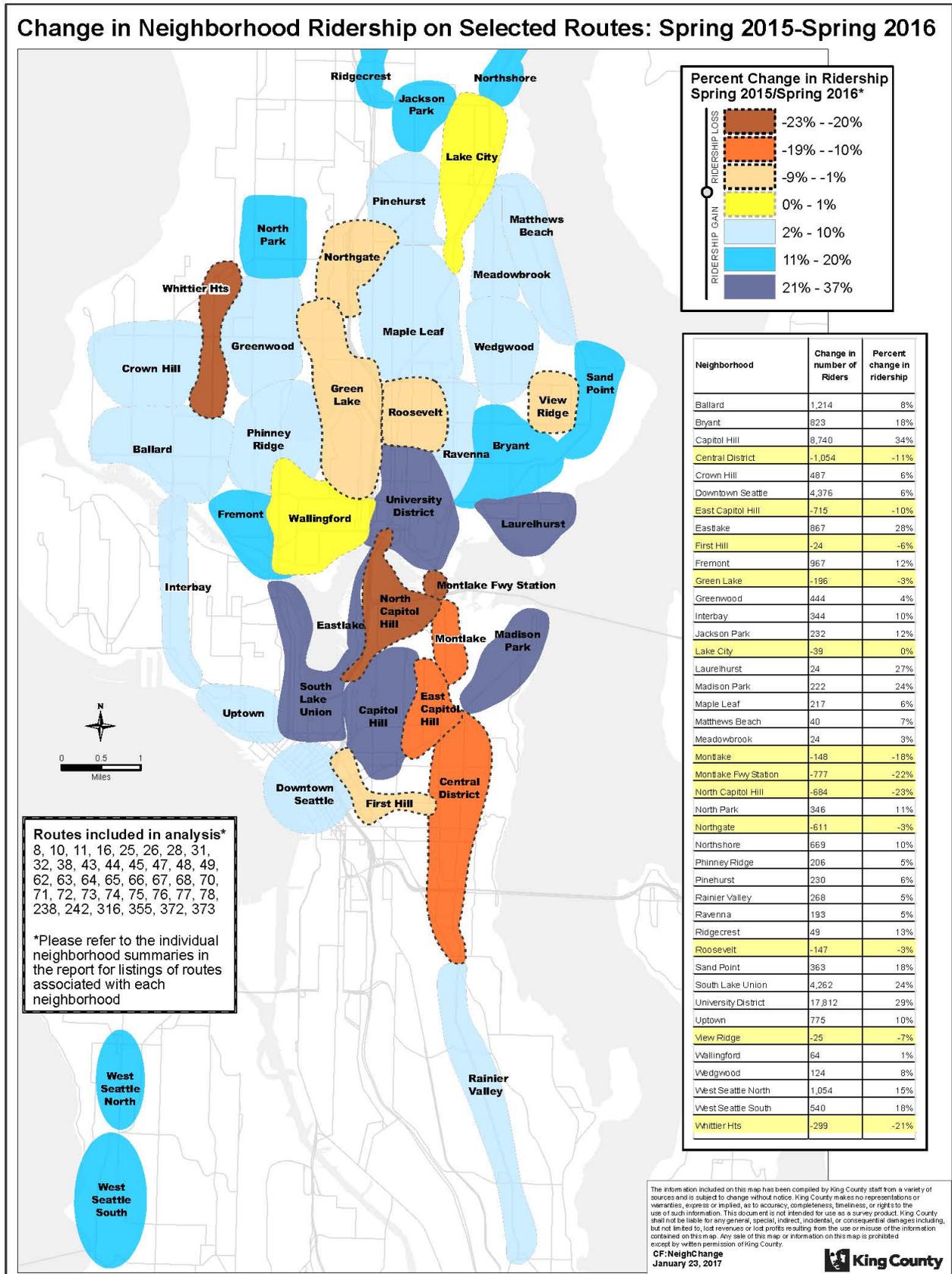
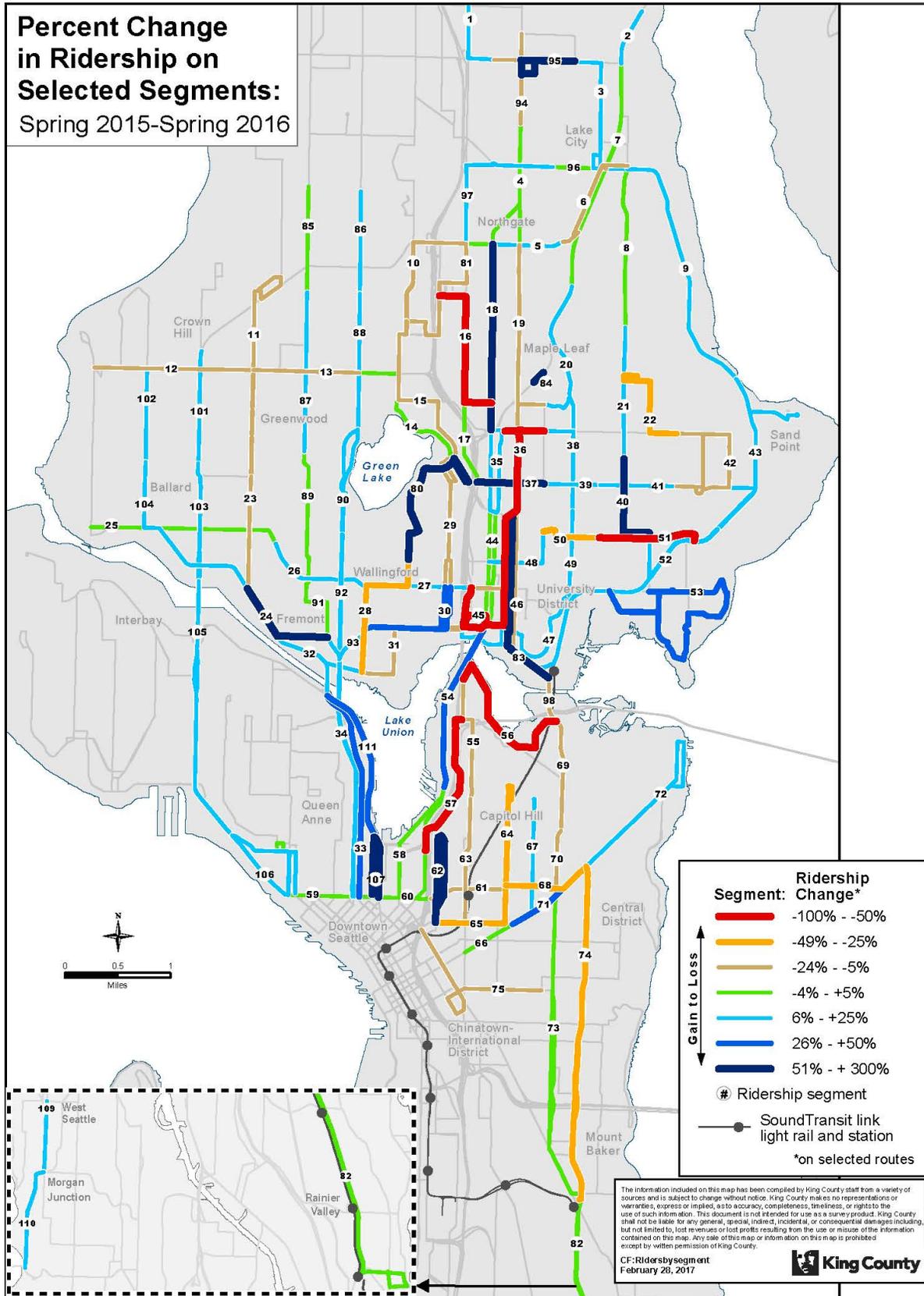


Fig. 2



BALLARD

Tables 10a and 10b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
D	Separated from C Line, extended to Pioneer Square, improve frequency	Improve reliability, increase ridership and serve more of Downtown Seattle.
15	Added trips	Relieve overcrowding and improve ridership
18	Added trips	Relieve overcrowding and improve ridership
28/28X	Combine Local and Express Routes, use new pathway via North Fremont (N 39th St)	Improve off-peak speed to downtown Seattle, simplify route structure.
40	Improve frequency	Increase ridership
44	Improve frequency	Increase ridership and improve connections to Link at UW Station
45	New route, replacing north part of Route 48 (U. District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station

Weekday Ridership Change by Corridor

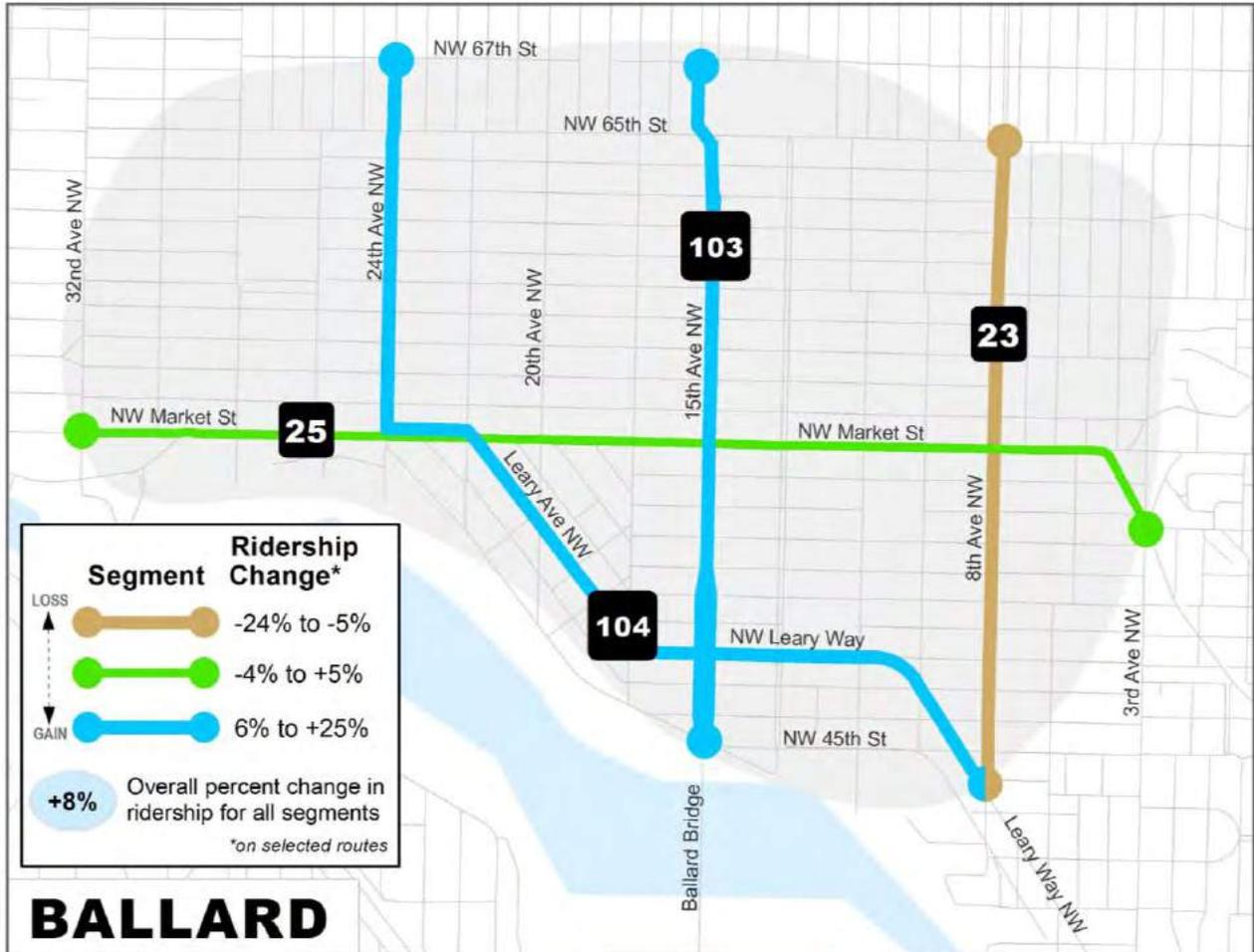
ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
23	8th Av NW	NW 65th St	Leary Wy NW	28	102	1,032	28	97	975	-57	-6%
25	NW Market St	3rd Av NW	32nd Av NW	44	184	4,372	44	207	4,533	161	4%
103	15th Av NW	NW 67th St	Ballard Bridge	15, D	219	5,583	15, D	263	6,035	451	8%
104	24th Av NW/ NW Leary Wy	NW 67th St	NW Leary Wy/8th Av NW	18, 40	140	3,787	18, 40	182	4,447	659	17%
						14,774		749		1,214	8%

Why ridership has changed

- The Eighth Ave NW corridor has experienced a decline in rider activity on weekdays. We believe that much of the decline is due to improved service on 15th Ave NW (D Line and Route 15) and Greenwood Ave N (Route 5). Interestingly, AM peak activity has grown about 32 percent, while all other time periods have seen activity losses. The increase in speed during the off-peak over the former Route 28 (that traveled through Fremont and along Dexter Ave) hasn't translated into more activity along this segment. We expect riders are choosing the more frequent off-peak service provided by the D Line (15th Ave NW) and Route 5 (Greenwood Ave N) over the infrequent (every 30 minutes) Route 28.
- Rider activity on NW Market St has increased as a result of more frequent service and increased residential density.
- Rider activity on 15th Ave NW, between NW 67th St and the Ballard Bridge, has increased as a result of increased residential density, more frequent service and the greater access to more downtown Seattle destinations resulting from the extension of the D Line to Pioneer Square (this may have attracted some riders from Route 28).

- Rider activity on 24th Ave NW and NW Leary Way has increased substantially. This is likely due to Route 40 connecting the expanding housing supply of Ballard with the expanding job market of South Lake Union.

Fig. 3



BRYANT

Tables 11a and 11b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
25	Discontinue route and partially replace by Route 78	Eliminate poorly performing service and reallocate to high performing services.
30	Discontinue route.	Eliminate poorly performing service and reallocate to high performing services.
64	Revise to serve South Lake Union instead of Downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill.
65	Revise to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station
71	Shorten route to operate between Wedgwood and U. District only.	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station.
74	Revise to better serve western part of U. District and add trips.	Improve service to western part of U. District.
75	Increase frequency	Increase ridership and improve connections to Link at UW Station.
76	Add trips	Relieve overcrowding and provide faster service at edge of peak period.

Weekday Ridership Change by Corridor

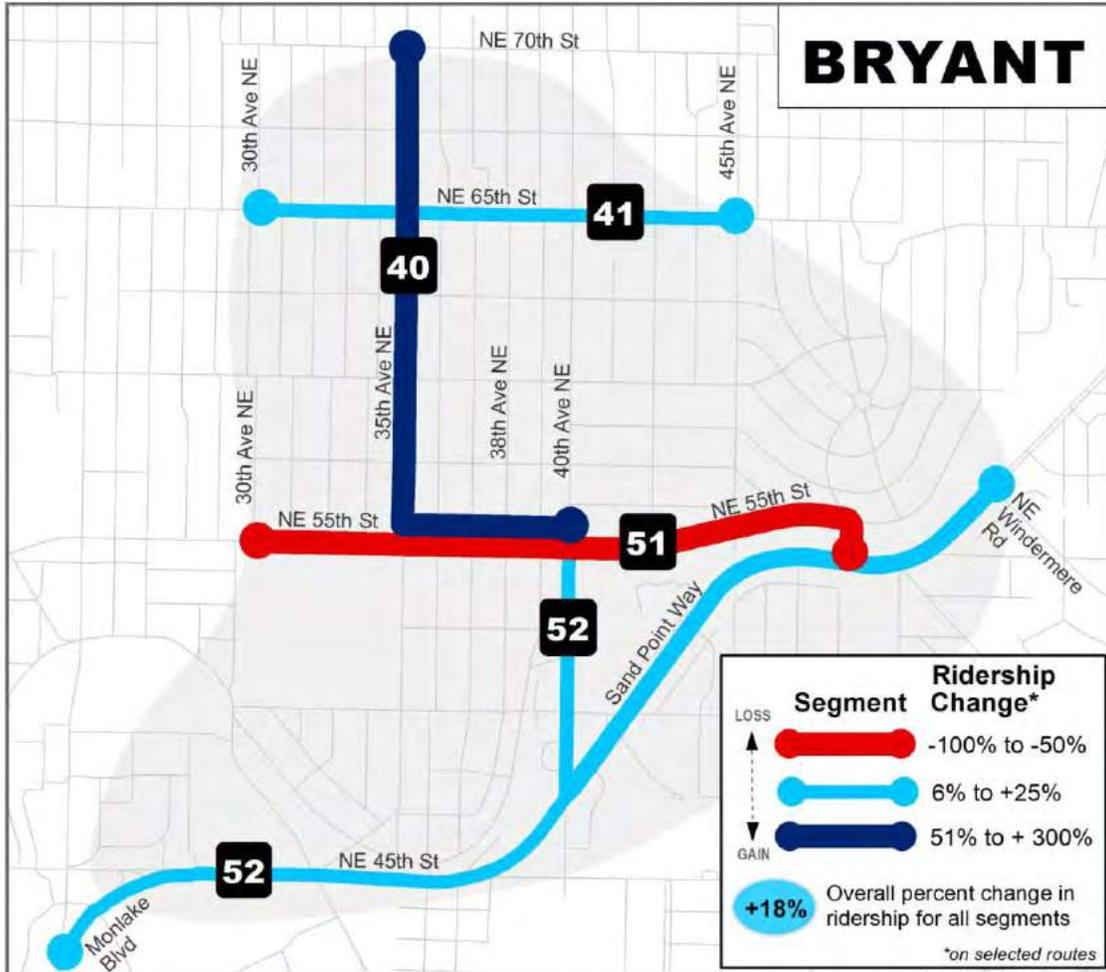
ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
40	35th Av NE	NE 70th St	NE 55th St/38th Av NE	65	87	357	65	152	622	265	74%
41	NE 65th St	45th Av NE	30th Av NE	64, 71, 76	110	740	62, 64, 71, 76	251	825	85	12%
51	NE 55th St	Sand Point Wy NE	30th Av NE	30, 74	46	288	74	22	120	-169	-58%
52	Sand Point Wy NE/NE 45th St	NE Windermere Rd	Montlake Blvd NE	25, 31, 32, 65, 75	292	3,255	31, 32, 65, 67, 75, 78	482	3,896	641	20%
						4,641			5,463	823	18%

Why ridership has changed

- Rider activity on the 35th Ave NE corridor in the Bryant neighborhood has increased 74 percent as riders have been attracted to the more frequent Route 65 service and the new connection to Link at UW Station.
- Rider activity along NE 65th St between 30th Ave NE and 45th Ave NE has increased 12 percent in response to new Route 62 and more Route 76 service. Riders heading to the U District appear to be choosing Route 65 instead of Route 71 in Bryant, as shown by the reduction in Route 71 weekday ridership from 456 to 215 even though service frequency on Route 71 is similar.
- Rider activity along NE 55th St has gone down 58 percent. About half of the loss is due to deletion of Route 30, while the other half of the loss appears to be Route 74 riders switching to other routes.

- Along Sand Point Way NE and NE 45th St, rider activity has increased 20 percent. We expect this is due in part to the very frequent all-day service connecting to the UW Station from this corridor.

Fig. 4



CAPITOL HILL

Tables 12a and 12b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station and replace Route 43 on E John St/E Thomas St.
10	Revise to serve E John St and Capitol Hill Station, improve frequency	Improve connections to Link at Capitol Hill Station, improve ridership and replace Route 43 on E John St and Bellevue Av E.
11	Improve frequency	Improve ridership and replace Route 10 service on E Pine St.
12	Improve frequency	Improve ridership.
43	Reduce route to peak only.	Reduce duplication with Link and other Metro bus routes.
47	Restore route deleted during service reductions.	Provide peak and midday service to West Capitol Hill.
49	Improve frequency	Increase ridership and improve connections to Link at Capitol Hill Station.

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
61	E John St	15th Av E	I-5	8, 43	311	7,276	8, 10, 43	387	6,656	-620	-9%
62	Bellevue Av E	Bellevue Pl E	E Pike St	43	146	381	10, 43, 47	263	942	561	147%
63	Broadway	10 Av E/ E Galer St	E Pine St	9, 49, 60	302	6,653	9, 49, 60	367	5,357	-1,296	-19%
64	15th Av E	E Galer St	E John St	10	167	1,718	10	186	1,280	-438	-25%
65	E Pine St	15th Av E /E John St	Bellevue Av E	10, 11, 43, 49	481	8,052	11, 43, 49	327	5,261	-2,791	-35%
66	E Madison St	19th Av E	Broadway	12	149	1,609	12	170	1,612	3	0%
202	Capitol Hill Station			Link	0	0	Link	302	13,320	13,320	
				Bus + Link		25,689			34,428	8,740	34%
				Bus Only		25,689			21,108	-4,580	-18%

Why ridership has changed

- The E John St corridor has lost 9 percent of rider activity as many former users of Route 43 have switched to using Link for trips to downtown Seattle or the U District. The loss is not as severe as other corridors, however, as some people are now transferring between Link and bus service on the E John St corridor.
- The Bellevue Ave E corridor has seen a 147 percent increase in activity after the restoration of Route 47. This change was made before the Link restructure through investment by the City of Seattle.

- Ridership on Broadway has gone down almost 20 percent as many riders have switched to Link for trips to and from downtown Seattle, or to the Seattle Streetcar for trips to First Hill and the International District (note the data above does not include Streetcar activity). The switch to the Streetcar is indicated by the fact that Routes 9 and 60 have lost 600 ons and offs between spring 2015 and spring 2016.
- 15th Ave E has experienced a 25 percent decline in rider activity due to the rerouting of Route 10 and the attractiveness of Link for fast trips between Capitol Hill and downtown Seattle.
- E Pine St has also experienced a significant loss of activity (35 percent) as a result of riders switching to the faster Link service.
- E Madison St between Broadway and 19th Ave E continues to be served by Route 12 and has virtually the same number of riders. Additional riders attracted to increased service frequency (at night) have offset any loss in riders who may have switched to Link.

Fig. 5



CENTRAL DISTRICT

Tables 13a and 13b

Changes in Service between March 2015 and March 2016

Route	Change	Reasons for change
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station and replace Route 43 on E John St/E Thomas St.
48	Shorten route to operate between U. District and Mount Baker Transit Center only, improve frequency.	Improve reliability, replace Route 43 service along 23rd/24th Ave East.

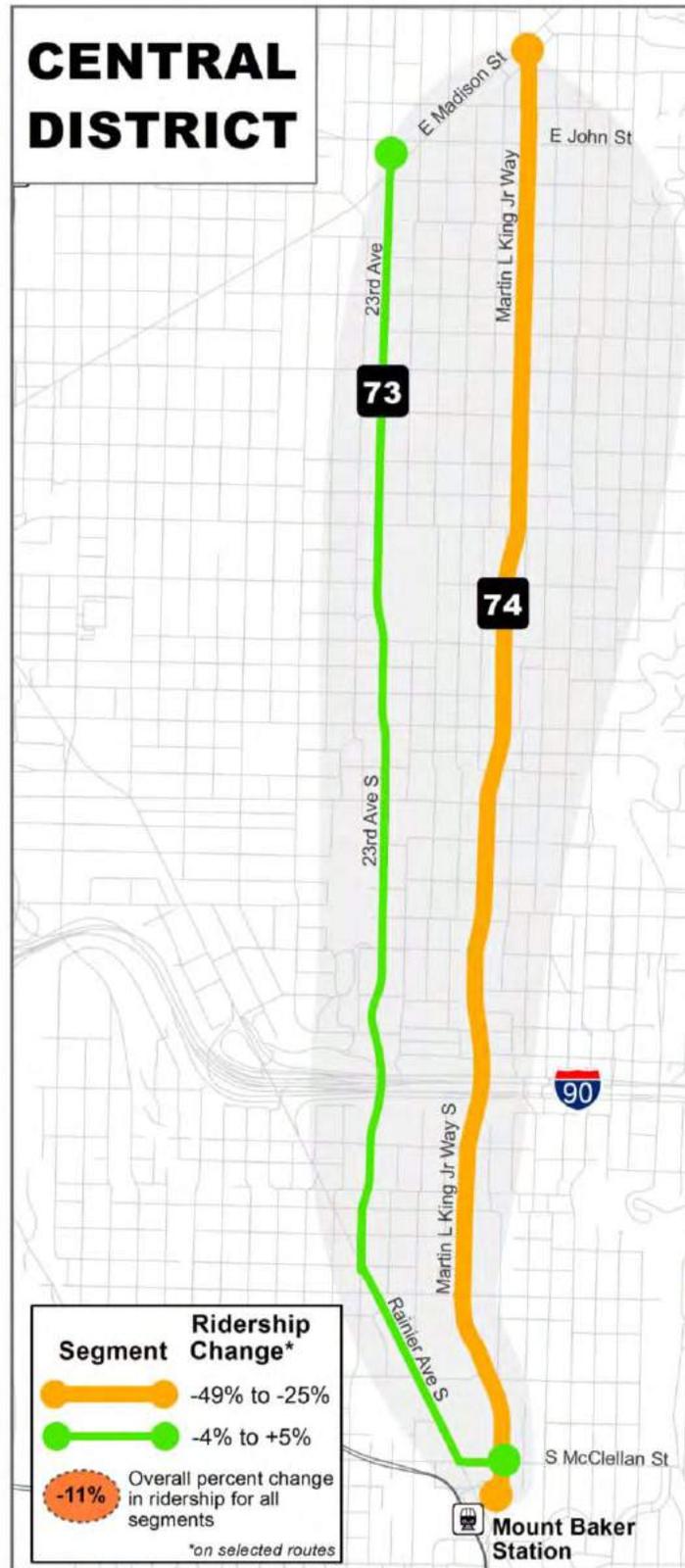
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
73	23rd Av E	E John St	Mt Baker TC	48	164	5,798	48	189	5,672	-127	-2%
74	MLK Jr Wy	E Madison St	Mt Baker TC	8	133	3,639	8	163	2,712	-927	-25%
						9,437			8,383	-1,054	-11%

Why ridership has changed

- Route 48 has been impacted by construction along 23rd Ave E, resulting in less ridership in the segment as delays and reroutes have impacted customers and the route has been diverted away from the 23rd Ave E corridor onto Martin Luther King, Jr Way S. As construction concludes on 23rd Ave E, ridership should end up being higher than before because of the increase in service frequency and reliability.
- Route 8 also has been impacted by construction along 23rd Ave E as the route was unable to serve the 23rd Ave E/S Jackson St business district. In addition, the shortening of the route to no longer travel south of Mount Baker Transit Center is likely to result in less activity as riders destined to locations south of the transit center switch to more frequent Route 48. As a result, even with the completion of construction and reinstatement of the 23rd Ave E deviation, segment ridership will likely be less than before.
- These segments include the activity at Mount Baker Transit Center. Since Link now provides a connection between the transit center and Capitol Hill and the U District, it appears that some riders are now using Link instead of Routes 8 and 48 to reach these destinations.

Fig. 6



CROWN HILL

Tables 14a and 14b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
15	Added trips	Relieve overcrowding and improve ridership
18	Added trips	Relieve overcrowding and improve ridership
40	Improve frequency	Increase ridership
45	New route, replacing north part of Route 48 (U District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station
D	Separated from C Line, extended to Pioneer Square, improve frequency	Improve reliability, increase ridership and serve more of downtown Seattle

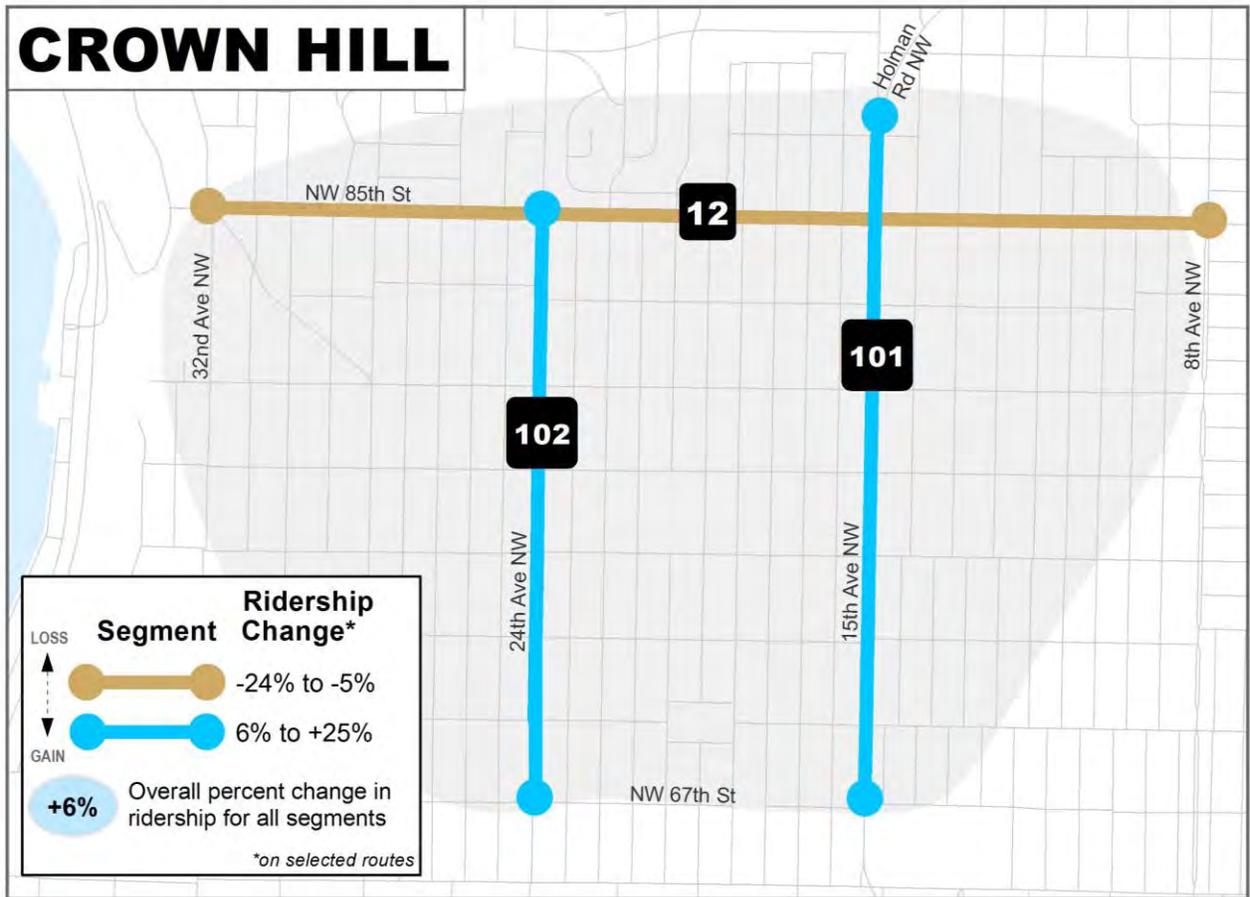
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
12	NW 85th St	8th Av NW	32nd Av NW	48	156	1,697	45	176	1,575	-123	-7%
101	15th Av NW/Holman Rd NW	Carkeek Park	NW 67th St	15, 40, D	330	4,887	15, 40, D	414	5,393	505	10%
102	24th Av NW	NW 85th St	NW 67th St	18, 40	140	1,147	18, 40	182	1,251	104	9%
						7,732			8,218	487	6%

Why ridership has changed

- Ridership along NW 85th St went down about 7 percent. This is counterintuitive given that service increased and is operating more reliably after the splitting of Route 48. This is a result that we did not expect, and one that we will continue to track closely in future service changes.
- Ridership in the 15th Ave NW/Holman Rd NW corridor increased by 10 percent as a result of D Line and Route 40 service increases and more trips for Route 15.
- Ridership along 24th Ave NW also increased by 9 percent as the development continued and Routes 18 and 40 received additional service between 2015 and 2016.

Fig. 7



DOWNTOWN SEATTLE (selected routes only)

Tables 15a and 15b

Change in Service between March 2015 and March 2016

(Only routes with routing changes in downtown Seattle shown)

Route	Change	Reasons for change
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill.
76	Add trips	Relieve overcrowding and provide faster service at edge of peak period.
77	Add trips	Relieve overcrowding and provide faster service at edge of peak period.
316	Add trips	Relieve overcrowding and improve ridership
D	Separated from C Line, extended to Pioneer Square, improve frequency	Improve reliability, increase ridership and serve more of downtown Seattle.

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
76	Downtown - Aurora/Dexter	Denny Wy	Royal Brougham Wy	5, 16, 26, 28, E	582	24,408	5, 26, 28, 62, E	717	25,477	1,069	4%
77	Downtown - Fairview/ Eastlake	Denny Wy	S Jackson St	25, 66, 70, 309	224	5,876	63, 64, 70, 309	228	6,140	264	4%
78	Downtown -- I-5 expresses	I-5	S Jackson St	64, 76, 77, 316	61	3,761	76, 77, 316	65	3,217	-544	-14%
79	Downtown - 10, 11, 43, 47, 49	I-5	2nd Ave	10, 11, 43, 49	554	14,278	10, 11, 43, 47, 49	581	11,316	-2,962	-21%
108	Downtown - 15, 18, 40, C, D	Denny Wy	S Jackson St	15, 18, 40, 55, C, D	553	21,956	15, 18, 40, 55, C, D	684	28,505	6,549	30%
						70,279			74,656	4,376	6%

Why ridership has changed

- The routes from the Aurora/Dexter corridor coming into downtown Seattle experienced a 4 percent increase in weekday ridership, largely as a result of the increase in service provided by Route 62 and continued development in South Lake Union and elsewhere.
- Downtown service provided by routes coming from the Fairview/Eastlake corridors saw a 4 percent increase in ridership within downtown Seattle. The deletion of Routes 25 and 66 were offset by more service on Route 70.
- The I-5 Express services from northeast Seattle coming into downtown Seattle experienced a 14 percent decline in ridership. Some former riders of these routes likely switched to buses and Link to reach downtown Seattle. Also, Route 64 was reoriented to South Lake Union away from the heart of downtown.

- The Capitol Hill routes coming downtown lost 21 percent of their weekday ridership as riders switched to Link.
- The Ballard routes experienced a 30 percent increase in rider activity; however, this is largely due to the D Line being split from the C Line, which was unrelated to the Link service changes. The D Line alone accounts for an increase of about 5,900 weekday ons and offs.

EAST CAPITOL HILL

Tables 16a and 16b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station
11	Improve frequency	Improve ridership and replace Route 10 service on E Pine St
12	Improve frequency	Improve ridership
43	Reduce route to peak only	Reduce duplication with Link and other Metro bus routes
48	Shorten route to operate between U District and Mount Baker Transit Center only	Improve reliability, replace Route 43 service along 23rd/24th Ave E

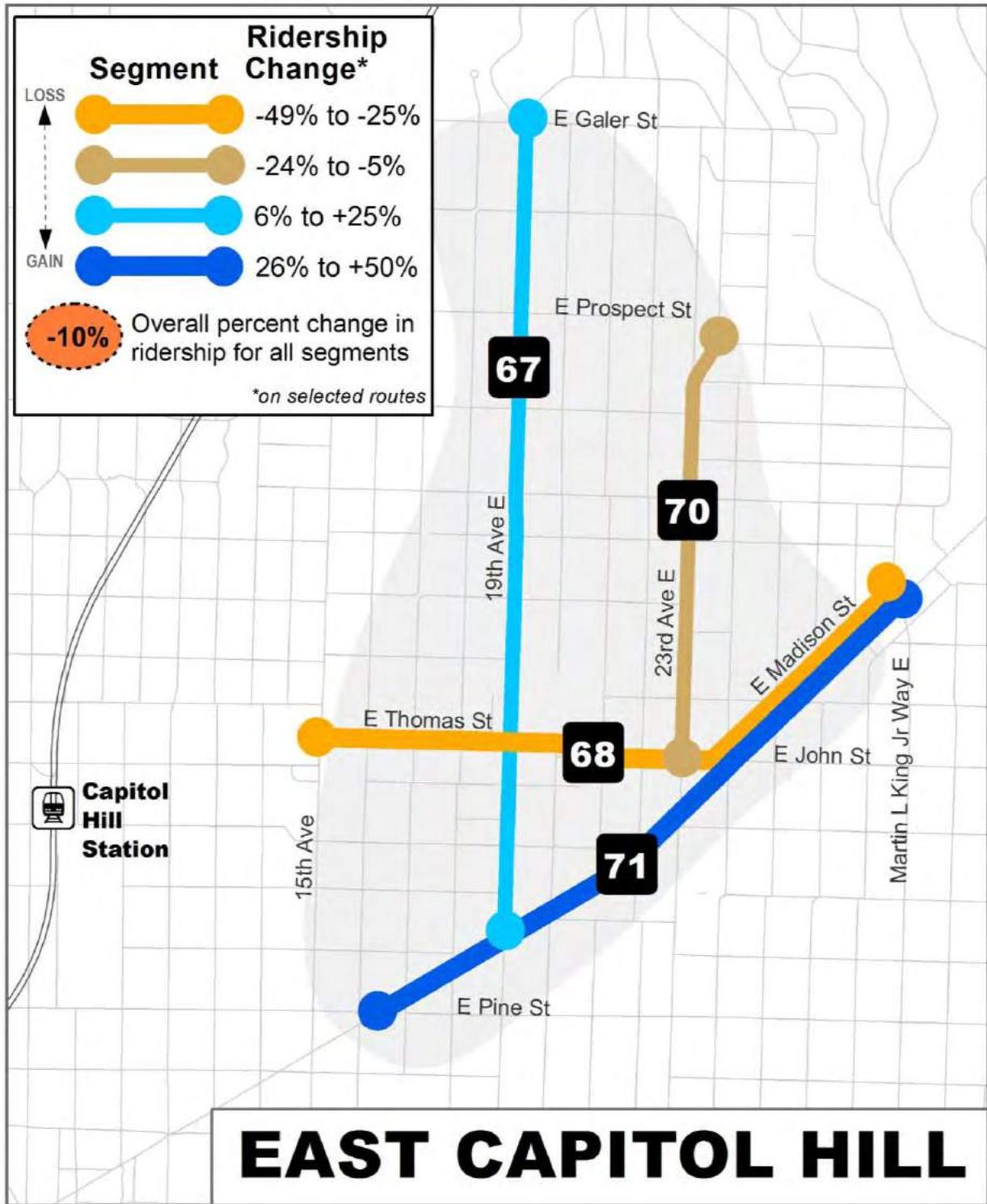
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
67	19th Av E	E Galer St	E Madison St	12	146	1,075	12	167	1,212	137	13%
68	E Thomas St	E Madison/ MLK Jr Wy	15th Av E	8, 43	311	2,919	8, 43	208	1,750	-1,169	-40%
70	23rd Av E	E Prospect St	E John St	43, 48	340	1,808	43, 48	234	1,578	-230	-13%
71	E Madison St	MLK Jr Wy	E Pine St	11	104	1,457	11	136	2,004	547	38%
						7,258			6,543	-715	-10%

Why ridership has changed

- Ridership in the 19th Ave E corridor increased by 13 percent. Some former Route 43 riders may have switched to using Route 12 to reach downtown Seattle. The increase in night frequency on Route 12 may also be partially responsible for the increased ridership.
- The E Thomas St corridor experienced a 40 percent decline in ridership due to reductions to Route 43. Route 8 gained about 100 ons and offs in the corridor, but many more riders have chosen to either walk to Link or take other routes such as routes 11 or 12.
- The 23rd Ave E corridor ridership declined by 13 percent as some former Route 43 riders are now walking to 19th Ave E (Route 12) or E Madison St (Route 11).
- Route 11 on E Madison St has likely taken on many former Route 43 riders, as ridership increased 38 percent. The increase in service frequency of Route 11 to every 15 minutes during the midday helped provide the room needed to accommodate the added riders.

Fig. 9



EASTLAKE

Tables 17a and 17b45

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
66	Discontinue route and replace with routes 63 and 67	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
70	Increase frequency and operate at night and on Sundays. (Replaced routes 71, 72 and 73)	Simplify network and improve ridership

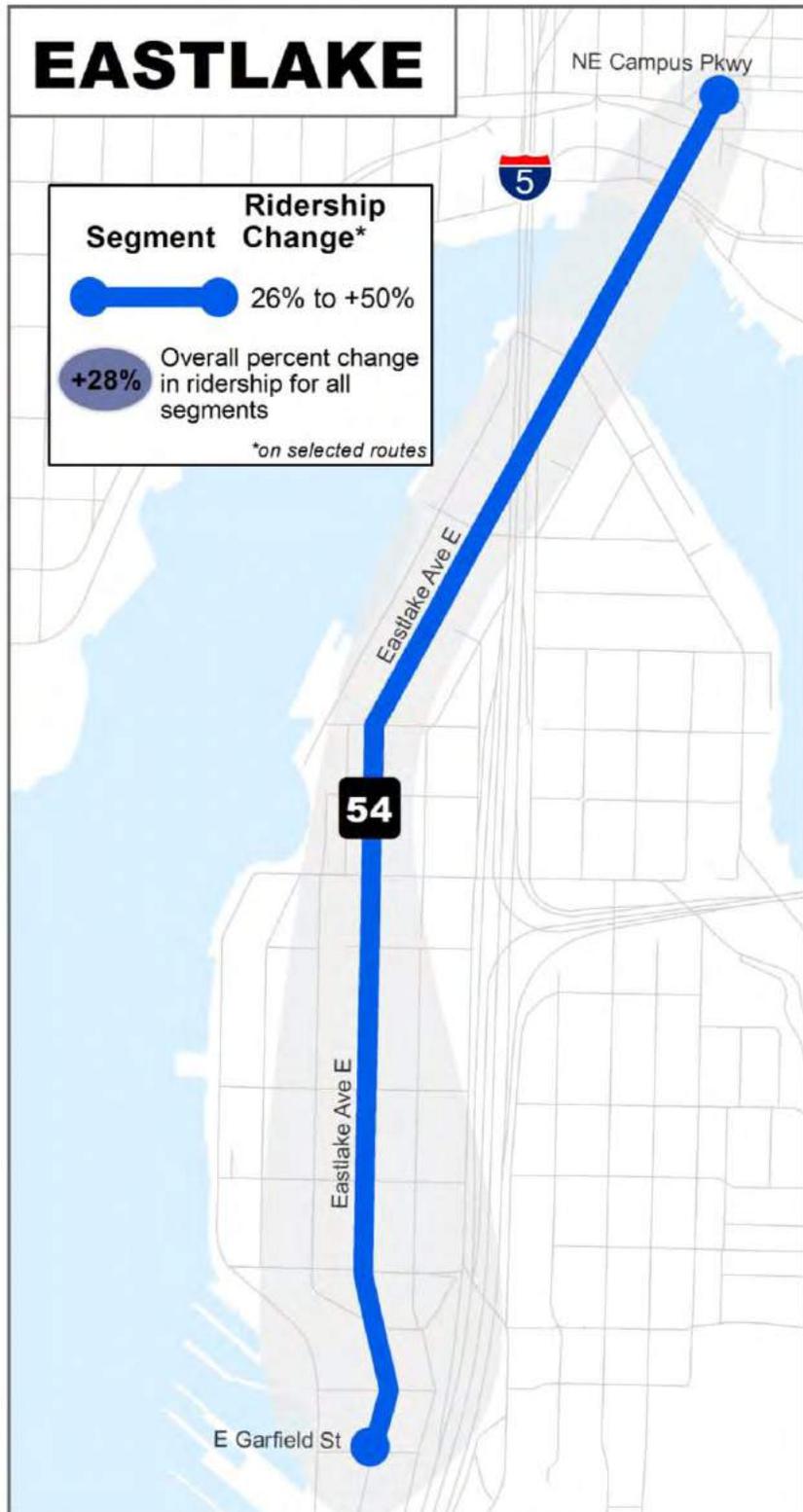
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
54	Eastlake Av E	NE Campus Pkwy	E Garfield St	66, 70, 71, 72, 73	258	3,086	70	189	3,953	867	28%

Why ridership has changed

- Ridership along Eastlake Ave E increased by 28 percent, in part because significant development occurred at the south part of the corridor. Some of the increased ridership has been accommodated by Route 70, which now has articulated (60-foot) buses instead of the 40-foot buses that previously served the route. However, overcrowding on Route 70 has continued to occur. In response, trips were added during the summer of 2016, and more are planned for 2017. Those trips are not included in this analysis.

Fig. 10



FIRST HILL

Tables 18a and 18b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
63	New peak-only route connecting Maple Leaf, Green Lake, South Lake Union and First Hill	Provide new fast commuter service from north Seattle to South Lake Union and First Hill.
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from north Seattle to South Lake Union and First Hill.
309	Revised pathway on First Hill in afternoon	Improve reliability by avoiding Boren Ave around I-5 on-ramps

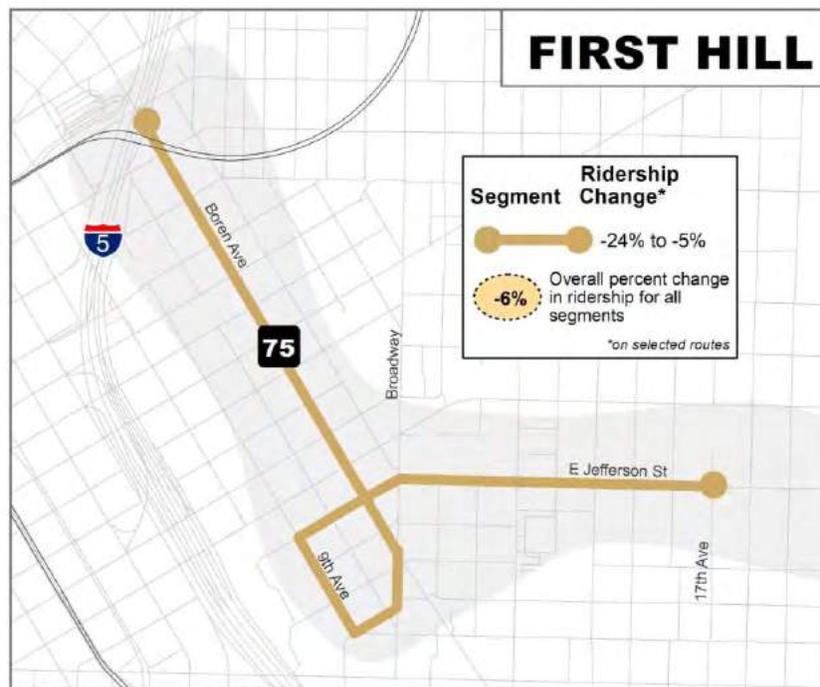
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
75	First Hill Commuter	I-5	E Jefferson St/ 17th Av E	64, 309	23	420	63, 64, 309	39	395	-24	-6%

Why ridership has changed

- Even with the large increase in service provided by new Route 63, ridership declined on the commuter routes from northeast Seattle. The likely reason is Link providing a very fast connection from the UW Station to Capitol Hill Station, and the new First Hill Streetcar (and other Metro routes) providing frequent connections from Capitol Hill Station to First Hill destinations. As more riders discover Route 63, ridership is likely to increase, but Metro will closely track the performance of this route as Link is extended further north.

Fig. 10



FREMONT

Tables 19a and 19b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
16	Discontinue route and replace with Routes 26 and 62	Provide new connections on new Route 62, increase frequency on most productive segments
26/26X	Combine Local and Express Routes, extend route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center
28/28X	Combine Local and Express Routes, use new pathway via North Fremont (N 39th St)	Improve off-peak speed to downtown Seattle, simplify route structure
31/32	Revise to serve Wallingford Av N and N 35th St	Replaces Route 26 Local service in lower Wallingford
40	Improve frequency	Increase ridership
62	New frequent all-day route connecting northeast Seattle, Green Lake, Wallingford, Fremont, South Lake Union and downtown Seattle	Improve east-west service in North Seattle, provide new connections, improve ridership

Weekday Ridership Change by Corridor

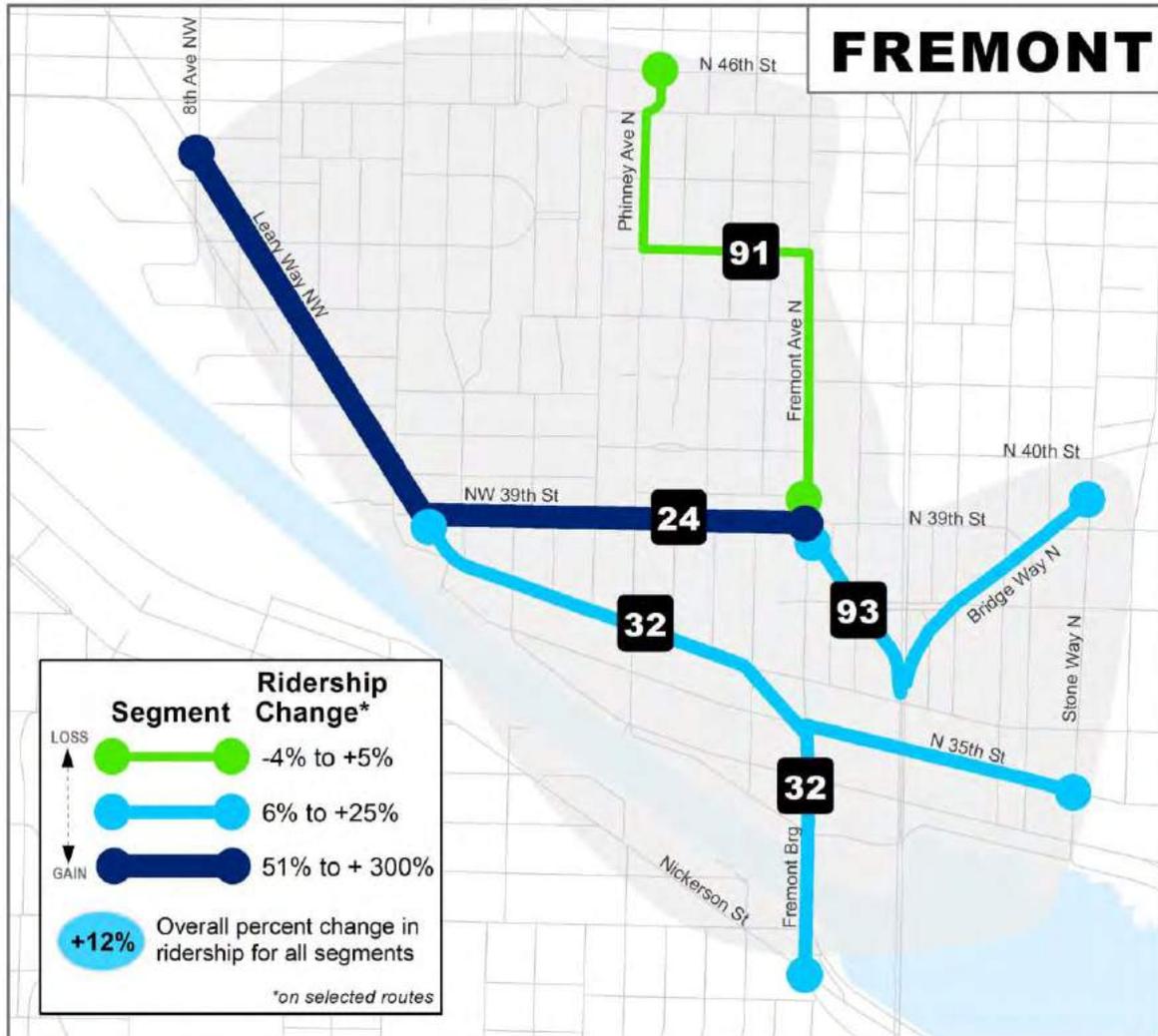
ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
24	N 39th St	Leary Wy NW/ 8th Av NW	Fremont Av N	28, 40	209	649	28, 40	264	1,016	367	57%
32	Fremont Av N	Leary Wy/ N 39th St	W Nickerson St	26, 28, 31, 32, 40	432	4,740	31, 32, 40, 62	471	5,188	447	9%
91	Fremont Av N	Phinney Av N/ N 46th St	Fremont Av N/ N 39th St	5	148	1,846	5	170	1,933	87	5%
93	Bridge Wy/ N 38th St	N 40th St	Aurora Bridge	5, 16, 26, 28	252	985	5, 26, 28	329	1,050	65	7%
						8,220			9,186	967	12%

Why ridership has changed

- Ridership increased 57 percent along N 39th St/Leary Way NW due to several factors. First, Route 28 was revised to serve N 39th St between Leary Way NW and Fremont Ave N, providing a fast connection for riders in “upper Fremont” into downtown Seattle. Second, increased service on Route 40 helped boost ridership along Leary Way NW.
- Ridership in the heart of Fremont increased by 9 percent or almost 450 daily ons and offs. New Route 62 provides new connections to Wallingford and the NE 65th St corridor in northeast Seattle. Ridership increased in all time periods on weekdays.
- Route 5 on the upper portion of Fremont Ave N saw a modest 5 percent increase in ridership as riders continue to make use of its frequent service.

- The increase in service provided from the Bridge Way/N 38th St stops into downtown Seattle resulted in 7 percent growth in weekday ridership. Continued development east of Aurora Ave N is likely to result in further ridership growth for these stops.

Fig. 11



GREEN LAKE

Table 20a and 20b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
16	Discontinue route and replace with Routes 26 and 62	Provide new connections on new Route 62, increase frequency on most productive segments
26/26X	Combine Local and Express Routes, extend route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center
45	New route, replacing north part of Route 48 (U. District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station
62	New frequent all-day route connecting Northeast Seattle, Green Lake, Wallingford, Fremont, South Lake Union and downtown Seattle	Improve east-west service in North Seattle, provide new connections, improve ridership
63	New peak-only route connecting Maple Leaf, Green Lake, South Lake Union and First Hill	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
316	Add trips	Relieve overcrowding and improve ridership
542	Add midday service between Redmond and U District.	Improve ridership and improve connections to Link at UW Station

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
14	Green Lake Dr	Aurora Av N	Green Lake P&R	48	156	2,386	45	176	2,268	-118	-5%
15	Wallingford Av N	N 92nd St	Woodlawn/Ravenna	16, 316	119	1,255	26, 316	101	976	-279	-22%
17	5th Av NE	NE 80th St	Green Lake P&R	242, 542	66	487	63, 542	69	500	13	3%
29	Latona Av N	Woodlawn/Ravenna	N 45th St	26	97	822	26	85	630	-192	-23%
80	Woodlawn Av N	Woodlawn/Ravenna	N 50th St	16	105	758	62	157	1,137	380	50%
						5,708			5,512	-196	-3%

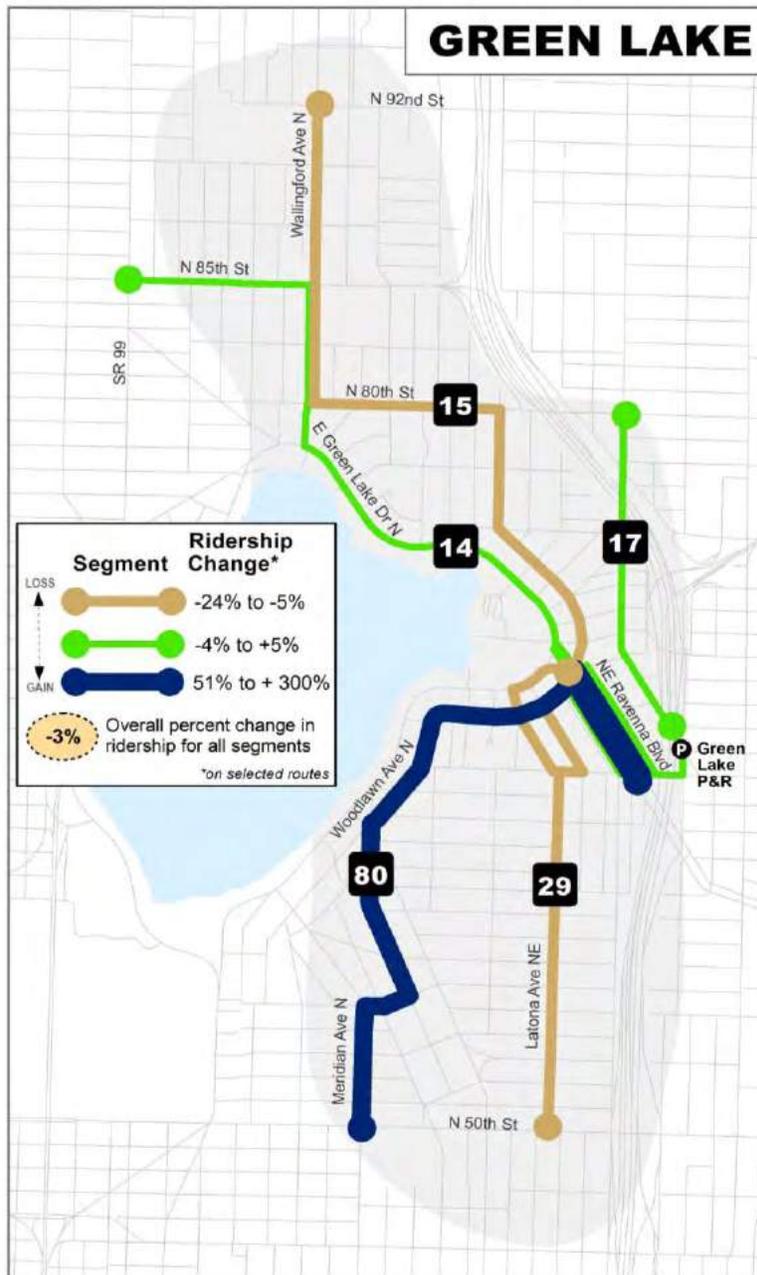
Why ridership has changed

- Ridership along N 85th/Wallingford Ave N/Green Lake Dr dropped by 5 percent, even with more frequent and more reliable Route 45 service compared to Route 48. Given the major development occurring around Green Lake, this ridership drop was surprising. Some riders may have switched to new Route 62, as it provides new connections to northeast Seattle.
- The replacement of Route 16 with less frequent Route 26 along Wallingford Ave N/First Ave N resulted in a 22 percent decline in ridership. At the south end of the corridor, some riders may have switched to Route 62.
- Peak-period service along Fifth Ave NE, including the stops at Green Lake Park-and-Ride, saw a modest increase in ridership. About two-thirds of the Route 242 rides lost were offset by more Route 542 rides, while the rest of the loss was replaced by new Route 63 activity. As Route 63 provides a new connection from the rapidly developing Green Lake neighborhood to the rapidly

growing employment area of South Lake Union, we expect further growth in Route 63 activity in the Green Lake neighborhood.

- Latona Ave N ridership dropped by 23 percent even with the faster speeds provided by all-day express service on revised Route 26 Express. Some riders likely switched to new Route 62, which is more frequent and connects to more destinations than Route 26.
- New Route 62 is attracting 50 percent more daily ons and offs between Woodlawn Ave N/ N Ravenna Blvd and Meridian Ave N/ N 50th St than former Route 16. This is likely because Route 62 provides more frequent service and new connections.

Fig. 12



GREENWOOD

Tables 21a and 21b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
5	Added express trips, improve frequency	Relieve overcrowding and improve ridership
45	New route, replacing north part of Route 48 (U District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station
E	Improve frequency and add peak trips	Relieve overcrowding and improve ridership

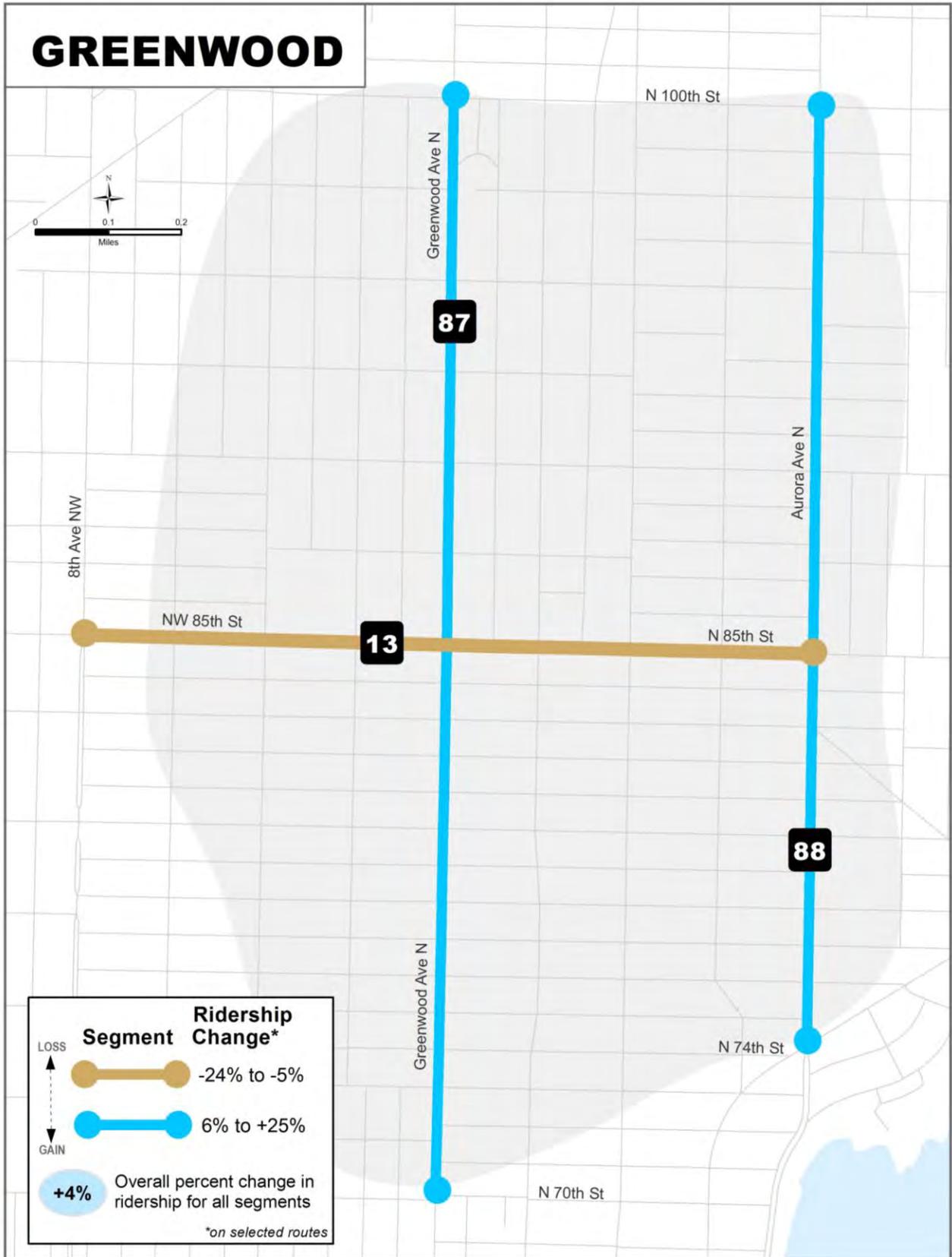
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
13	NW 85th St	Aurora Av N	8th Av NW	48	156	2,522	45	176	2,258	-264	-10%
87	Greenwood Av N	N 100th St	N 70th St	5	148	2,845	5	170	3,064	219	8%
88	Aurora Av N	N 100th St	N 74th St	E	206	4,614	E	223	5,103	489	11%
						9,981			10,425	444	4%

Why ridership has changed

- Similar to observations on other portions of Route 45, rider activity is down about 10 percent compared to previous Route 48, despite the fact that service is now more frequent and reliable (because Route 45 is not getting caught up in Montlake traffic).
- Ridership on the Greenwood Ave N corridor increased by 8 percent as a result of more express trips and more frequent evening service. The fact that Route 5 serves the South Lake Union growth center may also partially explain the ridership increase.
- Though not directly impacted by the Link restructure, the E Line on Aurora Ave N continues to have strong ridership growth, with an 11 percent increase in riders in the Greenwood area. More peak trips and more frequent midday service helped to add capacity to this crowded route.

Fig. 14



INTERBAY

Tables 22a and 22b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for Change
31/32	Revise to serve Wallingford Av N and N 35th St	Replaces Route 26 Local service in lower Wallingford
D	Separated from C Line, extended to Pioneer Square, improve frequency	Improve reliability, increase ridership and serve more of downtown Seattle

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
105	15th Av W/ Elliott Av W	Ballard Bridge	W Mercer Pl	32, D	275	3,582	32, D	320	3,926	344	10%

Why ridership has changed

Ridership in the 15th Ave W/Elliott Ave W corridor increased by 10 percent as a result of more service on the D Line. The additional D Line service may also have led some riders to switch from Route 32 to the D Line along the common portion of the routes between Uptown and Interbay. With Expedia coming to the corridor, ridership is expected to increase.

Fig. 15



JACKSON PARK

Tables 23a and b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from north Seattle to South Lake Union and First Hill.
65	Revise to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station
73	Shorten route to operate between Jackson Park and U District only, reduce span and eliminate service in one direction during each peak period	Reduce duplication with Link, improve efficiency, eliminate unreliable service and improve connections to Link at UW Station
77	Add trips	Relieve overcrowding and provide faster service at edge of peak period
373	Add trips	Improve connections to Link at UW Station, and mitigate peak period service reduction on Route 73.

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
94	15th Av NE	NE 150th St	NE 130th St	73, 77, 347, 348, 373	231	1,630	73, 77, 347, 348, 373	224	1,543	-88	-5%
95	NE 145th St	25th Av NE	15th Av NE	64, 65	101	318	64, 65	167	638	320	100%
						1,949			2,181	232	12%

Why ridership has changed

- The 15th Ave NE corridor continues to have frequent service. Ridership dropped 5 percent; this is likely due to a migration to Route 65 to reach the U District and a slight (3 percent) reduction in service.
- Ridership doubled on the NE 145th St corridor as Route 65 became a frequent (every 15 minutes) all-day route. In addition to the higher frequency, the travel time between UW Station and Jackson Park is less on Route 65 than on Route 73, so we expect some riders are choosing the faster and more frequent Route 65 over Route 73.

Fig. 16



LAKE CITY

Tables 24a and 24b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
41	Improve frequency	Increase ridership
64	Revise to serve South Lake Union instead of Downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill.
65	Revise to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station
72	Discontinue route and replace with Route 372	Reduce duplication with other Metro routes, eliminate unreliable service and concentrate resources on high frequency network.
75	Increase frequency	Increase ridership and improve connections to Link at UW Station.
312	#N/A	#N/A
372	Improve frequency and provide new night and weekend service.	Replace Route 72 between Lake City and U. District and improve connections to Link at UW Station.
522	New stop added in Maple Leaf	Improve ridership and provide fast connection to downtown Seattle from Maple Leaf

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
3	30th Ave NE	NE 145thSt /25th Av NE	NE 125thSt /35th Av NE	64, 65	101	953	64, 65	167	1,095	141	15%
6	Lake City Wy	NE 125thSt/ 35th Av NE	NE Northgate Wy	75	113	1,284	75	148	1,219	-65	-5%
7	Lake City Wy	NE 145th St	NE 105th St	72, 309, 312, 372, 522	297	5,321	309, 312, 372, 522	302	5,116	-205	-4%
9 6	NE 125th St	Lake City Wy NE/ NE 130th St	25th Av NE	41	129	1,807	41	146	1,894	88	5%
						9,364			9,324	-40	0%

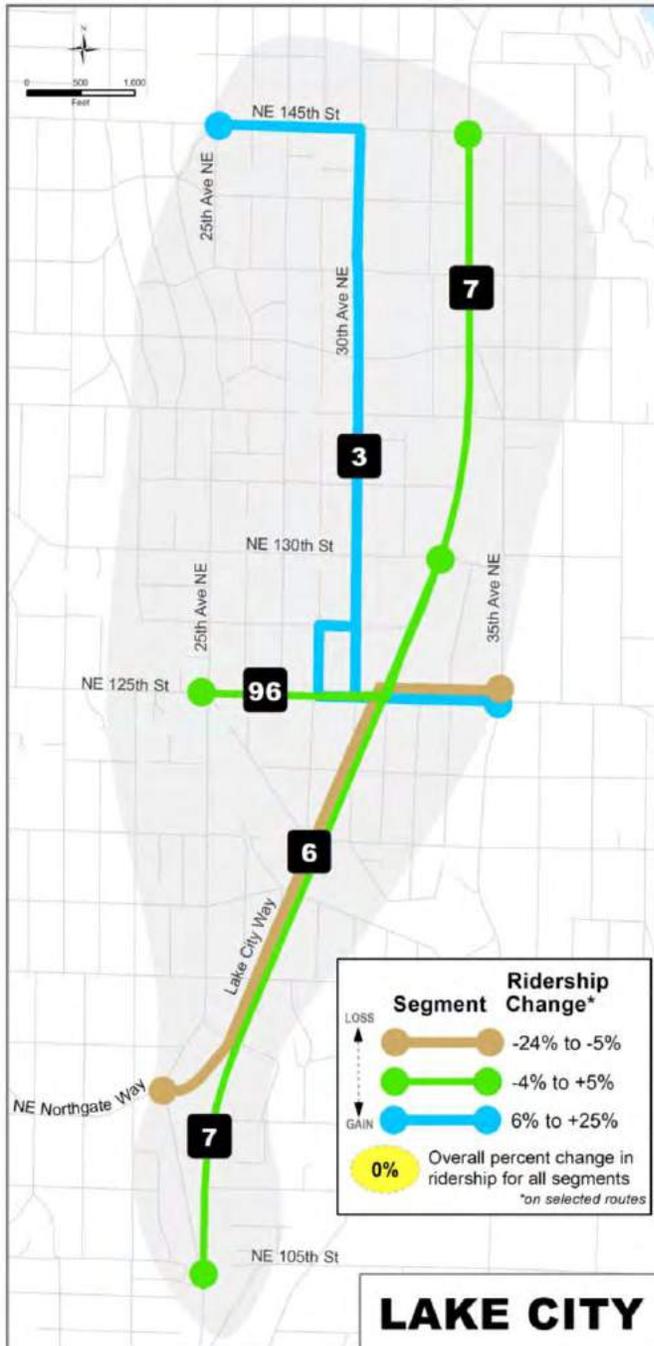
Why ridership has changed

- Ridership on routes 64 and 65 on the 30th Ave NE corridor through Lake City increased by 15 percent as riders were attracted to the increased frequency and the connections to Link.
- Route 75 ridership along Lake City Way dropped by 5 percent, even though its frequency improved to 15 minutes during midday. Frequency increases on Route 372 may have limited ridership growth on the 75, because some riders may have switched from the 75 to the 372.
- The routes serving Lake City Way NE heading toward the U District and downtown Seattle (Routes 72, 309, 312, 372 and 522) saw a small (4 percent) drop. The 770 former Route 72 rides in the corridor seem to have mostly switched to Route 372, given the increase of about 700 rides in the corridor. Routes 309, 312 and 522 lost over 100 riders even though service was increased on those routes. This reduction in riders on downtown Seattle-oriented routes may be due to

riders now using Route 372 to reach Link at UW Station for trips to Capitol Hill or other destinations.

- Route 41 ridership along NE 125th St rose by 5 percent. The increase in evening frequency is largely responsible for the ridership growth, as evening and night ridership grew by about 100 per weekday.

Fig. 17



LAURELHURST

Tables 25a and 25b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
25	Discontinue route and partially replace by Route 78	Eliminate poorly performing service and reallocate to high performing services.
78	New route replacing Route 25 in Laurelhurst	Improve connections to Link at UW Station.

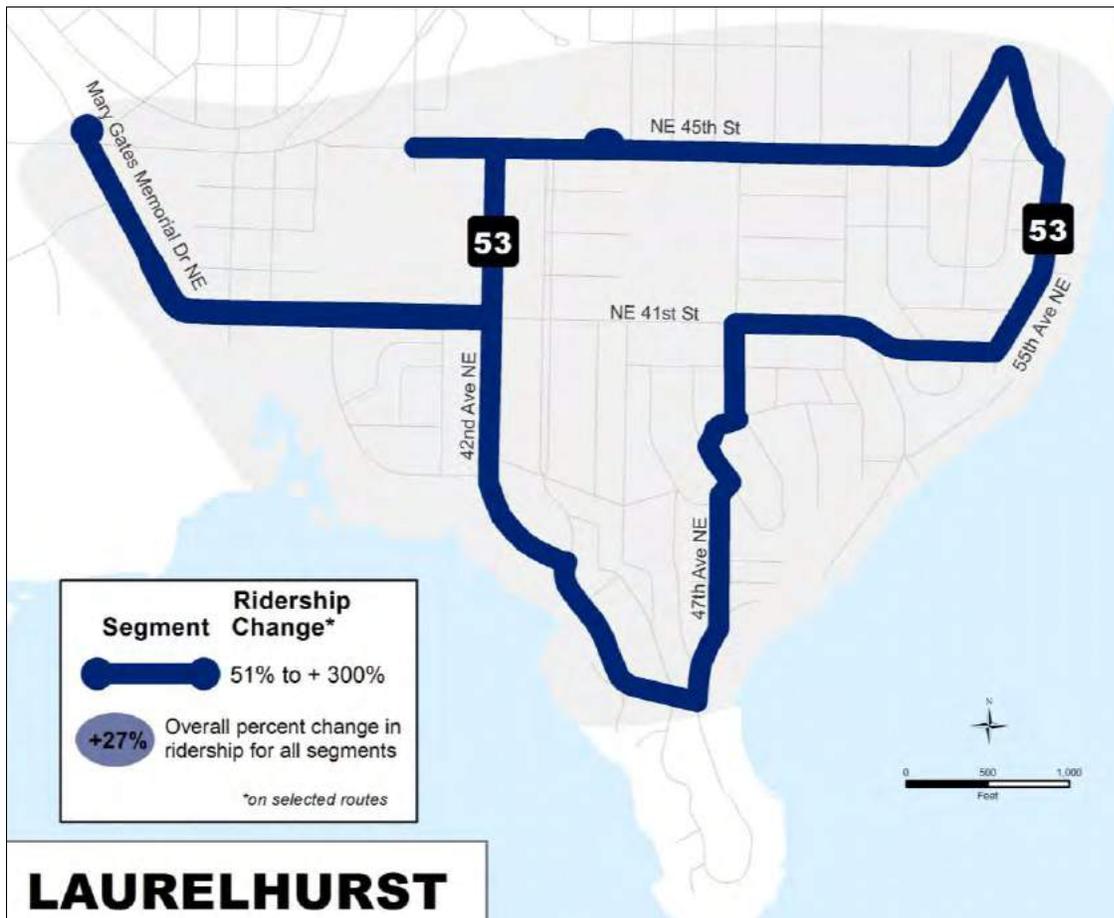
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
53	Laurelhurst	Lake Washington	NE 45th St	25	24	90	78	40	115	24	27%

Why ridership has changed

- The higher service levels on Route 78 versus Route 25 resulted in 27 percent more riders in Laurelhurst. This occurred even though Route 78 served many fewer stops in Laurelhurst than former Route 25, which “looped” through the neighborhood in one direction.

Fig. 18



MADISON PARK

Tables 26a and 26b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
11	Improve frequency	Improve ridership and replace Route 10 service on E Pine St.

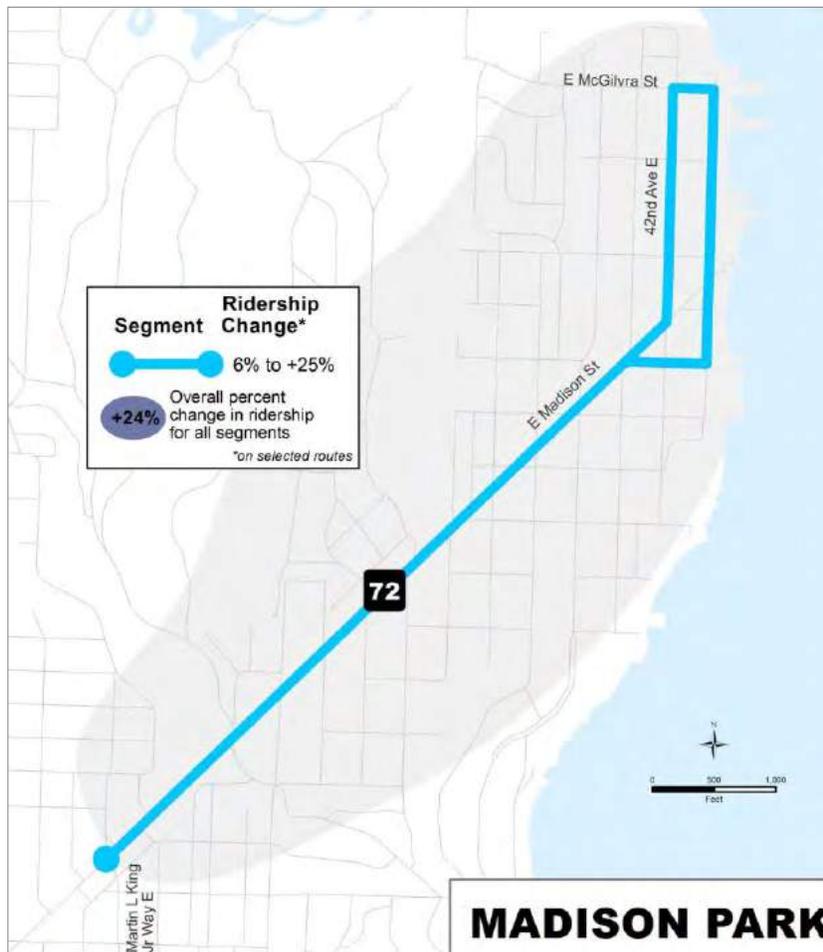
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
72	E Madison St	42nd Av E/ E McGilvra	MLK Jr Wy	11	104	927	11	136	1,150	222	24%

Why ridership has changed

- The midday frequency improvement (from 30 to 15 minutes) resulted in a 24 percent increase in boardings and alightings in the Madison Park neighborhood.

Fig. 19



MAPLE LEAF

Tables 27a and 27b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
66	Discontinue route and replace with Routes 63 and 67	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
67	Revise to better serve Maple Leaf and improve frequency	Replace Route 66 and 68 service, increase ridership and improve connections to Link at UW Station
68	Discontinue route and replace with Routes 67 and 372	Eliminate duplication and simplify network
72	Discontinue route and replace with Route 372	Reduce duplication with other Metro routes, eliminate unreliable service and concentrate resources on high frequency network
73	Shorten route to operate between Jackson Park and U District only, reduce span and eliminate service in one direction during each peak period	Reduce duplication with Link, improve efficiency, eliminate unreliable service and improve connections to Link at UW Station
77	Add trips	Relieve overcrowding and provide faster service at edge of peak period
242	Discontinue route	Eliminate duplication with Sound Transit Route 542 and reallocate resources from poorly performing service to new markets
312	#N/A	#N/A
372	Improve frequency and provide new night and weekend service	Replace Route 72 between Lake City and U. District and improve connections to Link at UW Station
373	Add trips	Improve connections to Link at UW Station, and mitigate peak period service reduction on Route 73

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
16	5th Av NE	Northgate TC	NE 80th St/ 10th Av NE	66, 67, 242	155	832	63	15	166	-665	-80%
18	Roosevelt Wy NE	Roosevelt Wy NE/ NE Northgate Wy	NE 75th St	66*, 67*, 68	201	385	67	154	1,053	668	174%
19	15th Av NE	NE Northgate Wy	NE 75th St	72*, 73, 77, 373	178	1,141	73, 77, 373	99	871	-271	-24%
20	Lake City Wy/ 25 Av NE	NE 105th St	NE 75th St	72, 309, 312, 372	197	1,043	309, 312, 372	199	1,131	88	8%
84	Lake City Wy NE/NE 85th St	Lake City Wy NE/ NE 85th St	Lake City Wy NE/NE 85th St	309, 312	46	331	309, 312, 522	156	728	397	120%
						3,731			3,948	217	6%

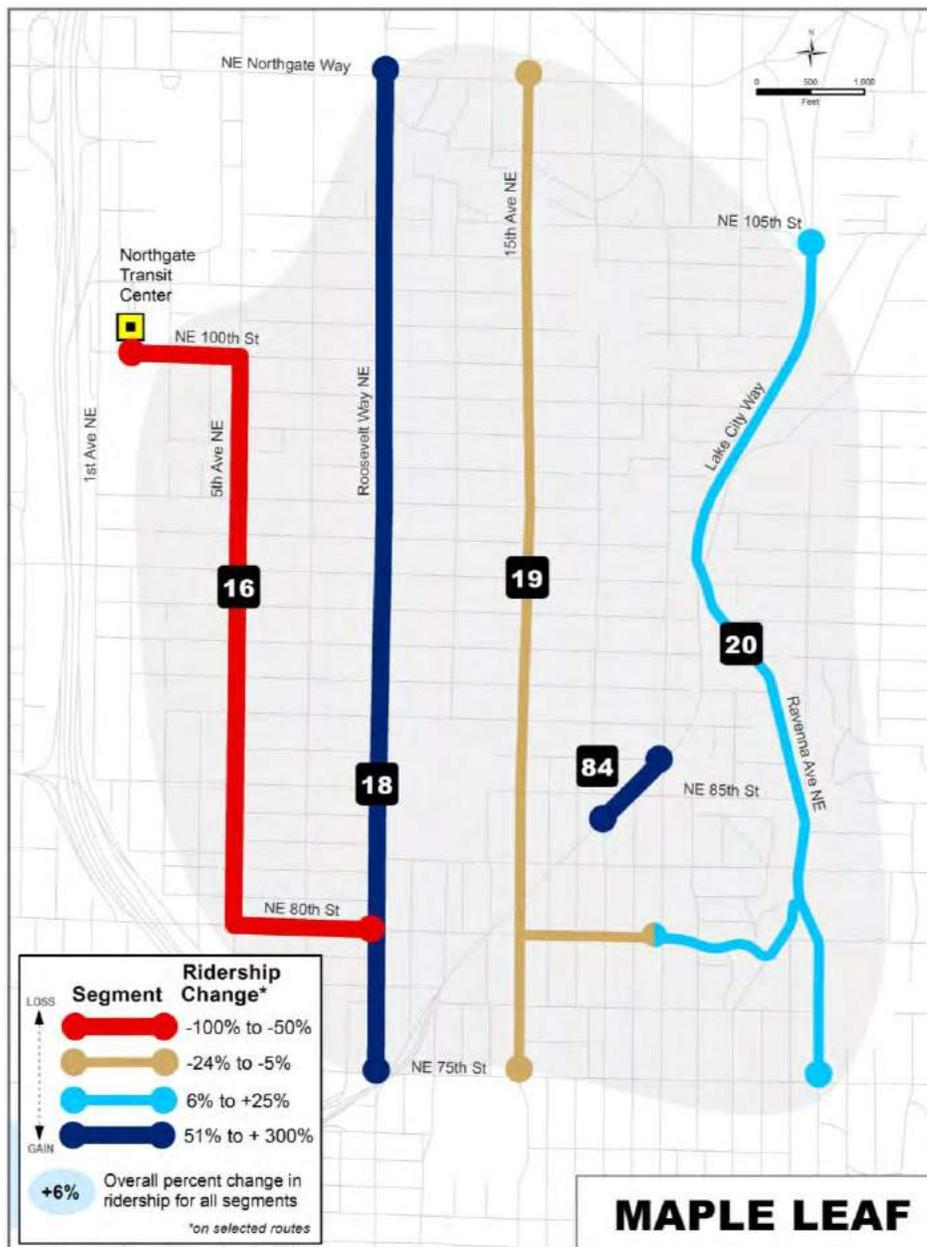
*Route serves only a small portion of corridor

Why ridership has changed

- Ridership on Fifth Ave NE fell by 80 percent due to a reduction in service, as all-day service was concentrated in the center of Maple Leaf on Roosevelt Way NE.

- Roosevelt Way NE experienced a 174 percent increase in ridership as riders who formerly boarded on Fifth Ave NE moved with the service over to Roosevelt Way NE.
- Ridership on 15th Ave NE fell 24 percent, largely as a result of Route 72 being discontinued and an overall reduction in service. Many riders who used to go to downtown Seattle during the off-peak may instead be using the new Route 522 stop at Lake City Way NE/NE 85th St.
- Ridership on the Lake City Way NE, Ravenna Ave NE and 25th Ave NE corridor increased 8 percent as many former Route 72 riders switched to upgraded Route 372.
- The new Route 522 stops at Lake City Way NE/NE 85th St caused a 120 percent increase in ridership. About half of the overall increase occurred during the off-peak period, when service was not previously provided. The other half of the increase is due to Route 522 service in the peak period.

Fig. 20



MATTHEWS BEACH

Tables 28a and 28b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
75	Increase frequency	Increase ridership and improve connections to Link at UW Station.

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
9	Sand Point Wy NE	NE 125th St	NE 80th St	75	113	574	75	148	615	40	7%

Why ridership has changed

- Ridership increased 7 percent along Sand Point Way NE in the Matthews Beach neighborhood. This is likely due to the increase in midday frequency (from 30 minutes to 15 minutes) and the new connections to Link at UW Station. Ridership was affected by a time-consuming construction detour along Sand Point Way NE in April 2016. Now that the detour has ended, we expect to see ridership increase further.

Fig. 21



MEADOWBROOK

Tables 29 a and 29b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
64	Revise to serve South Lake Union instead of Downtown Seattle	Provide new fast commuter service from north Seattle to South Lake Union and First Hill
65	Revise to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station

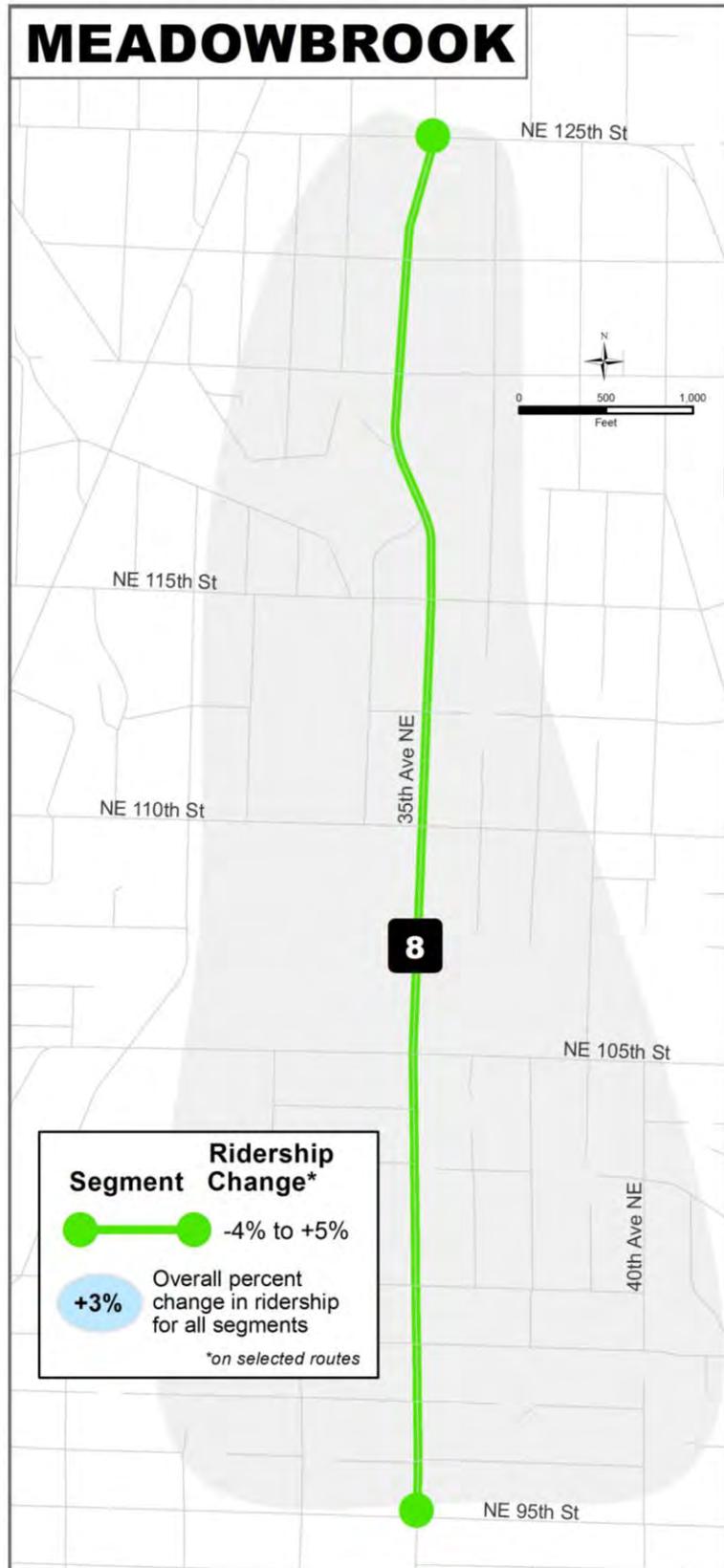
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+Offs	Routes	Bus Trips	Ons+Offs	Number	Percentage
8	35th Ave NE	NE 125th St	NW 95th St	64, 65	101	729	64, 65	167	753	24	3%

Why ridership has changed

- Ridership along 35th Ave NE in Meadowbrook increased by a modest 3 percent. Route 65 experienced an increase of about 60 rides per day, while Route 64 lost about 40 rides per day. The higher frequency and connections to Link led to increased ridership on Route 65, while the routing change to serve South Lake Union (instead of the heart of downtown Seattle) is likely the main reason for the loss in Route 64 rides. As South Lake Union employees discover the new connections provided by Route 64, ridership is likely to increase.

Fig. 22



MONTLAKE

Tables 30a and 30b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
25	Discontinue route and partially replace by Route 78	Eliminate poorly performing service and reallocate to high performing services
43	Reduce route to peak only	Reduce duplication with Link and other Metro bus routes
48	Shorten route to operate between U District and Mount Baker Transit Center only, improve frequency	Improve reliability, replace Route 43 service along 23rd/24th Ave E
242	Discontinue route	Eliminate duplication with Sound Transit Route 542 and reallocate resources from poorly performing service to new markets
541	New route connecting Overlake and U District	Improve ridership and improve connections to Link at UW Station
542	Add midday service between Redmond and U District.	Improve ridership and improve connections to Link at UW Station

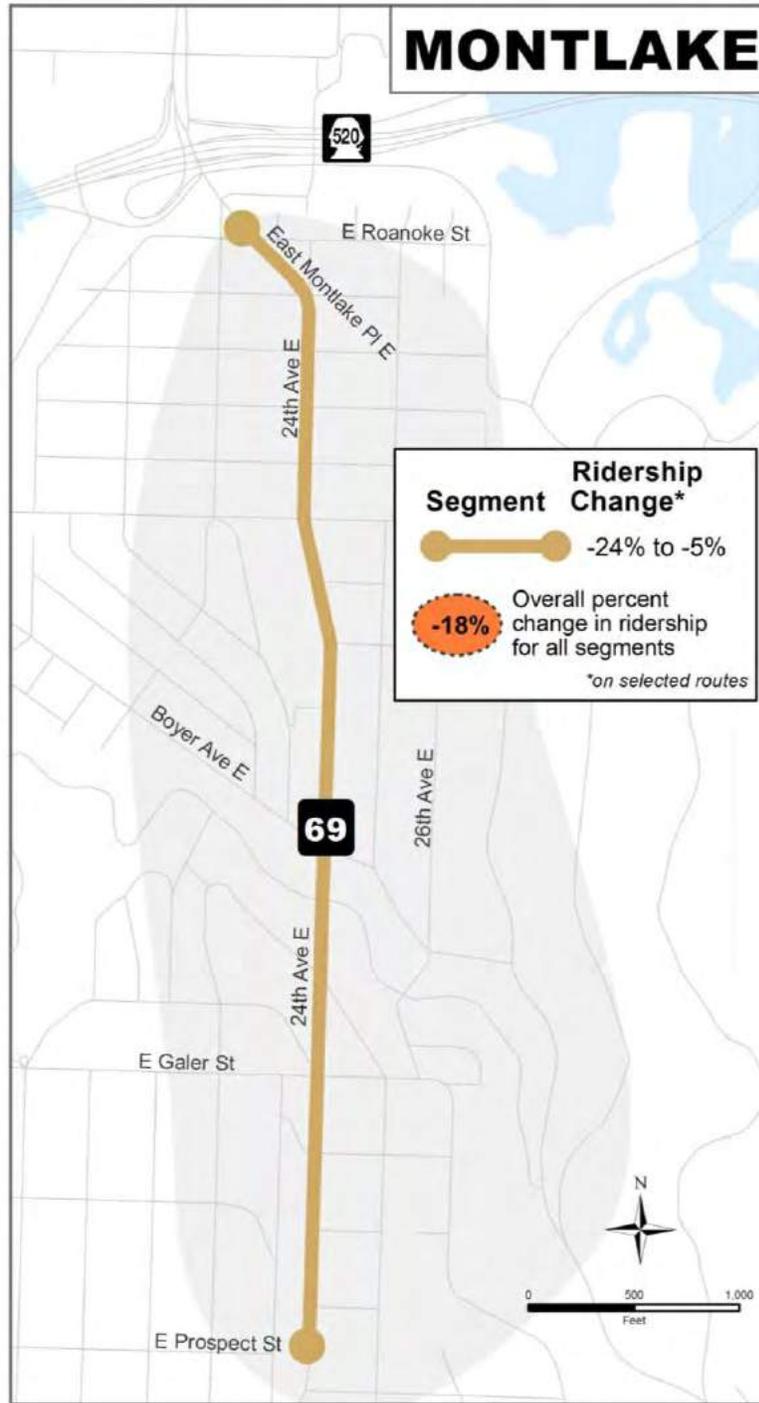
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
69	24th Av E	E Roanoke St	E Prospect St	43, 48	340	829	43, 48	234	681	-148	-18%
98	Montlake Blvd E	E Roanoke St	NE Pacific St	25, 43, 48, 167, 242, 252, 255, 257, 268, 277, 311, 540, 542, 545, 555, 556, 980, 982, 986	893	3,608	43, 48, 167, 252, 255, 257, 268, 277, 311, 540, 541, 542, 545, 555, 556, 980, 982, 986	829	2,831	-777	-22%
						4,436			3,511	-925	-21%

Why ridership has changed

- The reduction of rides in Montlake along 24th Ave E is likely a result of some riders walking to UW Station to catch Link instead of taking the bus.
- Ridership at stops around the Montlake Freeway Station went down 22 percent. This is likely due to Link now providing a very fast connection between UW Station and Capitol Hill. Previously Capitol Hill riders going to east King County destinations would use Route 43 between Capitol Hill and the Montlake Freeway Station. Now many riders from Capitol Hill are taking Link to UW Station (4 minutes time versus 20 minutes on Route 43) and then transferring to east King County buses on NE Pacific St.

Fig. 23



NORTH CAPITOL HILL

Tables 31a and 31b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
25	Discontinue route and partially replace by Route 78	Eliminate poorly performing service and reallocate to high performing services
49	Improve frequency	Increase ridership and improve connections to Link at Capitol Hill Station

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
55	10th Av E	NE Campus Pkwy	E Galer St	25*, 49	174	2,826	49	196	2,310	-516	-18%
56	Boyer Av E	23rd Av E	Harvard Av E	25	24	88	0	0	0	-88	-100%
57	Lakeview Blvd	E Roanoke St	Eastlake Av E	25	24	81	0	0	0	-81	-100%
						2,994			2,310	-684	-23%

*Route serves only a small portion of corridor

Why ridership has changed

- Ridership along 10th Ave E on the north part of Capitol Hill dropped by 18 percent even though the frequency of Route 49 was improved. Some riders at the south part of the corridor may be choosing to walk to Capitol Hill Station to take Link.
- As Route 25 was discontinued, the 88 riders per day on Boyer Ave E and 81 riders per day on Lakeview Blvd are no longer recorded on those segments. We expect that some of these riders may be walking to adjacent corridors served by Routes 47, 48, 49 or 70.

Fig. 24



NORTH PARK

Tables 32a and 32b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
E	Improve frequency and add peak trips	Relieve overcrowding and improve ridership
5	Added express trips, improve frequency	Relieve overcrowding and improve ridership

Weekday Ridership Change by Corridor

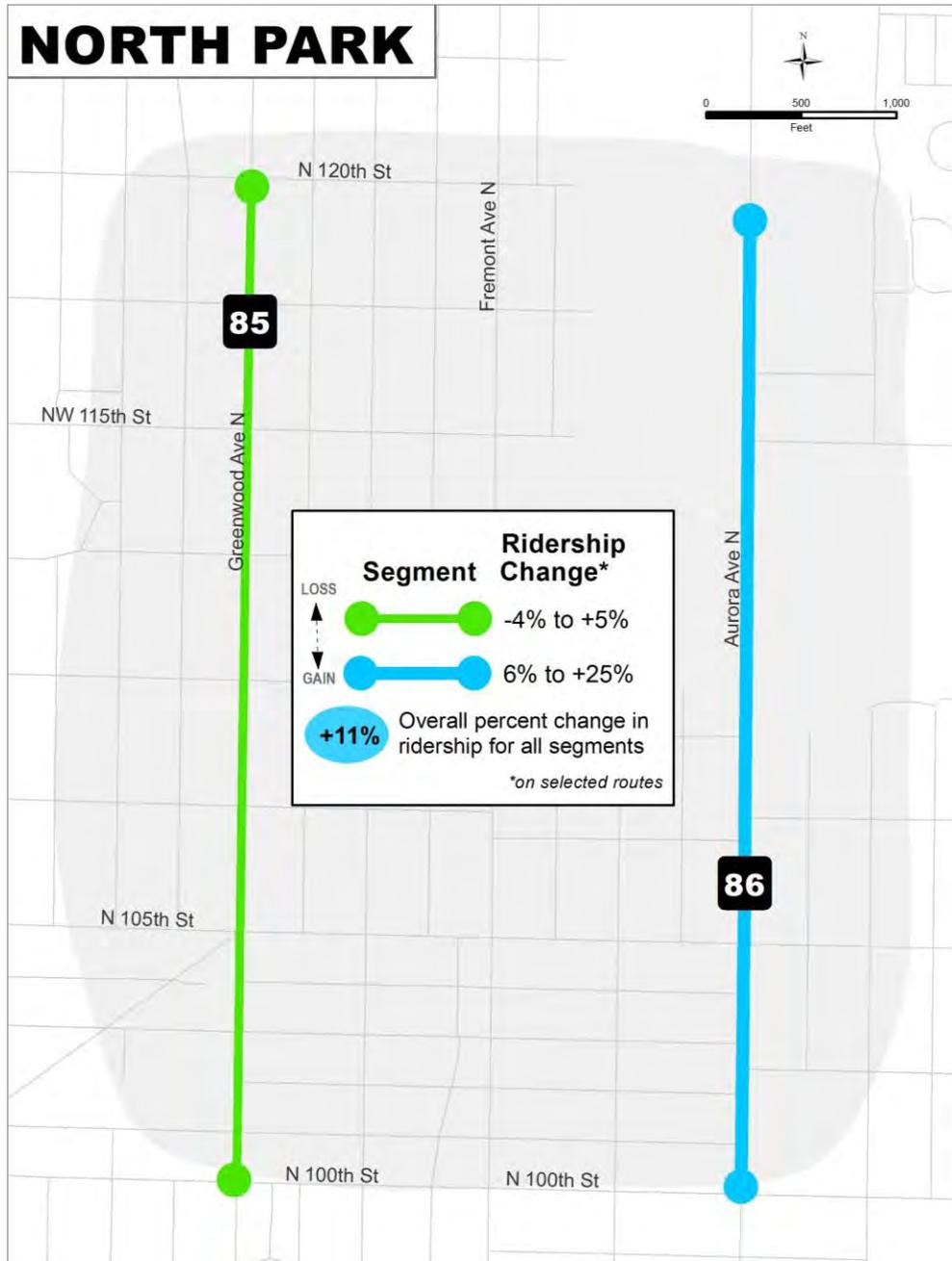
ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+Offs	Routes	Bus Trips	Ons+Offs	Number	Percent
85	Greenwood Av N	N 120th St	N 100th St	5	134	1,071	5	147	1,080	9	1%
86	Aurora Av N	N 120th St	N 100th St	E	206	2,062	E	223	2,399	337	16%
						3,133			3,479	346	11%

*Route serves only a small portion of corridor

Why ridership has changed

- Ridership in the Greenwood corridor remained almost the same. While there are more express trips and more frequent service late at night, these changes did not affect ridership.
- The Aurora Ave N corridor continues to experience strong ridership growth throughout the entire corridor. In North Park, ridership is up 16 percent. The increased ridership is a result of the strong RapidRide service as well as more peak and midday service.

Fig. 25



NORTHGATE

Tables 33a and 33b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
16	Discontinue route and replace with Routes 26 and 62	Provide new connections on new Route 62, increase frequency on most productive segments
26/26X	Combine Local and Express Routes, extend route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center
40	Improve frequency	Increase ridership
41	Improve frequency	Increase ridership
63	New peak-only route connecting Maple Leaf, Green Lake, South Lake Union and First Hill	Provide new fast commuter service from North Seattle to South Lake Union and First Hill.
66	Discontinue route and replace with routes 63 and 67	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
67	Revise to better serve Maple Leaf and improve frequency	Replace Route 66 and 68 service, increase ridership and improve connections to Link at UW Station
68	Discontinue route and replace with Routes 67 and 372	Eliminate duplication and simplify network
75	Increase frequency	Increase ridership and improve connections to Link at UW Station
242	Discontinue route	Eliminate duplication with Sound Transit Route 542 and reallocate resources from poorly performing service to new markets
316	Add trips	Relieve overcrowding and improve ridership

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
10	Meridian Av N	NE Northgate Wy	N 92nd St	16, 40, 316, 345, 346	366	7,543	26, 40, 316, 345, 346	389	6,662	-882	-12%
81	5th Av NE/ NE Northgate Wy	Roosevelt Wy NE/NE Northgate Wy	Northgate TC	41, 66*, 67*, 68, 75, 242, 347, 348	619	11,758	41, 67, 75, 347, 348	612	12,028	270	2%
						19,302			18,690	-611	-3%

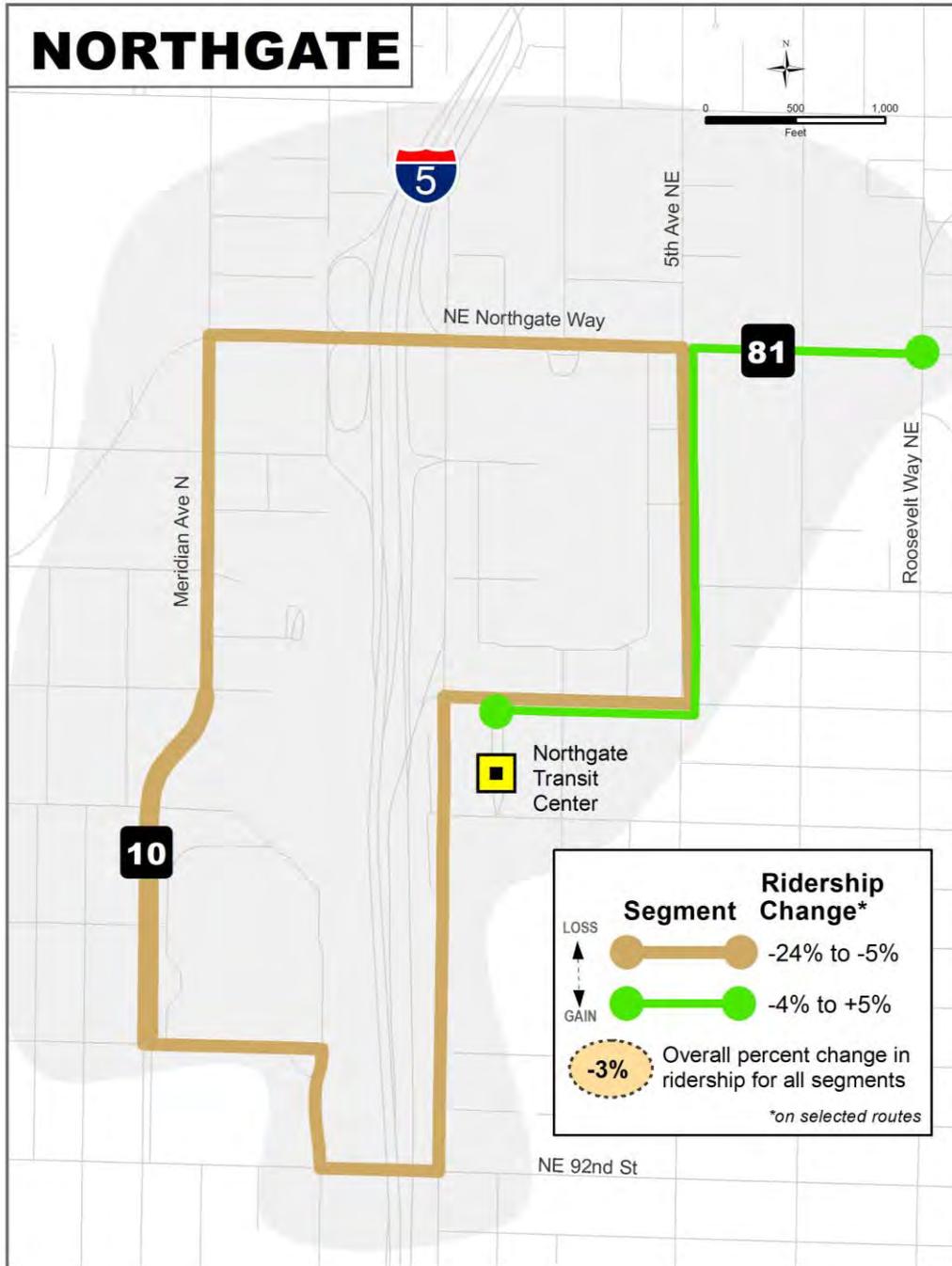
*Route serves only a small portion of corridor

Why ridership has changed

- Ridership on Meridian Ave N dropped by 12 percent as a result of Route 16 no longer serving this segment. Some former Route 16 riders have switched to other routes such as Route 26, which was extended from Green Lake to replace Route 16 service. One reason for the loss in ridership may be that Route 26 didn't serve North Seattle College as well as former Route 16. However, in September 2016, Route 26 was revised to serve North Seattle College on N 95th Street. With this change, ridership may bounce back.
- Ridership on the Fifth Ave NE/NE Northgate Way corridor increased slightly, by 2 percent. Increased ridership on Route 41 (350 more daily riders) accounted for the overall growth in this

corridor. It is important to note that revised Route 67 serves more of the Northgate area than Routes 66 and 67 did previously. This may have decreased total ons and offs because riders can take one bus where they used to take two.

Fig. 26



NORTSHORE

Tables 34a and 34b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
309	#N/A	#N/A
312	#N/A	#N/A
372	Improve frequency and provide new night and weekend service.	Replace Route 72 between Lake City and U. District and improve connections to Link at UW Station.
522	New stop added in Maple Leaf	Improve ridership and provide fast connection to downtown Seattle from Maple Leaf

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
2	SR-522	UW Bothell	NE 145th St/ Lake City Way	309, 312, 372, 522	225	6,560	309, 312, 372, 522	302	7,228	669	10%

Why ridership has changed

- Ridership increased 10 percent along SR-522 between UW Bothell and NE 145th St. The increase is due to the large increase in service on Route 372, where more peak trips were added, midday and evening frequency doubled, and earlier and later service was added.

Fig. 27



PHINNEY RIDGE

Tables 35a and 35b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
E	Improve frequency and add peak trips	Relieve overcrowding and improve ridership
5	Added express trips, improve frequency	Relieve overcrowding and improve ridership
44	Improve frequency	Increase ridership and improve connections to Link at UW Station

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
26	N 46th St	Stone Wy N	3rd Av NW	44	184	2,008	44	207	2,120	113	6%
89	Phinney Av N	N 70th St	N 46th St	5	148	1,370	5	170	1,418	48	4%
90	Aurora Av N	N 74th St	N 50th St	E	206	695	E	223	740	45	7%
						4,072			4,278	206	5%

Why ridership has changed

- Ridership along N 46th St on Phinney Ridge increased 6 percent in response to the increase in peak and midday trips.
- Route 5 on Phinney Ave N saw a 4 percent increase in ridership. Growth in ridership was strong in the 8 a.m. to 10 a.m. period, indicating that more people are commuting to jobs in South Lake Union where shift times start later in the morning.
- As with all segments along the E Line, ridership has grown. However, unlike most other E Line segments, the growth was under 10 percent. This may be because the E Line is very crowded at this point of the route, resulting in lower quality of service as riders get passed up more frequently.

Fig. 28



PINEHURST

Tables 36a and 36b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
41	Improve frequency	Increase ridership
73	Shorten route to operate between Jackson Park and U District only, reduce span and eliminate service in one direction during each peak period	Reduce duplication with Link, improve efficiency, eliminate unreliable service and improve connections to Link at UW Station
75	Increase frequency	Increase ridership and improve connections to Link at UW Station
77	Add trips	Relieve overcrowding and provide faster service at edge of peak period
373	Add trips	Improve connections to Link at UW Station, and mitigate peak period service reduction on Route 73

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
4	15th Ave NE	NE 130th St	NE Northgate Wy	73, 77, 347, 348, 373	231	1,287	73, 77, 347, 348, 373	224	1,284	-4	0%
5	NE Northgate Wy	Lake City Wy NE	Roosevelt Wy NE/NE Northgate Wy	75	113	144	75	148	163	19	13%
97	5th Av NE/NE 125th St	25th Av NE	NE Northgate Wy	41	171	2,421	41	179	2,636	215	9%
						3,852			4,083	230	6%

Why ridership has changed

- Ridership in the 15th Ave NE corridor through Pinehurst held steady.
- On NE Northgate Way, where Route 75 operates, ridership increased 13 percent as a result of the doubling of frequency in the midday period and additional peak trips.
- Route 41 on NE 125th St and Fifth Ave NE showed 9 percent ridership growth. Route 41 continues to be the fastest way for Pinehurst residents to reach downtown Seattle at most times of the day.

Fig. 29



RAINIER VALLEY

Tables 37a and 37b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station and replace Route 43 on E John St/E Thomas St.
38	New route replacing Route 8 south of Mount Baker Transit Center	Improve reliability

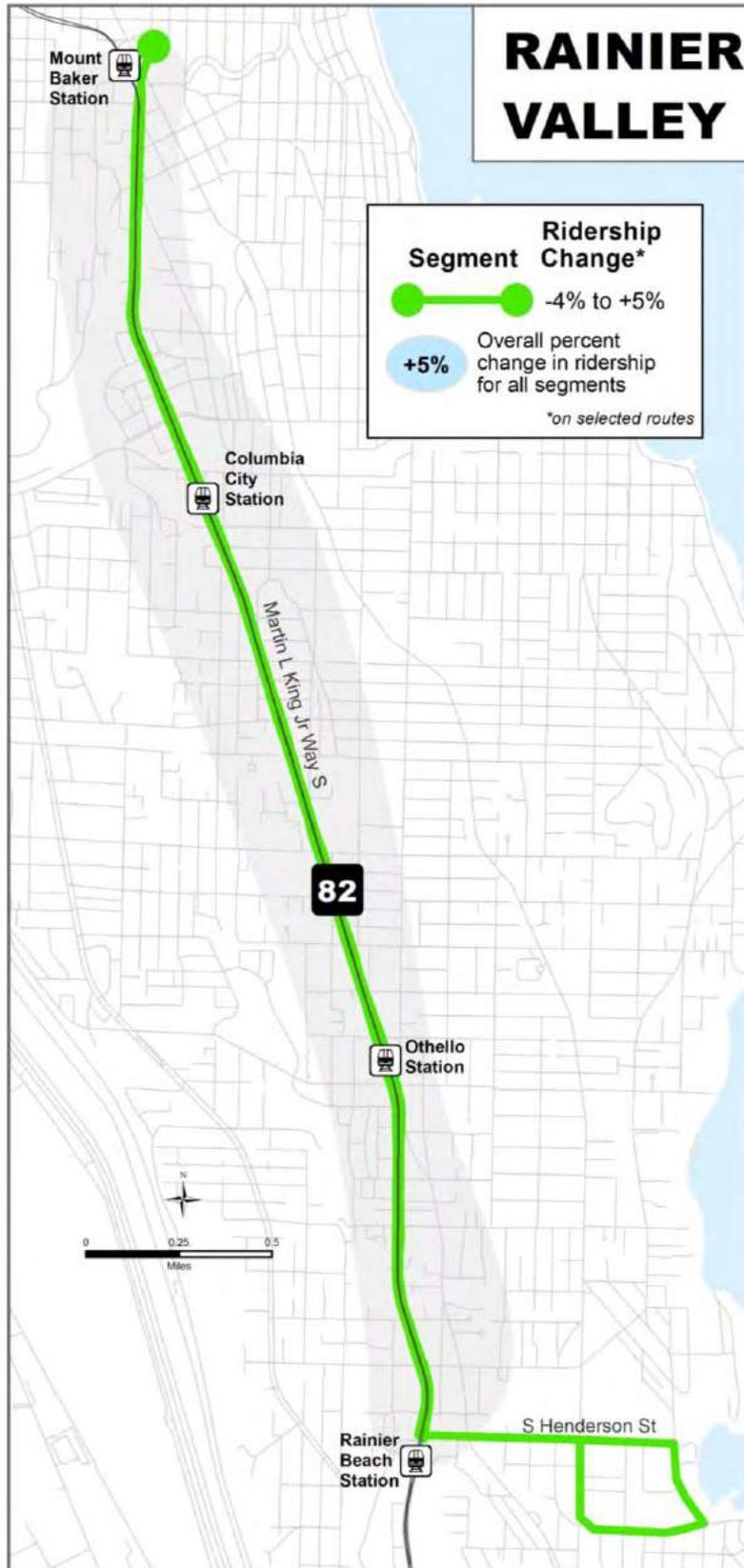
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
82	MLK Jr Wy	Mt Baker TC	Rainier Beach	8	133	5,161	38	135	5,429	268	5%

Why ridership has changed

- At first glance, it appears that ridership on this segment improved as a result of splitting Route 8 at Mount Baker. However, ridership is roughly the same because of the new transfer needed at Mount Baker Transit Center. Riders who used to board once and ride Route 8 through the Mount Baker Transit Center now have to board Route 8 to reach Mount Baker Transit Center and then transfer to Route 38 to continue their journey, thereby creating two “ons” instead of just one.

Fig. 30



RAVENNA

Tables 38a and 38b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
30	Discontinue route	Eliminate poorly performing service and reallocate to high performing services
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
68	Discontinue route and replace with Routes 67 and 372	Eliminate duplication and simplify network
71	Shorten route to operate between Wedgwood and U District only	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station
74	Revise to better serve western part of U District and add trips	Improve service to western part of U District
76	Add trips	Relieve overcrowding and provide faster service at edge of peak period
372	Improve frequency and provide new night and weekend service	Replace Route 72 between Lake City and U District and improve connections to Link at UW Station

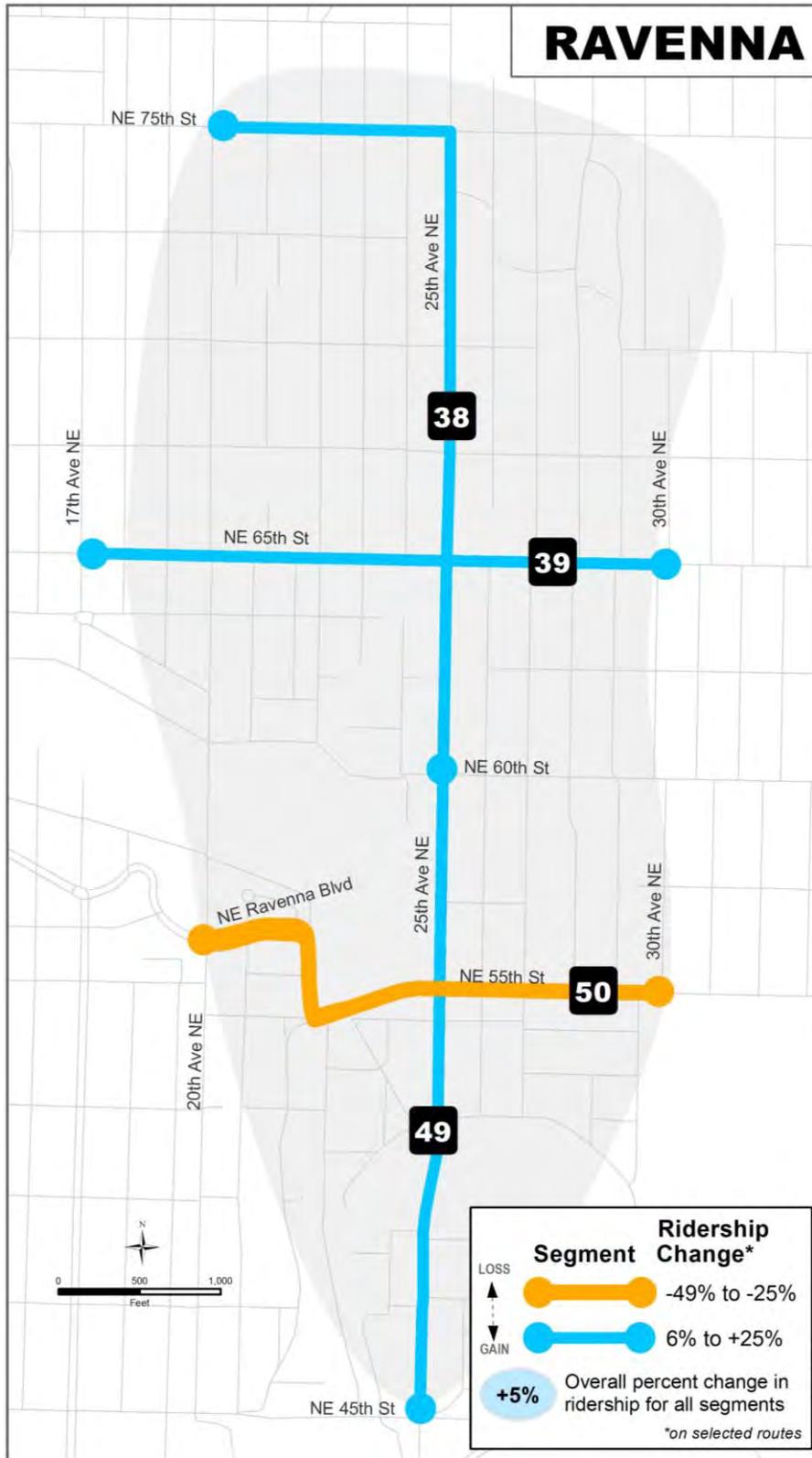
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
38	25th Av NE	NE 75th St	NE 60th St	68, 372	137	670	372	146	744	74	11%
39	NE 65th St	30th Av NE	17th Av NE	64, 71, 76	110	711	62, 64, 71, 76	251	816	106	15%
49	25th Av NE	NE 60th St	NE 45th St	68, 372	137	2,205	372	146	2,339	134	6%
50	NE 55th St	30th Av NE	20 Av NE/NE Ravenna Blvd	30, 74	46	297	74	22	177	-120	-41%
						3,883			4,076	193	5%

Why ridership has changed

- Ridership on the 25th Ave NE corridor between NE 75th St and NE 60th St increased 11 percent as a result of the consolidation of service into Route 372. This route's frequent service (about 10 minutes) to Link at UW Station is also a factor.
- New frequent Route 62 and additional trips on Route 76 fueled a 15 percent increase in ridership on the NE 65th St corridor. Route 71 lost half of its riders in this corridor, even though the route provides the same 30-minute all-day frequency as before the change. This indicates that some riders have switched from Route 71 to Route 372 for trips into the U District.
- Ridership grew 6 percent on the lower part of 25th Ave NE between NE 60th St and NE 45th St as a result of the service consolidation and network changes.
- Route 74 gives the NE 55th St corridor more direct service to downtown Seattle, but Route 74 ridership in the corridor fell by more than 10 percent. Combined with the elimination of poorly performing Route 30, ridership in the corridor fell by 41 percent. It appears that most of the lost riders have switched to Route 372 on 25th Ave NE for their connections to the U District or downtown Seattle (via Link at UW Station).

Fig. 31



RIDGECREST

Tables 39a and 39b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
373	Add trips	Improve connections to Link at UW Station

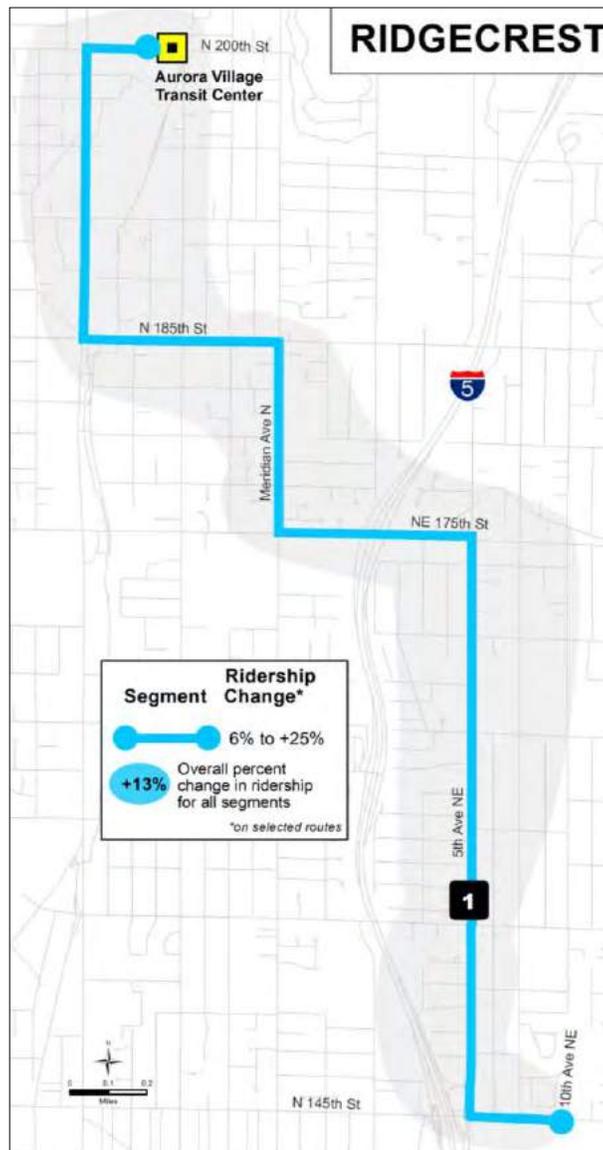
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
1	5th Ave NE	Aurora Village TC	NE 145th St/ 10th Ave NE	373	19	384	373	29	434	49	13%

Why ridership has changed

- Route 373 received a 50 percent increase in peak trips and saw a 13 percent jump in ridership through Ridgecrest.

Fig. 32



ROOSEVELT

Tables 40a and 40b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
45	New route, replacing north part of Route 48 (U District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
66	Discontinue route and replace with Routes 63 and 67	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
67	Revise to better serve Maple Leaf and improve frequency	Replace Route 66 and 68 service, increase ridership and improve connections to Link at UW Station
68	Discontinue route and replace with Routes 67 and 372	Eliminate duplication and simplify network
71	Shorten route to operate between Wedgwood and U District only	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station
72	Discontinue route and replace with Route 372	Reduce duplication with other Metro routes, eliminate unreliable service and concentrate resources on high frequency network
73	Shorten route to operate between Jackson Park and U District only, reduce span and eliminate service in one direction during each peak period	Reduce duplication with Link, improve efficiency, eliminate unreliable service and improve connections to Link at UW Station
76	Add trips	Relieve overcrowding and provide faster service at edge of peak period
316	Add trips	Relieve overcrowding and improve ridership
373	Add trips	Improve connections to Link at UW Station, and mitigate peak period service reduction on Route 73

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
35	Roosevelt Wy NE/ 12th Av NE	NE 75th St	NE Ravenna Blvd	48, 66, 67, 68	357	1,577	45, 67	330	1,732	155	10%
36	15th Av NE	NE 75th St	NE Ravenna Blvd	48, 68, 71, 72, 73, 373	486	2,118	71, 73, 373	143	745	-1,374	-65%
37	NE 65th St	17th Av NE	Green Lake P&R	64, 76, 316*	44	856	62, 63*, 64, 76, 316*	223	1,926	1,071	125%
						4,550			4,403	-147	-3%

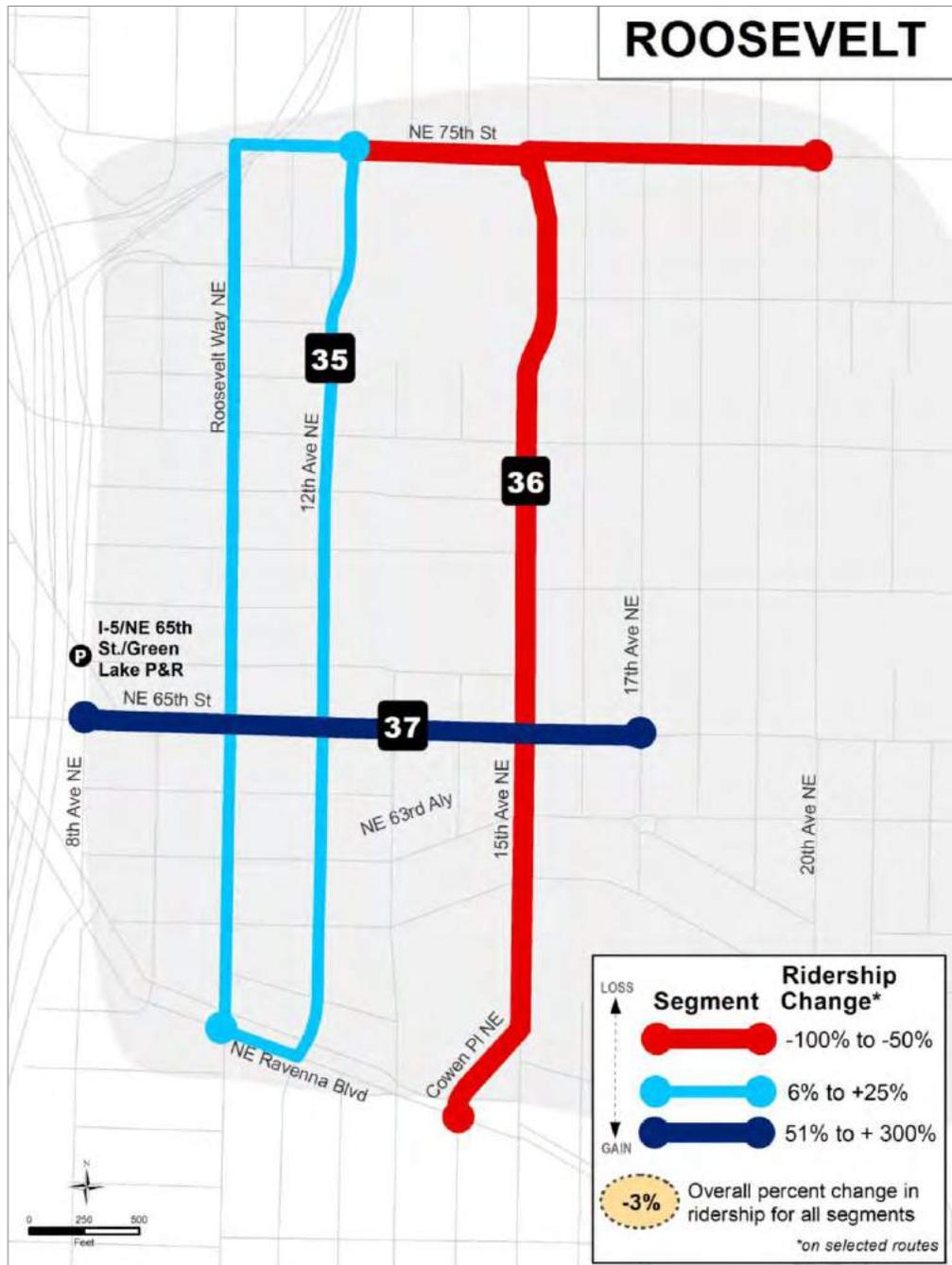
*Route only serves a small portion of corridor

Why ridership has changed

- On the Roosevelt Way/12th Ave NE corridor (includes Route 45/48 stops on NE 65th St) for routes heading to the U District, ridership grew 10 percent. This is likely because service on adjacent corridor 15th Ave NE was reduced significantly, so now many riders board on Roosevelt Way NE rather than 15th Ave NE.

- Since the 15th Ave NE corridor has less service from the loss of the 48, and a 53 percent reduction in service on Routes 71, 72 and 73 combined, ridership dropped 65 percent.
- Ridership growth was huge (125 percent) in the east-west NE 65th St corridor as a result of new, frequent, all-day Route 62. (Note that Route 48 ridership was accounted for in the Roosevelt Way NE corridor as we grouped U District-oriented routes together.)

Fig. 33



SAND POINT

Tables 41a and 41b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
30	Discontinue route	Eliminate poorly performing service and reallocate to high performing services
62	New frequent all-day route connecting Northeast Seattle, Green Lake, Wallingford, Fremont, South Lake Union and downtown Seattle	Improve east-west service in North Seattle, provide new connections, improve ridership
74	Revise to better serve western part of U. District and add trips	Improve service to western part of U District
75	Increase frequency	Increase ridership and improve connections to Link at UW Station

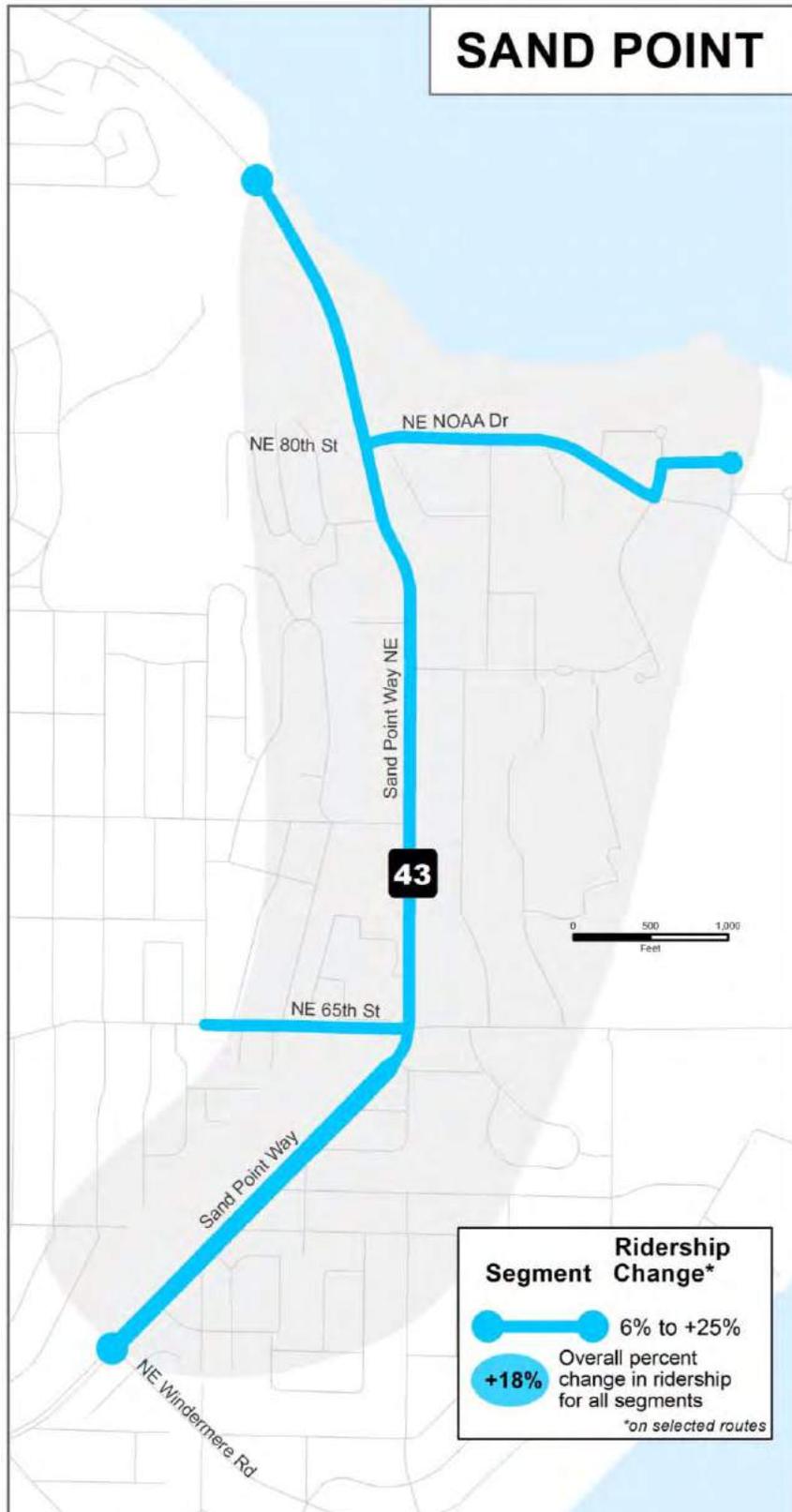
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
43	Sand Point Wy NE	NE 80th St	NE Windermere Rd	30, 74, 75	159	1,988	62, 74, 75	316	2,351	363	18%

Why ridership has changed

- Ridership along Sand Point Way NE grew by 18 percent as a result of the significant increase in service. New Route 62 provides new east-west connections, and Route 75 received twice as much frequency during midday. Ridership growth associated with these two improvements completely offset the loss of ridership associated with the deletion of Route 30. Growth in housing and other development in Magnuson Park is expected to result in further ridership increases in Sand Point.

Fig. 34



SOUTH LAKE UNION

Tables 42a and 42b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
5	Added express trips, improve frequency	Relieve overcrowding and improve ridership
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station and replace Route 43 on E John St/E Thomas St
16	Discontinue route and replace with Routes 26 and 62	Provide new connections on new Route 62, increase frequency on most productive segments
26/26X	Combine Local and Express Routes, extend route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center
28/28X	Combine Local and Express Routes, use new pathway via North Fremont (N 39th St)	Improve off-peak speed to downtown Seattle, simplify route structure
40	Improve frequency	Increase ridership
62	New frequent all-day route connecting Northeast Seattle, Green Lake, Wallingford, Fremont, South Lake Union and downtown Seattle.	Improve east-west service in North Seattle, provide new connections, improve ridership.
63	New peak-only route connecting Maple Leaf, Green Lake, South Lake Union and First Hill.	Provide new fast commuter service from North Seattle to South Lake Union and First Hill.
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
66	Discontinue route and replace with Routes 63 and 67.	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
70	Increase frequency and operate at night and on Sundays. (Replaced routes 71, 72, 73)	Simplify network and improve ridership
E	Improve frequency and add peak trips	Relieve overcrowding and improve ridership

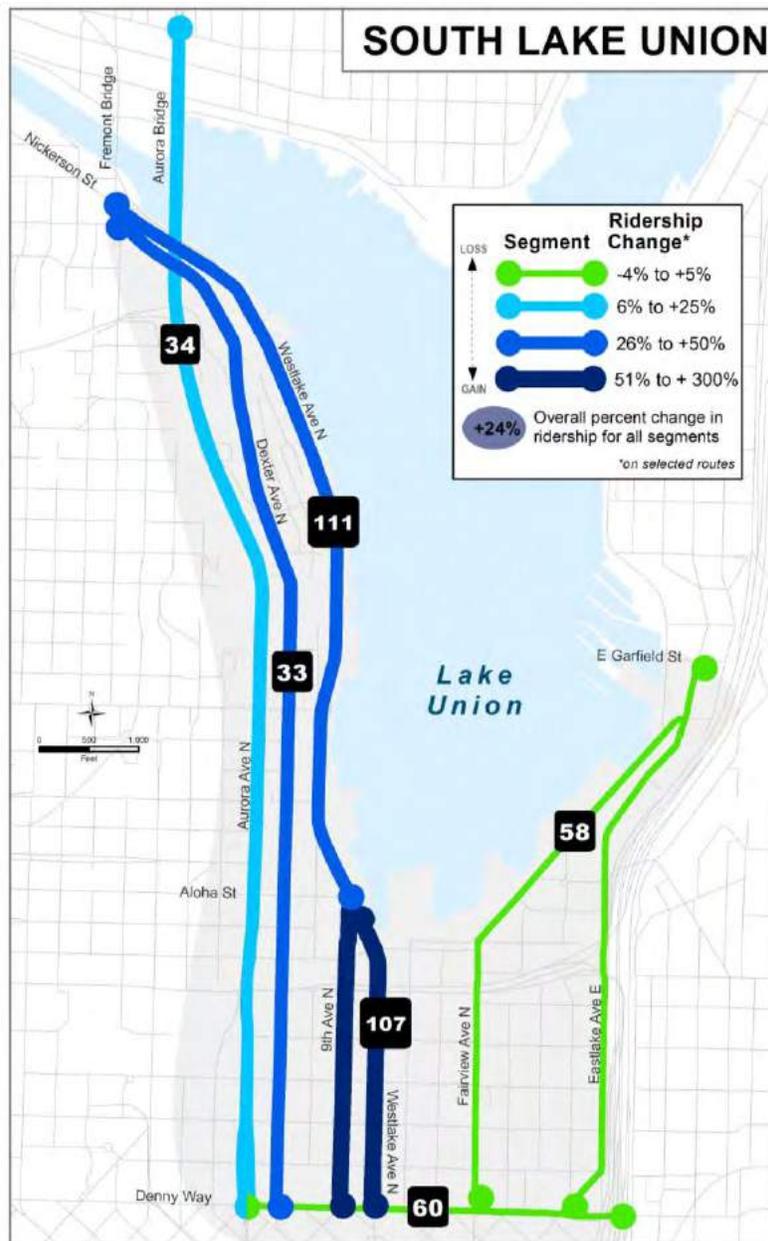
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
33	Dexter Av N	W Nickerson St	Denny Wy	26, 28	167	2,280	62	157	2,884	604	26%
34	Aurora Av N	Aurora Bridge	Denny Wy	5, 16, 26, 28, E	491	4,798	5, 26, 28, E	575	5,371	573	12%
58	Fairview Av N/Eastlake Av E	E Garfield St	Denny Wy	25, 66, 70, 71, 72, 73, 309	291	4,197	63, 64, 70, 309	228	4,202	5	0%
60	Denny Wy	I-5	Aurora Av N	8	133	3,697	8	163	3,749	52	1%
107	Westlake Av/ 9th Av	Aloha St	Denny Wy	40	126	1,994	40, C	400	4,822	2,828	142%
111	Westlake Av	Fremont Bridge	Aloha St	40	126	705	D	167	904	199	28%
						17,670			21,932	4,262	24%

Why ridership has changed

- The March 2016 changes brought more service and new connections to South Lake Union. In particular, the introduction of the C Line in the Westlake corridor resulted in over 2,800 more ons and offs in the corridor (does not include streetcar ridership).
- The changes in routes from northeast Seattle resulted in no significant change in ridership; however, Routes 63, 64 and 70 had strong growth throughout the summer 2016 service change period, and we expect further ridership growth.
- Ridership on Dexter Ave N also increased significantly as a result of new Route 62, suggesting that the new connections provided by Route 62 may be more attractive than connections provided by the combination of Routes 26 and 28.

Fig. 35



UNIVERSITY DISTRICT

Tables 43a and 43b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
25	Discontinue route and partially replace by Route 78	Eliminate poorly performing service and reallocate to high performing services
30	Discontinue route	Eliminate poorly performing service and reallocate to high performing services
43	Reduce route to peak only	Reduce duplication with Link and other Metro bus routes
44	Improve frequency	Increase ridership and improve connections to Link at UW Station
45	New route, replacing north part of Route 48 (U District-Loyal Heights) and improve frequency	Improve reliability, increase ridership and improve connections to Link at UW Station
48	Shorten route to operate between U District and Mount Baker Transit Center only, improve frequency	Improve reliability, replace Route 43 service along 23rd/24th Ave E
49	Improve frequency	Increase ridership and improve connections to Link at Capitol Hill Station
63	New peak-only route connecting Maple Leaf, Green Lake, South Lake Union and First Hill	Provide new fast commuter service from north Seattle to South Lake Union and First Hill
64	Revise to serve South Lake Union instead of downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill
65	Revise to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station
66	Discontinue route and replace with Routes 63 and 67	Eliminate unreliable and poorly performing service, replace with faster service oriented to commuters and more frequent service for all-day riders
67	Revise to better serve Maple Leaf and improve frequency	Replace Route 66 and 68 service, increase ridership and improve connections to Link at UW Station
68	Discontinue route and replace with Routes 67 and 372.	Eliminate duplication and simplify network
70	Increase frequency and operate at night and on Sundays. (Replaced routes 71, 72, 73.)	Simplify network and improve ridership
71	Shorten route to operate between Wedgwood and U District only	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station
72	Discontinue route and replace with Route 372	Reduce duplication with other Metro routes, eliminate unreliable service and concentrate resources on high frequency network
73	Shorten route to operate between Jackson Park and U District only, reduce span and eliminate service in one direction during each peak period.	Reduce duplication with Link, improve efficiency, eliminate unreliable service and improve connections to Link at UW Station
74	Revise to better serve western part of U District and add trips	Improve service to western part of U District
75	Increase frequency	Increase ridership and improve connections to Link at UW Station
372	Improve frequency and provide new night and weekend service	Replace Route 72 between Lake City and U. District and improve connections to Link at UW Station
373	Add trips	Improve connections to Link at UW Station, and mitigate peak period service reduction on Route 73
541	New route connecting Overlake and U District	Improve ridership and improve connections to Link at UW Station
542	Add midday service between Redmond and U District	Improve ridership and improve connections to Link at UW Station

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
44	Roosevelt Wy NE/ 11th Av NE	NE Ravenna Blvd	NE Campus Pkwy	66, 67, 68, 355	176	2,672	65, 67, 74, 355	263	2,713	41	2%
45	University Wy NE	NE Ravenna Blvd	I-5	30, 64, 71, 72, 73, 74, 76, 316, 355, 373	341	14,819	63, 64, 74, 76, 316, 355	58	502	-14,317	-97%
46	15th Av NE/ NE Pacific St	NE Ravenna Blvd	Montlake Blvd NE	25, 43, 44, 48, 49, 70, 271, 542, 556	1,042	27,462	43, 44, 48, 49, 70, 271, 541, 542, 556	1,112	25,833	-1,629	-6%
47	Stevens Wy/ Montlake Blvd	NE 45th St	NE Campus Pkwy	25, 31, 32, 65, 67, 68, 75, 372, 373	469	15,983	31, 32, 65, 67, 75, 78, 372	567	18,251	2,268	14%
48	NE 50th St	20 Av NE/NE Ravenna Blvd	Roosevelt Wy NE	30, 74	46	317	74	22	350	33	10%
83	University Wy NE/ NE Pacific St	NE Ravenna Blvd	Montlake Blvd NE	0	0	0	45, 71, 73, 373	319	13,347	13,347	
201	UW Station	0	0	Link	0	0	Link	302	18,068	18,068	
						61,252			79,064	17,812	29%

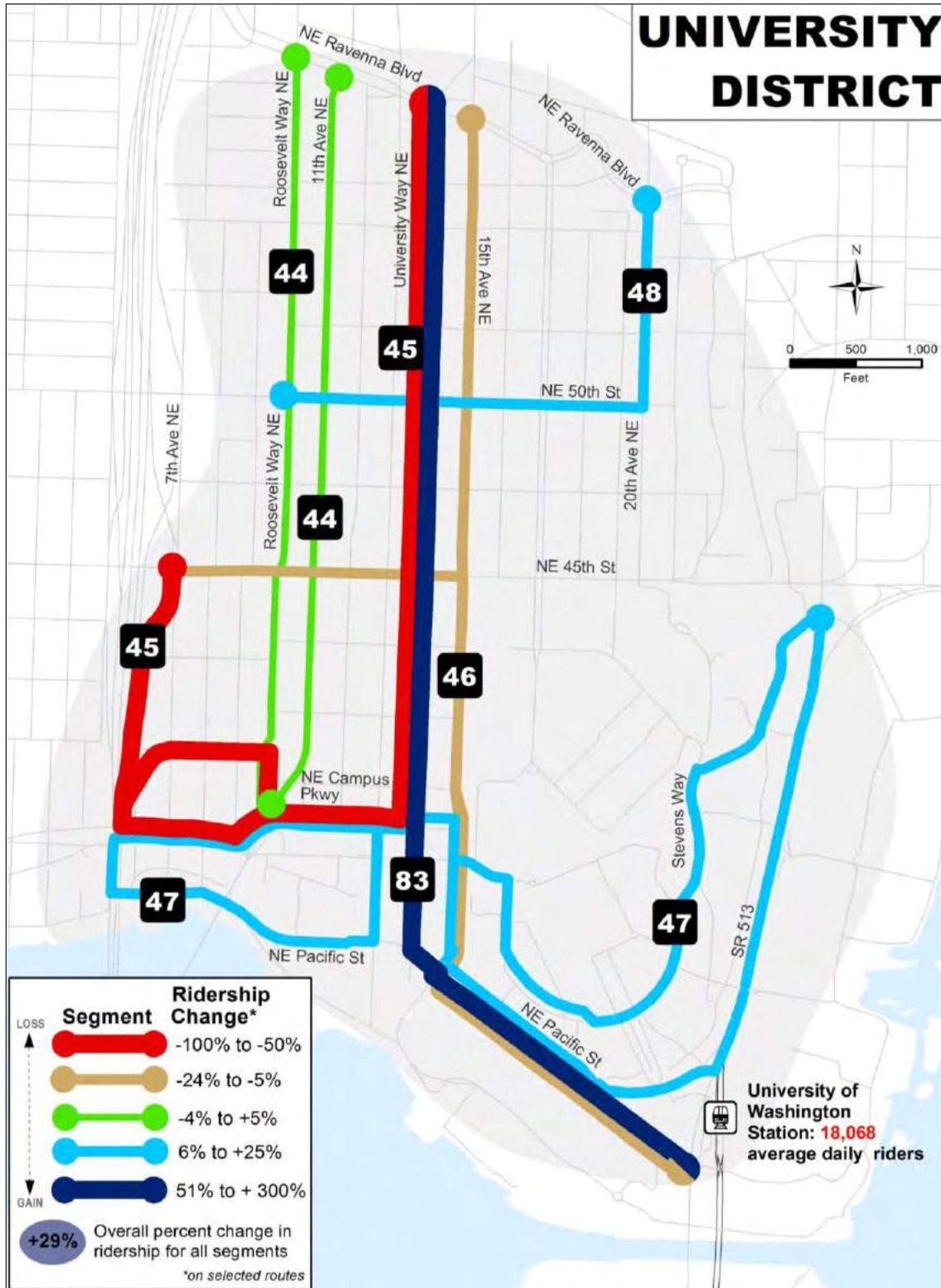
Why ridership has changed

- As expected, the opening of UW Station in the U District significantly changed ridership patterns. Previously, about 3,000 riders each weekday used bus service on University Way NE to travel to downtown Seattle. Now the focus for transit to downtown Seattle is at UW Station, where there were about 9,200 weekday daily Link boardings.
- The Roosevelt Way NE/11th Ave NE corridor experienced a small (2 percent) increase in ridership. The 1,400 daily rides previously on Route 66 are now occurring on alternative routes. This report did not analyze ridership at the I-5/NE 45th St Freeway Station for Sound Transit Route 512. Route 512 is an all-day alternative for former Route 66 riders heading to downtown Seattle.
- University Way NE was analyzed as two separate corridors, before and after, to help understand the impact of the new service design.
 - The first corridor analyzed the previous service design in which University Way NE service was oriented toward downtown Seattle. Also included in this corridor are the Seventh Ave NE routes that serve the U District in the afternoon peak period only. As expected, ridership to and from downtown Seattle on “University Express” bus service fell significantly as off-peak express riders now use Link to reach downtown.
 - The “after” analysis of ridership on University Way NE/NE Pacific St shows that rider activity still is significant, with about 13,300 daily ons and offs between UW Station and the north part of University Way NE. The nature of ridership on University Way NE has changed significantly, as northbound bus stops are now much busier with waiting passengers than the southbound

bus stops are. Most of the ridership on University Way NE is now oriented from/to locations in north Seattle instead of being primarily focused on the downtown Seattle market.

- Ridership along 15th Ave NE/NE Pacific St dropped by 6 percent, but still amounts to almost 26,000 daily ons and offs. Over 1,100 daily trips in this corridor serve many important and busy markets. The loss in ridership is largely attributable to moving the Loyal Heights/Greenwood/Green Lake market over to University Way NE (i.e. Route 45 vs. Route 48).
- Stevens Way/Montlake Blvd ridership on routes traditionally oriented to the UW student/faculty market saw a 14 percent increase. The increase is largely because many northeast Seattle residents are using these routes to reach UW Station. The largest increases in route-level ridership occurred on Routes 67 and 372: Route 67 gained about 1,300 daily ons and offs, while Route 372 gained over 2,700 daily ons and offs.
- Ridership on NE 50th St in the north part of the U District increased about 10 percent as Route 74 became the primary route for peak-period express service to downtown Seattle.

Fig. 36



UPTOWN

Tables 44a and 44b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
8	Split route at Mount Baker Transit Center, improve frequency	Improve reliability, increase ridership, improve connections to Link at Capitol Hill Station and replace Route 43 on E John St/E Thomas St
15	Added trips	Relieve overcrowding and improve ridership
18	Added trips	Relieve overcrowding and improve ridership
D	Separated from C Line, extended to Pioneer Square, improve frequency	Improve reliability, increase ridership and serve more of downtown Seattle

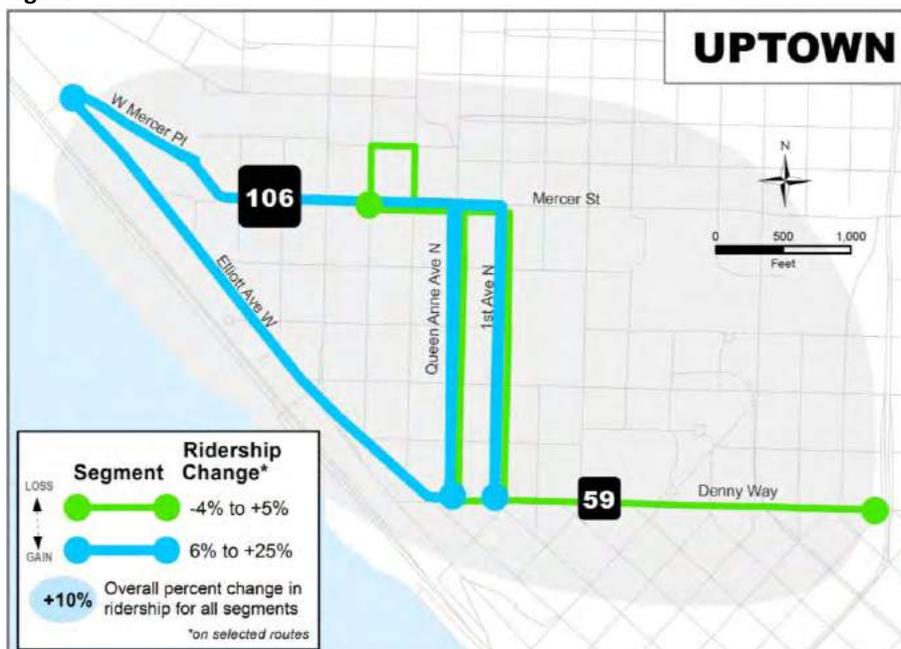
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
59	Denny Wy	Aurora Av N	2nd Av W/ Mercer St	8	133	2,703	8	163	2,808	105	4%
106	Queen Anne Av N/ Elliott Av W	W Mercer Pl	Denny Wy	15, 18, 32, D	302	5,119	15, 18, 32, D	352	5,789	670	13%
						7,822			8,597	775	10%

Why ridership has changed

- Route 8 ridership in Uptown increased 4 percent as a result of more frequent service and improved reliability.
- Ridership on the Ballard/Interbay routes 15, 18, 32 and D Line grew as a group by 13 percent. Most of the ridership gain is due to continued ridership growth on the D Line. Ballard continues to gain more housing, creating more and more potential riders for Routes 15, 18 and the D Line. Improvements in frequency and reliability have improved the rider experience, translating into more ridership.

Fig. 37



VIEW RIDGE

Tables 45a and 45b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
62	New frequent all-day route connecting Northeast Seattle, Green Lake, Wallingford, Fremont, South Lake Union and downtown Seattle.	Improve east-west service in North Seattle, provide new connections, improve ridership.
71	Shorten route to operate between Wedgwood and U. District only.	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station.
76	Add trips	Relieve overcrowding and provide faster service at edge of peak period.

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
42	50th Av NE/ 55th Av NE	NE 75th St/ 45th Av NE	NE 65th St/ 45th Av NE	71, 76	96	380	62*, 71, 76	236	355	-25	-7%

Why ridership has changed

- Ridership in View Ridge fell by 25 rides per day. While there was a vast increase in the amount of service to View Ridge provided by new Route 62, more riders in View Ridge on this route have not offset the loss of ridership on other routes. In spring 2016, there were 76 daily rides on Route 62. Summer 2016, daily ridership in View Ridge on Route 62 is about 90 even without the Roosevelt High School market being in session. Therefore, we expect that daily Route 62 ridership in View Ridge will top 100 per day in the fall of 2016.

Fig. 38



WALLINGFORD

Tables 46a and 46b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
16	Discontinue route and replace with Routes 26 and 62.	Provide new connections on new Route 62, increase frequency on most productive segments.
26/26X	Combine Local and Express Routes, extend route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center.
31/32	Revise to serve Wallingford Av N and N 35th St.	Replaces Route 26 Local service in Lower Wallingford
26/26X	Combine Local and Express Routes, extend route from Green Lake to Northgate (replaces Route 16)	Improve off-peak speed to downtown Seattle, simplify route structure and provide new connections to Northgate Transit Center.
44	Improve frequency	Increase ridership and improve connections to Link at UW Station
E	Improve frequency and add peak trips	Relieve overcrowding and improve ridership

Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
27	N 45th St	I-5	Stone Wy N	44	184	2,951	44	207	3,335	384	13%
28	Stone Wy N	N 50th St	N 35th St	16, 31*, 32*	244	2,471	62	157	1,766	-705	-29%
30	N 40th St	N 45th St	Stone Wy N	26	97	843	26	85	1,211	368	44%
31	N 40th St/ Wallingford Av N	I-5	N 35th St/ Stone Wy N	26*, 31, 32	223	1,080	31, 32	147	885	-195	-18%
92	Aurora Av N	N 46th St	N 46th St	E	206	1,792	E	223	2,004	213	12%
						9,136			9,200	64	1%

*Route only serves a small portion of corridor

Why ridership has changed

- Ridership on Route 44 in the Wallingford area increased by 13 percent in response to higher frequency in midday and additional peak trips. Speed and reliability improvements in the corridor and new trolley buses have combined to improve service quality.
- Ridership along Stone Way/N 45th St/Meridian Ave N dropped 29 percent. While new Route 62 is providing many new connections, many riders who formerly used Route 16 to downtown Seattle and Northgate have switched to Route 26 or the E Line, which provide faster express service to those locations.
- The all-day express service that Route 26 now provides between Wallingford and down-town Seattle, as well as the Northgate extension, has attracted 44 percent more riders.
- Ridership in “lower Wallingford,” which used to have a one-seat ride to downtown Seattle via Route 26 Local, has decreased by 18 percent. While Routes 31/32 provide new connections for

this neighborhood to the U District, Interbay and Seattle Center, the attraction of these markets have not been enough to offset the loss in downtown Seattle riders in this corridor.

- E Line ridership at the N 46th St stop on Aurora grew 12 percent as some former Route 16 riders switched to RapidRide for service into downtown Seattle. Increased frequency on the E Line helped to create room for these new riders.

Fig.39



WEDGWOOD

Tables 47a and 47b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
64	Revise to serve South Lake Union instead of Downtown Seattle	Provide new fast commuter service from North Seattle to South Lake Union and First Hill.
65	Revise to serve UW Station, improve frequency	Increase ridership and improve connections to Link at UW Station
71	Shorten route to operate between Wedgwood and U. District only.	Reduce duplication with Link, eliminate unreliable service and improve connections to Link at UW Station.
76	Add trips	Relieve overcrowding and provide faster service at edge of peak period.

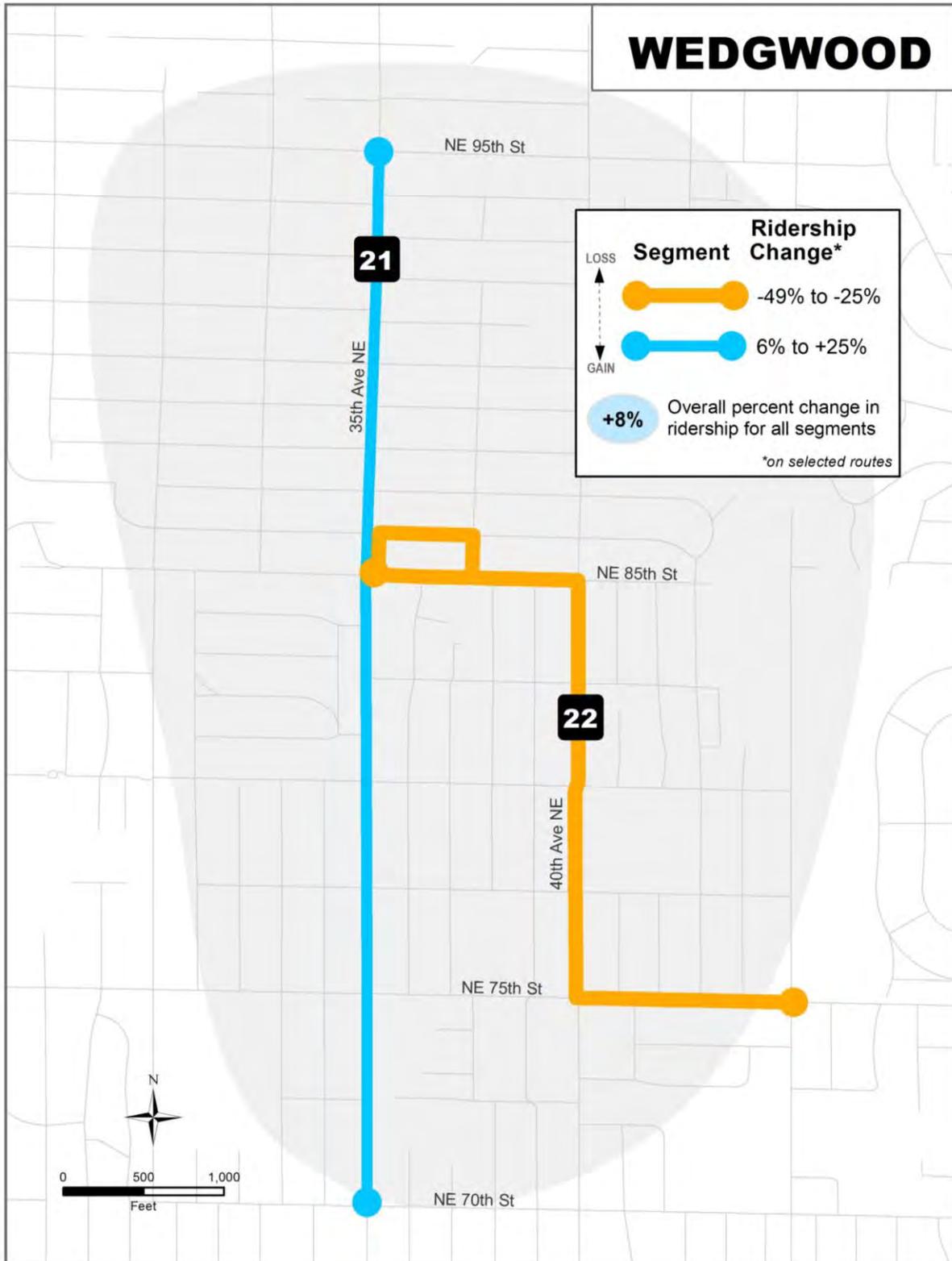
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
21	35th Av NE	NE 95th St	NE 70th St	64, 65	101	1,108	64, 65	167	1,348	241	22%
22	40th Av NE	NE 85th St/ 35th Av NE	NE 75th St/ 45th Av NE	71, 76	96	474	71, 76	90	357	-117	-25%
					197	1,582		257	1,705	124	8%

Why ridership has changed

- Ridership along 35th Ave NE in Wedgwood increased by 22 percent due to the improved frequency and new connection to UW Station provided by Route 65. Ridership on Route 64 dropped in half in Wedgwood as a result of the changes in downtown Seattle and South Lake Union. However, given that Route 64 ridership has shown strong growth over the summer, we expect continued increases in ridership.
- On 40th Ave NE and NE 75th St, ridership dropped by 25 percent because Route 65 on 35th Ave provides a more direct connection to Link than Route 71. Route 76, on the other hand, has attracted some of the former Route 64 riders heading to downtown Seattle.
- Overall ridership in Wedgwood has gone up in response to frequent service and good connections to Link at UW Station.

Fig. 40



WHITTIER HEIGHTS

Tables 48a and 48b

Change in Service between March 2015 and March 2016

Route	Change	Reasons for change
28/28X	Combine Local and Express Routes, use new pathway via North Fremont (N 39th St)	Improve off-peak speed to downtown Seattle, simplify route structure.

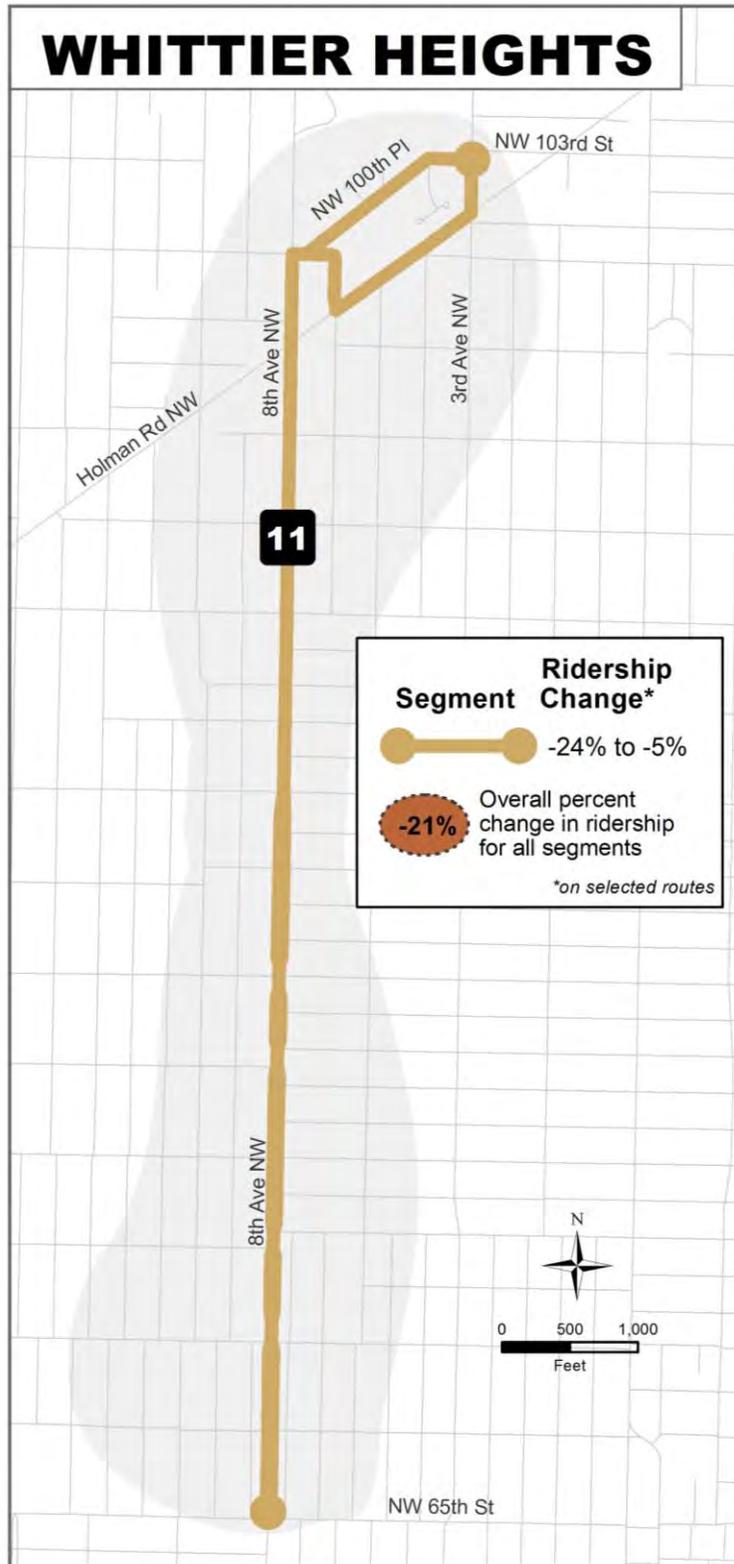
Weekday Ridership Change by Corridor

ID	Corridor	North/East Boundary	South/West Boundary	Spring 2015			Spring 2016			Change in Ons+Offs	
				Routes	Bus Trips	Ons+ Offs	Routes	Bus Trips	Ons+ Offs	Number	Percent
11	8th Av NW	NW 103rd St	NW 65th St	28	102	1,408	28	97	1,109	-299	-21%

Why ridership has changed

- Ridership along Eighth Ave NW decreased by 21 percent as a result of the changes. While off-peak service to downtown Seattle is now faster than before, peak service is slower, and riders must transfer for local trips to Fremont. Many of the lost riders likely switched to either routes 15, 40 or the D Line. The extension of the D Line further south in downtown Seattle also likely drew some riders away from Route 28.

Fig. 41



TRANSFER ACTIVITY BETWEEN BUS AND LINK

Table 49 on the following page estimates the daily number of transfers to and from Link by route in the project area. This analysis uses ORCA data, so does not account for passengers who pay using cash. No transfer data is available for cash riders. We assume that relatively few cash riders transfer between bus and Link because of the penalty of having to pay twice⁷; however, the actual number of transfers is likely to be higher than reported here.

To estimate the number of daily transfers to/from Link, we multiplied the total daily route ridership by the percentage of riders using ORCA and the percentage of ORCA riders transferring to Link for each route.

Important findings include the following:

- At UW Station, it appears that 5,500 to 6,000 riders transfer to and from buses and Link each weekday, meaning that approximately 30 to 33 percent of Link rides at UW Station include a transfer to and from buses.
- Capitol Hill Station appears to be mostly a “walk-on” station, as 900 to 1,100 riders transfer between buses and Link, or about 6 to 8 percent of total Link riders at that station.
- More than 20 percent of the riders on Routes 65, 71, 73, 78 and 541 transfer to and from Link, about twice the transfer rate for other routes in the project area.
- A total of more than 500 daily weekday riders on each of the routes 44, 45, 60, 65 and 372 transfer to and from Link.
- Approximately 1,000 to 1,500 transfers occur each weekday between routes stopping on Stevens Way and Link.

Notes on ORCA usage:

- Peak-only routes tend to have ORCA use rates above 90 percent.
- All-day routes tend to have ORCA use rates between 60 percent and 80 percent.
- Almost all routes serving the U District had ORCA use rates above 75 percent, with about half of the routes having ORCA use rates above 85 percent.
- Only one route in the project area (Route 60, which serves White Center, Georgetown Beacon Hill and Capitol Hill) had a “low” ORCA use rate (i.e. between 50 and 60 percent).

⁷ With ORCA, the fare paid on the bus is applied to the Link fare, and vice versa. However, there is no such mechanism for cash riders transferring between bus and Link, so cash riders are required to pay the full fare on both modes.

Table 49: Transfer Activity by Route

Route	Estimated	% of Boardings	Estimated* Daily Transfers to Link		
	ORCA Use	W/ Link Transfer	Weekday	Saturday	Sunday
8	Medium	9.0%	490	290	210
9	Medium	11.0%	200	0	0
10	Medium	12.0%	280	200	170
11	Medium	5.0%	140	90	60
31	High	4.0%	50	20	0
32	High	3.0%	70	40	40
43	High	13.0%	120	20	10
44	High	9.0%	600	400	290
45	Medium	16.0%	850	500	480
48	Medium	12.0%	500	350	190
49	Medium	6.0%	310	260	180
60	Low	18.0%	530	270	220
65	Medium	22.0%	730	390	270
67	High	6.0%	220	130	90
71	Medium	27.0%	330	250	0
73	Medium	27.0%	280	290	0
75	High	8.0%	310	160	100
78	Medium	38.0%	60	0	0
167	Very High	3.0%	10	0	0
197	Very High	2.0%	10	0	0
271	High	6.0%	320	100	70
277	High	7.0%	20	0	0
372	High	8.0%	510	140	110
373	High	12.0%	160	0	0
540	Very High	6.0%	40	0	0
541	Very High	23.0%	130	0	0
542	Very High	10.0%	210	0	0
556	Very High	3.0%	30	0	0
Streetcar		16.0%	250-350	200-300	100-150
			7,510	3,900	2,490

ORCA Use Key

Very High = More than 90%

High = 80%-90%

Medium = 60%-80%

Low = 50%-60%

Very Low = 50% or less

* Estimates based solely on ORCA use and transfer rates. Figures do not include transfers for cash-paying riders.

LINK RIDERSHIP

The following tables detail the average weekday boardings and alightings at each Link Station in 2015 and 2016. Total Link ridership has almost doubled with the opening of Capitol Hill and UW Stations. Approximately 63,500 riders boarded Link each weekday in the 2nd Quarter of 2016.

Some interesting observations gleaned from the Link ridership data include:

- With 18,070 average weekday boardings and alightings, UW Station now has the second most boardings of any station in the Link system.
- Capitol Hill Station has the fourth most boardings on the Link system, but the third most when boardings and alightings are added together. This difference is because 1,300 more alightings than boardings occur at Capitol Hill Station. No other Link station shows such an imbalance. This imbalance suggests that surface travel is easier for people as they head away from Capitol Hill than it is when they return to Capitol Hill. This may also have to do with Link being a more attractive option in the afternoon, when traffic congestion is significantly worse and Link provides a much faster ride compared to buses stuck in traffic.
- Westlake Station's southbound boardings dropped by about 380 per weekday, likely because riders used to transfer from buses from the U District and Capitol Hill and now can board Link in those locations.
- Mount Baker Station boardings southbound dropped by 145 per weekday. Again, this is likely because fewer riders transfer from routes coming from Capitol Hill (Routes 8 and 9) and the U District (Route 48), where riders can now simply board Link at the new stations rather than taking a bus and transferring to Link at Mount Baker Station.
- SeaTac/Airport Station gained 1,170 boardings and 1,310 alightings between 2015 and 2016, indicating that many people are using the extension of Link as a way of accessing SeaTac Airport instead of using other modes.
- The number of downtown Seattle northbound boardings and southbound alightings increased by 16,480. Given that there are about 23,100 riders on Link between downtown Seattle and Capitol Hill Station, approximately 70 percent of trips at Capitol Hill and UW Stations are to or from downtown Seattle, and the remaining 30 percent of trips from UW and Capitol Hill are going to or from locations south of downtown Seattle (e.g. Rainier Valley or SeaTac Airport).

Tables 51 a and b

Northbound Link Boardings and Alightings by Station						
Station	2015 Average Weekday		2016 Average Weekday		Change 2015-2016 in Average Weekday	
	Ons	Offs	Ons	Offs	Ons	Offs
SeaTac/Airport	5,571	0	6,743	0	1,172	0
Tukwila International Blvd	2,249	446	2,637	513	388	67
Rainier Beach	1,004	369	1,384	409	380	40
Othello	1,387	503	1,709	520	322	17
Columbia City	1,326	424	1,873	457	547	33
Mount Baker	1,182	780	1,372	728	190	-52
Beacon Hill	1,250	718	1,718	701	468	-17
SODO	629	564	1,223	649	594	85
Stadium	458	605	1,061	832	603	227
International District/Chinatown	1,200	2,040	3,130	2,127	1,930	87
Pioneer Square	371	1,734	1,765	2,112	1,394	378
University Street	204	2,486	2,116	3,043	1,912	557
Westlake	0	6,161	3,594	6,185	3,594	24
Capitol Hill			1,903	5,075	1,903	5,075
University of Washington			0	8,875	0	8,875
	16,831	16,830	32,228	32,226	15,397	15,396

Southbound Link Boardings and Alightings by Station						
Station	2015 Average Weekday		2016 Average Weekday		Change 2015-2016 in Average Weekday	
	Ons	Offs	Ons	Offs	Ons	Offs
University of Washington			9,193	0	9,193	0
Capitol Hill			4,115	2,227	4,115	2,227
Westlake	6,728	0	6,346	3,340	-382	3,340
University Street	2,379	226	2,740	1,765	361	1,539
Pioneer Square	1,629	400	1,878	1,578	249	1,178
International District/Chinatown	1,738	1,401	2,023	2,991	285	1,590
Stadium	577	560	875	1,251	298	691
SODO	615	623	715	1,090	100	467
Beacon Hill	702	1,504	696	1,865	-6	361
Mount Baker	991	1,096	846	1,286	-145	190
Columbia City	457	1,335	479	1,781	22	446
Othello	550	1,500	556	1,724	6	224
Rainier Beach	353	999	384	1,317	31	318
Tukwila International Blvd	463	2,650	502	2,942	39	292
SeaTac/Airport	0	4,887	0	6,192	0	1,305
	17,182	17,181	31,348	31,349	14,166	14,168

CHANGES IN RELIABILITY OF SERVICE

Introduction

Customer surveys consistently rank service reliability as one of the top three factors that influence customers' choice to use transit. Several changes made as part of the Link Connections project focused on improving service reliability, including splitting two routes with significant reliability problems (8 and 48), simplifying service patterns, focusing routes on streets that have less traffic, and scheduling routes so that they better match actual or anticipated running times. Overall improvements in reliability have been measured where Metro made changes with improved reliability as a goal, particularly with the splitting of routes 8 and 48 and the replacement of express bus service with Link light rail.

This section examines a number of reliability metrics, at key locations on routes known to experience reliability problems, before the March 2016 service change (April/May 2015) and after the March 2016 service change (April/May 2016):

- Route 8: northbound at Capitol Hill Station (E John/Broadway) and southbound at Mount Baker Transit Center
- Route 48: northbound and southbound at NE 45th St in the U District
- Route 65: eastbound at NE Campus Pkwy/Brooklyn Ave NE
- Routes 66/67: northbound at 11th Ave NE/NE 45th St
- Routes 71, 72, 73, and 74 southbound at University Way NE/NE 45th St, compared to Link
- Route 71: northbound at University Way NE/NE 45th St
- Routes 72 and 372: northbound at University Way NE/NE 45th St (Route 72) and UW Hub (Route 372).
- Route 73/373: northbound at University Way NE/NE 45th St
- Route 75: eastbound at NE Campus Pkwy/Brooklyn Ave NE

Explanation of reliability metrics

This report includes several service reliability metrics. From a customer perspective, the most important metric will likely depend on the frequency of service. For infrequent service, where buses arrive less frequently than every 15 minutes and customers are likely to consult a schedule before taking a trip, whether the trip shows up at the specific time shown in the schedule is relatively important. For frequent service, where buses arrive every 15 minutes or more often and customers tend to travel more spontaneously without referring to a schedule, the regularity of buses showing up with even spacing between trips (headways) is more important. Frequent bus routes with high ridership also suffer when spacing of trips is not maintained, as buses arriving after a long gap become severely overloaded, and buses after short gaps are relatively empty, leading to a large majority of customers having a crowded and uncomfortable trip.

The following are definitions of the metrics analyzed:

On-time performance:

- *Percentage of early trips* – any trip arriving more than one minute early.
- *Percentage of on-time trips* – any trip no more than five minutes late and no more than one minute early

- *Percentage of late trips* – any trip arriving more than five minutes late, but no more than 14 minutes late.
- *Percentage of very late trips* – any trip arriving more than 15 minutes late

Headway adherence:

- *Percentage of headways bunched* – instances where the actual headway is 50 percent or less of the scheduled headway. For example, if the scheduled headway is 10 minutes, any headway less than five minutes would be considered “bunched.”
- *Percentage of long headways* – instances where the actual headway is 150 percent or more of the scheduled headway. For example, if the scheduled headway is 10 minutes, any headway greater than 15 minutes would be considered a “long headway.”

Customer waiting time

- *Expected average wait* –the amount of time an average customer would wait for a trip to arrive, assuming service operates as scheduled. On frequent service (every 15 minutes or better) where the opportunities to travel are plentiful, riders tend to randomly arrive at bus stops and expect to wait half of the headway. On infrequent service (less than every 15 minutes), riders tend to consult schedules to limit their waiting time. For infrequent service, this measure reflects the both time spent waiting at the stop and the time they must wait for an opportunity to travel (half the headway). For example if the next bus departs in 25 minutes, the customer may wait only five minutes at the bus stop, but had to also wait an additional 20 minutes because there wasn’t an earlier departure.
- *Actual estimated average wait time* – the amount of time customers wait, after accounting for late buses and long gaps in service. For frequent service, where customers arrive randomly, the calculation focuses on the fact that more customers arrive during long gaps in service than short gaps, so more customers wait longer than expected and few customers wait shorter than expected. For infrequent service, where customers are dependent on a schedule, late buses cause the actual waiting time to be longer than expected.
- *Excess wait time* – the difference between the estimated⁸ actual and expected wait time divided by the expected wait time. This is the percentage of additional time that customers actually wait compared to what they would have expected to wait based on the scheduled service.

Note that all the calculations of wait time are based on assumptions about rider arrivals and do not reflect observations of real rider behavior. However, assuming that people use transit consistently, these calculations provide representative information about the conditions that riders are likely experiencing. This information lets us make useful before-and-after comparisons about the impact of the Metro bus-Link integration project on rider experiences.

⁸ Estimates are based on an actual two-month sample of data in the Spring of 2015 and 2016.

Route 8 → Route 8 and Route 38

Route 8 was split at Mount Baker Transit Center. The northern segment of the route retained the Route 8 number and now stretches between Uptown/Seattle Center and Mount Baker Transit Center via South Lake Union, Capitol Hill, Madison Valley and the Central District. The southern segment of the route became new Route 38, operating between Mount Baker Transit Center and Rainier Beach⁹.

Tables 52a and 52b. Before-and-After Metrics

April/May 2015 -- ROUTE 8										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	E John St/Broadway	5%	34%	7%	54%	16%	15%	8.48	10.28	21%
Southbound	Mount Baker TC	14%	22%	9%	54%	14%	13%	8.39	10.11	21%
April/May 2016 -- ROUTE 8 NB/38 SB										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	E John St/Broadway	5%	28%	2%	66%	11%	10%	6.74	7.61	13%
Southbound	Mount Baker TC	1%	33%	1%	65%	5%	6%	8.45	8.97	6%

On-time performance analysis

- In both directions, 11 to 12 percent more trips are on time.
- Northbound, the percentage of very late trips was reduced from 7 percent to 2 percent, and the percentage of late trips was reduced from 34 percent to 28 percent.
- Southbound, more trips are on time and there has been almost complete elimination of both early-running trips (from 14 percent to 1 percent) and very late-running trips (from 9 percent to 1 percent). However, more trips are falling into the “late” category (up from 22 percent to 33 percent). In other words, the trips running extremely late and early have been eliminated, but more trips are now arriving between 5 and 15 minutes late. This change is likely due a higher variation in travel times for Route 8, as it traveled from Seattle Center to Mount Baker TC, than for Route 38, which traveled only between Rainier Beach and Mount Baker TC.

Headway adherence analysis

- Northbound, the incidence of bunching and long gaps in service has been reduced by 5 percent on both measures. About 20 percent of headways continue to either be “bunched” or “long,” so further reliability improvements are needed.
- Southbound, bunching and long headways were reduced by about two-thirds.

Wait time analysis

- Northbound, because of the frequency improvements on Route 8, riders now expect to wait about 1:45 less than previously. In reality, northbound riders are experiencing estimated wait times that are about 2:30 less than previously, meaning that the excess amount of time

⁹ Route 38 was replaced in fall 2016, when Route 106 was rerouted to serve Martin Luther King, Jr. Way S between Rainier Beach and Pioneer Square. This change was made as part of a separate project focused on southeast Seattle.

northbound customers wait has fallen from 21 percent to 13 percent. This reflects the improved on-time performance as discussed above.

- Southbound, Route 38 provided a similar frequency as Route 8 did, so expected average waits remain a little less than eight and a half minutes. However, the reduced number of very late trips means that estimated wait times have fallen by over a minute and the excessive wait time has been reduced from 21 percent to 6 percent more than expected.

Route 48 → Route 45 and Route 48

Route 48 was split in the U District. The replacement routes have some overlap within the U District because of the high demand for travel to that area. The northern segment of the route became Route 45 and stretches between Loyal Heights and UW Station via Greenwood, Green Lake and Roosevelt. The southern segment retained the Route 48 number, but now operates only between the U District and Mount Baker via the Central District.

Tables 53a and 53b. Before-and-After Metrics

April/May 2015 -- ROUTE 48										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	15th Av NE/NE 45th St	8%	19%	3%	71%	11%	9%	6.68	7.15	7%
Southbound	15th Av NE/NE 45th St	2%	24%	1%	73%	9%	8%	6.62	6.99	6%
April/May 2016 -- ROUTE 45 NB/48 SB										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	University Wy NE/NE 45th St	11%	3%	0%	85%	3%	3%	6.45	6.52	1%
Southbound	15th Av NE/NE 43rd St	14%	3%	1%	83%	2%	3%	5.51	5.52	0%

On-time performance analysis

- In both directions, 10 percent to 14 percent more trips are classified as being on time.
- Northbound, the percentage of late and very late trips fell from 22 percent to 3 percent, with almost no trips registering as very late. The percentage of early trips, however, increased from 8 percent to 11 percent.
- Southbound, the percentage of late and very late trips fell from 25 percent to 4 percent. Early trips have skyrocketed from 2 percent to 14 percent of all trips.

Headway adherence analysis

- Bunching and long headways used to occur on 20 percent of northbound trips, likely because buses were subject to Montlake Bridge openings. Now that Route 45 trips begin north of the bridge, the percentage of bunched and long headways is down to 6 percent.
- Southbound, similar reductions in bunching and long headways have been observed. Now about 5 percent of trips fall into the bunched or long headway categories, compared to 17 percent of trips previously.

Wait time analysis

- The reduction in expected average wait times for northbound riders was about 12 seconds due to slightly more frequent peak service. However, with the significant improvements to on-time performance and headway adherence, the estimated wait times for Route 45 riders are half a minute less than before and now almost match the expected wait time (only 1 percent more than expected).
- Route 48's frequency was boosted at many times of the day, reducing expected average wait times by a little over a minute, from over 6.5 minutes to 5.5 minutes. The estimated wait times are almost exactly the same as expected, bringing an actual benefit of about 1.5 minutes less wait time.

Route 65

This service change consistently through-routed Route 65 with Route 67, meaning that the routes are connected in the University District without having layover at that location. Previously, some trips on the 65 were connected with the 31 and 32, but not all trips were connected. The result of this change is a simpler and more consistent service pattern.

Tables 54a and 54b. Before-and-After Metrics

April/May 2015 -- ROUTE 65 to Lake City										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	NE Campus Pkwy/University Wy NE	3%	11%	2%	85%	2%	3%	11.73	13.47	15%

April/May 2016 -- ROUTE 65 to Lake City										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	NE Campus Pkwy/University Wy NE	7%	4%	1%	88%	1%	2%	7.29	7.61	4%

On-time performance analysis

- Route 65 previously maintained a relatively good 85 percent on-time performance rate at NE Campus Pkwy/University Way NE. The service change resulted in an increase to 88 percent.
- The percentage of late and very late trips dropped from 13 percent to 5 percent.
- The percentage of trips arriving too early has increased from 3 percent to 7 percent.

Headway adherence analysis

- Bunching and long headways weren't a significant problem before, largely because the route operated every 30 minutes.
- With Route 65 becoming frequent most of the day, we would have expected more incidences of bunching as thresholds tightened up. However, bunching and long headways decreased from 5 percent to 3 percent of trips. Route 65 headways adhere well to what is scheduled.

Wait time analysis

- Before the change, customers expected to wait almost 12 minutes. With more frequent service, expected wait times are now about 7.5 minutes.
- Estimated wait times have improved even more than expected wait times, as previously riders were estimated to be waiting about 13.5 minutes and now they are estimated to wait a little more than 7.5 minutes.

Routes 66/67

In March 2016, Route 66 was eliminated and frequency on Route 67 was improved. Having all trips operating on the same pathway and experiencing similar traffic conditions was expected to result in better trip spacing than the previous service pattern. Routes 66 and 67 came from different locations (Route 66 from downtown Seattle and Route 67 from Northgate as a through-route from Route 68), so bad traffic along one of the routes would create bus bunching, and the route caught in traffic would be late while the other route was on time.

Tables 55a and 55b. Before-and-After Metrics

April/May 2015 -- ROUTES 66/67 to Northgate										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	11th Ave NE/NE 45th St	14%	10%	1%	75%	6%	8%	7.40	8.04	9%
April/May 2015 -- ROUTE 67 to Northgate										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	11th Ave NE/NE 45th St	7%	15%	1%	77%	5%	5%	7.48	7.97	7%

On-time performance analysis

- On-time performance increased slightly, from 75 percent to 77 percent.
- The percentage of early trips was halved, from 14 percent to 7 percent, while the percentage of late trips increased from 10 percent to 15 percent. Early trips, which create problems for riders if they show up near the scheduled departure time and find the bus has already left, are easy to correct.

Headway adherence analysis

- As expected, bus bunching and long headways were reduced from 14 percent to 10 percent as a result of route simplification.

Wait time analysis

- Expected and estimated wait times were about the same before and after the changes. However, the difference between expected and estimated wait times is 2 percent lower after the changes.

Route 71

Route 71 was modified to operate only between Wedgwood and UW Station instead of traveling to downtown Seattle. Route 71 would regularly encounter traffic between the U District and downtown Seattle, so elimination of this segment was expected to improve reliability significantly.

Tables 56a and 56b. Before-and-After Metrics

April/May 2015 -- ROUTES 71 to Wedgwood										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	University Wy NE/NE 45th St	1%	37%	7%	55%	2%	2%	14.90	17.23	16%

April/May 2016 -- ROUTES 71 to Wedgwood										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	University Wy NE/NE 45th St	10%	5%	0%	85%	0%	0%	14.87	15.98	7%

On-time performance analysis

- Northbound trips on Route 71 used to be on time about 55 percent of the time. As expected, the changes increased reliability significantly, to 85 percent of trips being on time.
- Early trips increased significantly, from 1 percent to 10 percent, showing that the route is operating faster than scheduled.
- Very late trips have been virtually eliminated, dropping from 7 percent of all trips to 0.1 percent of all trips (i.e. one out of 1,000 trips).

Headway adherence analysis

- Route 71 operates every 30 minutes, so isn't prone to bunching or long headways according to our definitions. However, prior to the service change about 2 percent of headways were less than 15 minutes and another 2 percent of headways were longer than 45 minutes.

Wait time analysis

- Expected wait times are virtually the same as a result of the frequency being maintained at every 30 minutes.
- Given the significant reduction in late trips, the estimated wait time was reduced from 17.25 minutes to a little less than 16 minutes.

Routes 72/372

Changes intended to improve reliability

Before the service change, riders heading from the U District to Lake City could take either route 72 or 372. Each operated every 30 minutes during the day and shared only one stop in the U District—at NE Campus Parkway. Route 72 began in downtown Seattle and was subject to heavy traffic before reaching the U District, resulting in significant reliability problems. The consolidation of service onto a single pattern was expected to improve reliability, as all trips on Route 372 begin in the U District.

Tables 57a and 57b. Before-and-After Metrics

		April/May 2015 -- ROUTES 72/372 to Lake City								
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound 72	University Wy NE/NE 45th St	0%	46%	8%	46%	2%	2%	14.92	21.75	46%
Northbound 372	UW Hub	2%	5%	1%	92%	1%	2%	11.75	13.21	12%
		April/May 2016 -- ROUTE 372 to Lake City								
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound 372	UW Hub	1%	6%	1%	92%	4%	4%	7.67	7.91	3%

On-time performance analysis

- On Route 72 before the changes, only 46 percent of trips were on time heading north toward Lake City.
- Route 372 had excellent on-time performance before and after the changes, with 92 percent of trips being on time.

Headway adherence analysis

- Routes 72 and 372 each provided service every 30 minutes for most of the day, so headway adherence was not an issue. (Route 372 previously operated more frequently toward the U District in the AM peak and away from the U District in the PM peak.)
- The frequency of Route 372 was improved to 10-to-15 minutes for most of the day, so the incidence of bus bunching (buses less than 5 to 7.5 minutes apart) and long headways (buses more than 15 to 22.5 minutes apart) increased to 4 percent of headways being bunched and 4 percent of headways being long.

Wait time analysis

- Before the change, customers expected, on average, to wait about 15 minutes for Route 72 and 11.75 minutes for Route 372. Route 372, with more frequent all day service, reduced the expected wait times to about 7.75 minutes.
- Before the change, estimated wait times on Route 72 were 46 percent longer than expected (21.75 minutes instead of about 15 minutes), as the route chronically ran late. Estimated wait times for Route 372 dropped from 13.25 minutes to about eight minutes, largely a result of more frequent service. But the difference in estimated and expected wait times was also reduced

significantly, so that riders are now actually waiting only 3 percent longer than expected, versus 12 percent longer than expected before the changes.

Routes 73/373

Changes intended to improve reliability

Similar to Routes 71 and 72, Route 73 suffered from late trips and poor reliability between downtown Seattle and the U District. Under normal circumstances, truncating Route 73 in the U District would be expected to significantly improve reliability. However, bus layover space at UW Station is limited, so the trips are “live-looped” in the U District. This means that inbound buses arriving at UW Station from Shoreline or Jackson Park immediately turn around and begin an outbound trip in the opposite direction. Consequently, if the arriving bus is late, the trip heading back will also be late.

Tables 58a and 58b. Before-and-After Metrics

April/May 2015 -- ROUTE 73 to Jackson Park										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	University Wy NE/NE 45th St	3%	24%	4%	69%	1%	2%	14.77	16.85	14%
April/May 2016 -- ROUTES 73/373 to Jackson Park										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	University Wy NE/NE 45th St	8%	17%	3%	72%	4%	4%	12.51	15.08	20%

On-time performance analysis

- On-time performance improved from 69 percent to 72 percent.
- The percentage of early trips increased from 3 percent to 8 percent as Routes 73 and 373 are faster than previous Route 73. The change in speed is likely a result of less ridership and crowding on revised Route 73 compared to former Route 73 that went to downtown Seattle.
- Late trips fell from 24 percent to 17 percent, while very late trips decreased slightly, from 4 percent to 3 percent.

Headway adherence analysis

- As with all routes operating every 30 minutes, bunching and long headways occur on only a very small percentage of trips.
- Routes 73 and 373 have 15-minute peak service in both directions, resulting in more opportunities for bunching and long headways. After the change, 4 percent of headways were classified as bunched and a further 4 percent of headways were long.

Wait time analysis

- Both expected and actual wait times fell as a result of the increased number of trips on the combined 73/373 versus previous Route 73. (Previously, Routes 73 and 373 both operated in the northbound direction during the PM peak, but schedules were not coordinated to provide even headways between the two routes combined.)
- Given the continued incidence of running late, riders are still waiting about 20 percent longer than expected.

Route 75

Changes intended to improve reliability

Like Route 65, Routes 65 and 75 were previously through-routed with Routes 31 and 32. The service change simplified the routes' service design by having all Route 31 and 32 trips through-routed with Route 75. We expected this to have a small impact on reliability. However, for part of the analysis period in April and May 2016, Route 75 had a significant reroute in the Sand Point area that added 10 to 15 minutes to trips, so it ran late more often. While our analysis focused on eastbound trips (i.e. before reaching the reroute), the severity of late running on westbound trips may have caused late running on eastbound trips as well, if layovers were insufficient to make up for the westbound delays.

Tables 59a and 59b. Before-and-After Metrics

April/May 2015 -- ROUTE 75 to Northgate										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	NE Campus Pkwy/University Wy NE	2%	14%	3%	81%	5%	5%	9.91	11.10	12%
April/May 2016 -- ROUTE 75 to Northgate										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Northbound	NE Campus Pkwy/University Wy NE	3%	15%	3%	79%	7%	6%	7.49	8.08	8%

On-time performance analysis

- On-time performance dropped slightly, from 81 percent to 79 percent. As explained above, this was likely caused by a reroute in the Sand Point area.

Headway adherence analysis

- Given the increase in frequency from 15-30 minute frequency to 10-15 minute frequency, along with no improvement in reliability, the incidence of bus bunching and long headways increased slightly, to 7 percent and 6 percent, respectively.

Wait time analysis

- Expected and estimated wait times dropped significantly as a result in more trips operating on Route 75. Riders are now estimated to be waiting about eight minutes instead of 11 minutes before the change.

Routes 71, 72, 73 and 74 versus Link

Changes intended to improve reliability

Before the restructure, Routes 71, 72, 73 and 74 combined to provide frequent, express service between the U District and downtown Seattle and served unique areas north of the U District. Link replaced these routes as the best way for most riders to get to downtown Seattle. As Link operates in a tunnel where service the trains are separated from traffic and weather between UW Station and downtown Seattle, we expected service to be extremely reliable. Because Routes 71, 72, 73 and 74 all came from different locations in northeast Seattle, they tended to have trouble staying on schedule and maintaining headways, which resulted in longer than expected wait times and poor service quality as buses became severely overloaded.

Tables 60a and 60b. Before-and-After Metrics

April/May 2015 -- ROUTES 71/72/73/74 to downtown Seattle										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Southbound	University Wy NE/NE 45th St	2%	28%	3%	68%	19%	20%	4.44	5.94	34%
April/May 2016 -- Link Light Rail to downtown Seattle										
Direction	Location	% trips early	% trips late	% trips very late	% trips on-time	% headways bunched	% trips long headways	Expected Average Wait (minutes)	Estimated Average Wait (minutes)	Excess Wait
Southbound	UW Station	8%	3%	1%	89%	4%	5%	3*	3.34*	11%
								* -- Peak wait times		

On-time performance analysis

- 68 percent of trips on Routes 71, 72, 73 and 74 heading south from the U District were on time, with 28 percent of trips being late and 3 percent being very late.
- Link proved to be very reliable; 89 percent of trips departing UW Station were on time. Only 4 percent of trips were late or very late, while 8 percent of trips departed early.

Headway adherence analysis

- The high frequency and late running of routes 71, 72, 73 and 74 combined to result in one in five headways being bunched and another one in five headways being long (compared with expected headway).
- Link trains departing from the UW were bunched on about 4 percent of headways, while 5 percent were long headways.

Wait time analysis

- Routes 71, 72, 73 and 74 were scheduled to provide very frequent service, meaning customers should have expected to wait about 4.5 minutes for a bus to arrive. We estimate that customers actually waited 34 percent longer, or about 6 minutes, for a bus. Because of the heavy ridership on the routes, long gaps in service often resulted in uneven loads between buses and riders being left behind, so wait times were much longer than expected. Our analysis was unable to capture this excess time, but it would have been higher than 34 percent if pass-ups were included.
- Link operates every 6 minutes in the peak for an expected wait time of 3 minutes. Estimated wait times are 3 1/3 minutes, leading to an excess wait time of 11 percent. Note: Link trains departing UW Station have not been observed to regularly leave customers behind since they begin at UW Station and have capacity for over 300 passengers.

CHANGES IN TRAVEL TIME

Introduction

Every day, people take hundreds of thousands of trips on public transit in King County. Each trip has a unique start and end point, and trips occur at different times of day. Within any transit network, some trips can be made on a single transit vehicle. However, many trips cannot be completed using a single route and require a transfer between routes. Creating a network of services where riders can transfer between services expands the overall reach of the transit network and makes the network more useful for a variety of trip purposes. For trips that require transfers, a network of frequent routes having frequent connection points results in shorter travel times than a network of infrequent routes that may provide a few more one-seat ride trips¹⁰.

The Link-related network changes vastly improved the frequency of many routes, including many peak commuter routes that provide direct trips to and from downtown Seattle. These improvements were made possible largely by eliminating express bus service between the U District and downtown Seattle, and redeploying those resources elsewhere. Some riders who previously enjoyed a no-transfer trip must now transfer to reach their destination. Because this was an area of concern, this section looks closely at overall trip times and how they have changed.

The findings of this analysis show that travel times in most areas decreased or remained the same as a result of the changes, largely as a result of Link's fast travel times and frequent service on Metro routes connecting to Link. The most significant improvement was for crosstown trips in northeast Seattle.

Components of travel time

Riders choose how to travel based on many different factors, but travel time is at the forefront of any travel decision. When transit service is designed, tradeoffs are made between the various factors. For example, operating bus routes on more streets reduces the amount of time needed for riders to access bus service, but given limited service budgets, each route then has less frequent service and increased wait times. Similarly, adding more bus stops decreases access and egress time, but increases the in-vehicle travel time for riders already on the bus. Many time factors go into the calculation of overall "door-to-door" transit travel time, including:

Access time/egress time (time from origin to bus stop and from bus stop to destination)

Riders must get to and from a bus stop. A majority of riders systemwide access Metro by walking to stops, but some riders may also drive if parking space is available near a stop, or may be dropped off at a stop.

Wait time

Riders must get to a stop before the bus arrives. Because it is difficult to predict exact arrival times, riders end up waiting at the stop until a bus arrives. The amount of time a customer waits depends on whether riders feel it necessary to consult a schedule and the reliability of service. For frequent service (every 15 minutes or more frequently), riders tend to arrive randomly and wait about half of the headway (scheduled time between buses) on average. For infrequent service, riders usually

¹⁰ Metro Rider Surveys between 2010 and 2015 indicated that between 38 percent and 52 percent of primary trips involve a transfer.

check a schedule to avoid long waits at a bus stop. They either wait at their origin until it's time to depart for the bus stop, or wait at their destination because they arrived earlier than necessary so they would be sure to be on time. Our calculations of wait time encompass both the "at stop" and the "travel opportunity" wait times by using half the headway.

In-vehicle travel time

The amount of time a rider spends in the vehicle depends on the chosen route(s), traffic, roadway speeds, traffic control devices (traffic signals, crosswalks, etc.), the number of stops and the amount of time the bus spends at each stop. Metro does not control all of these factors directly, but can directly modify routings and bus stop locations. Metro has an active Speed and Reliability program that works with jurisdictions to make improvements at problem locations or along congested corridors. In this project, Link offers the biggest improvement for in-vehicle travel time, since it operates in a tunnel where trains can travel at high speeds with no interference from traffic or traffic control devices between UW Station and downtown Seattle.

Transfer time (if necessary)

Many trips require transfers between bus routes. Passengers' arrival times at the transfer point will be determined by the first buses they ride. Unless schedules are coordinated for transfers, we assume that arrival is random and riders experience an average transfer time of half the headway of the connecting bus. In some cases, such as UW Station, riders also must walk to the transfer location, so transfer time includes not only the wait time but any time to move between stops.

While each of these components can be calculated in minutes, riders can have a different perception of time. A minute spent in motion is typically perceived to be less than a minute waiting at a stop. As a rule of thumb, waiting generally feels two and half times as long as being on a bus in motion¹¹.

Transferring is also generally perceived as a negative, but this varies depending on the frequency of the connecting service. Transferring between frequent and reliable services is not perceived as negatively as transferring between infrequent services, because the rider has less anxiety about missing a connection and having a long wait until the next trip.

General changes in travel time by neighborhood

Since a network offers many potential trips, it isn't feasible to analyze the change in travel time for all origin-destination combinations. Instead, this evaluation focused more generally on the changes in travel time components and on the factors that led to the changes within each neighborhood, as shown in Table 50 and described in the text that follows. Outcomes for specific trips may not conform to the general outcomes presented.

¹¹ Transit Capacity and Quality of Service Manual, Third Edition. Transit Cooperative Research Program, Report 165, National Academy of Sciences, 2013, p. 4-11.

Table 61: Changes in Travel Time and Factors in the Changes

Neighborhoods	Change in Travel Time Components				Factors in Changes			
	Access Times	Wait Times	In-vehicle Times	Transfer Times	Service Frequency	Walk Distance	Number of Transfers	Light Rail
Ballard	↔	↓	↔	↓	↑	↔	↔	N/A
Bryant	↔	↓	↓	↓	↑	↔	↓	X
Capitol Hill	↔	↓	↓	↓	↑	↔	↔	X
Central District	↔	↓	↔	↓	↑	↔	↑	N/A
Crown Hill	↔	↓	↔	↓	↑	↔	↔	N/A
East Capitol Hill	↔	↓	↓	↑	↑	↔	↑	X
Eastlake	↔	↓	↑	↓	↑	↔	↔	N/A
First Hill	↔	↓	↔	↓	↑	↔	↔	N/A
Fremont	↓	↓	↓	↓	↑	↓	↓	N/A
Green Lake	↔	↓	↔	↓	↑	↔	↓	N/A
Jackson Park	↔	↓	↔	↓	↑	↔	↑	X
Lake City	↔	↓	↔	↓	↑	↔	↑	X
Laurelhurst	↑	↓	↓	↔	↑	↑	↑	X
Madison Park	↔	↓	↔	↓	↑	↔	↔	N/A
Maple Leaf	↑	↓	↓	↓	↑	↑	↑	X
Matthews Beach	↔	↓	↓	↓	↑	↔	↔	X
Meadowbrook	↔	↓	↓	↓	↑	↔	↔	X
Montlake	↑	↓	↔	↔	↑	↑	↑	X
North Capitol Hill	↑	↓	↔	↓	↑	↑	↔	X
Northgate	↔	↓	↔	↓	↑	↔	↑	N/A
Northshore	↔	↓	↔	↓	↑	↔	↔	N/A
Phinney Ridge	↔	↓	↔	↓	↑	↔	↔	N/A
Pinehurst	↔	↓	↔	↓	↑	↔	↔	X
Ravenna	↑	↓	↔	↓	↑	↑	↓	X
Ridgecrest	↔	↓	↔	↓	↑	↔	↔	N/A
Roosevelt	↔	↓	↔	↓	↑	↔	↓	N/A
Sand Point	↔	↓	↓	↓	↑	↔	↓	X
South Lake Union	↔	↓	↓	↓	↑	↔	↔	N/A
U. District	↔	↓	↓	↓	↑	↔	↔	X
View Ridge	↔	↓	↔	↔	↑	↔	↔	X
Wallingford	↔	↓	↔	↓	↑	↔	↓	N/A
Wedgwood	↔	↓	↔	↓	↑	↔	↔	X
Whittier Heights	↔	↔	↔	↔	↔	↔	↔	N/A
GREEN = Improved customer experience								
BLACK = No change or mixed customer experience								
RED = Degraded customer experience								
↑ = Increase in metric								
↔ = No significant change in metric								
↓ = Decrease in metric								

Ballard

The transit network in Ballard did not have significant changes. The March 2016 changes focused on improving the frequency of existing routes, so travel times should be improved by reduced waiting times and shorter transfer times.

Bryant

The Bryant neighborhood received more frequent service on two existing routes, 65 and 75, reducing wait times and transfer times, and also received new Route 62, providing new connections and eliminating transfers that were previously needed. Bryant is also very close to UW Station, with connections to the station provided by routes 65 and 75, potentially leading to more transfers during off-peak periods but shorter in-vehicle travel time for some trips (e.g. to Capitol Hill or downtown Seattle).

Capitol Hill

As home to one of the new Link stations, many trips benefitted from shorter in-vehicle travel time. Ridership data suggest that many riders walked to the station, while some decided to transfer to and from one of several bus routes that serve the station. To help reduce delay from new transfers, we improved the frequency of many routes, and revised one route to operate closer to the station.

Central District

Frequency was improved for routes 8 and 48, helping reduce wait times and transfer times. Routes 8 and 48 were split in an attempt to improve reliability, so some new transfers are necessary for riders who used to ride past the location where the routes now end. (See the “Changes in Reliability of Service” section for more details about these changes and outcomes.)

Crown Hill

The split of Route 48 in the U District likely did not add many transfers for Crown Hill riders, as very few riders rode from Crown Hill past the U District.

East Capitol Hill

The reduction of Route 43 to peak-only service to and from downtown Seattle¹² resulted in more transfers (or longer walks) for riders from the 23rd Ave E and E Thomas St corridors to reach downtown Seattle. To reduce transfer times, we increased the frequency of routes 8 and 48, thereby reducing wait times. East Capitol Hill riders can also benefit from quicker trips on Link between Capitol Hill Station and downtown Seattle.

Eastlake

The discontinuation of Route 66 eliminated the fastest in-vehicle trip between some stops along Eastlake and downtown Seattle, because Route 66 skipped stops and skirted past traffic in South Lake Union. To mitigate the longer in-vehicle times of Route 70, we improved the frequency of peak service.

First Hill

The First Hill Streetcar provides a new frequent connection from Capitol Hill Station to the First Hill area. The combined frequency of the First Hill Streetcar and routes 9 and 60 has reduced the wait and transfer times from the previous bus-only service.

¹² Route 43 provides limited service at other times between Capitol Hill and the University District.

Fremont

New all-day coverage on N 39th St reduced access time to transit for riders in that part of Fremont. Riders along Leary Way N and N 39th now have a fast connection to downtown Seattle, reducing in-vehicle travel time. Route 62 replaced Routes 26 and 28 in the Dexter Ave corridor between Fremont and downtown Seattle and provides new connections between Fremont and many north Seattle neighborhoods. Routes 26 and 28 were revised to travel on Aurora Ave. The reduction in transfers needed to reach north Seattle destinations has offset new transfers that are necessary because routes 26 and 28 now bypass the center of Fremont.

Green Lake

Route 62 provides more frequent service than former Route 16, reducing wait times and transfer times. Route 62's new connections also eliminate transfers for riders coming to Green Lake from areas east of 15th Ave NE.

Jackson Park

For Jackson Park riders, the biggest improvement was more frequent service on Route 65, which reduced wait times for riders trying to reach Lake City, Wedgwood, Children's Hospital or University Village. Off-peak riders who used to ride the lengthy, but no-transfer, trip to downtown Seattle on Route 73, now have to transfer to Link or Route 41 for service to downtown Seattle. Route 77 continues to provide direct service between downtown Seattle and Jackson Park during peak commute times, and service was added to improve both the hours of service (span) and frequency.

Lake City

Daytime frequencies doubled for the three main routes connecting Lake City and the U District—routes 65, 75 and 372—resulting in less wait time. For off-peak riders along Lake City Way NE south of NE 125th St, the discontinuation of Route 72 means that riders heading to downtown Seattle need to transfer in the U District or backtrack to NE 125th St to catch Route 522 (which is actually faster than Route 72 was into downtown Seattle). Route 312 continues to provide direct service between downtown Seattle and stops on Lake City Way NE south of NE 125th St during peak commute times.

Laurelhurst

The service coverage in Laurelhurst was reduced, and service was focused on areas with relatively higher potential ridership and benefit from the Link extension. The elimination of service in some areas increased the distance to reach transit for some riders. For those able to access new Route 78, wait times are less because Route 78 operates more frequently than former Route 25. Route 78 connects riders to Link, so riders heading to downtown Seattle have to transfer but benefit from the six-minute travel time on Link versus the 30-minute travel time of Route 25, which took a circuitous path between the U District and downtown Seattle.

Madison Park

Route 11's routing was not changed, so it continues to provide direct service to and from downtown Seattle, and the closest stops to Capitol Hill Station are about four blocks south of the station on E Pine St. Its frequency was improved, leading to less wait time and shorter transfer times.

Maple Leaf

Before the change, Maple Leaf had all-day service on all three closely spaced north-south arterials: Fifth Ave NE, Roosevelt Way NE and 15th Ave NE. The least-frequent service was provided along the central, and most densely populated, corridor: Roosevelt Way NE. A key element of the service change was to bring more service to Roosevelt Way NE, where it would benefit the most riders. However, to achieve

this with limited service hours available, we eliminated midday service on Fifth Ave NE, and as a result some riders have to walk further to reach transit. Riders able to access service on Roosevelt Way NE will have relatively short wait times and transfer times because of the availability of very frequent service on Route 67. All-day service was maintained on 15th Ave NE.

Routes 66 and 73 previously provided all-day, two-way service between Maple Leaf and downtown Seattle, while the remaining all-day routes—67 and 73—terminate in the U District. Off-peak riders travelling between Maple Leaf and downtown Seattle may use either bus route to transfer to Link at UW Station. Even with the transfer, overall travel times to reach downtown Seattle during off-peak periods are 30 to 40 minutes. Route 522 now also stops along Lake City Way NE at NE 85th St, providing an all-day connection to downtown Seattle that takes approximately 10 to 20 minutes.

A new peak route in Maple Leaf provides an “express” route to South Lake Union and First Hill, using I-5 instead of local arterials through the U District and along Eastlake (old Route 66). This means that commuters to these destinations are saving 15 to 20 minutes of in-vehicle travel time. In addition, Route 77 continues to provide direct service between downtown Seattle and Maple Leaf during peak commute times, and service was added to improve both the hours of service (span) and frequency.

Matthews Beach

Route 75 continues to be the only route serving Matthews Beach. Service on Route 75 was doubled during the daytime from 30-minute frequency to 15-minute frequency, resulting in reduced waiting times and transfer times.

Meadowbrook

Meadowbrook continues to be served by routes 64 and 65. Because there were no routing changes in the area, riders still walk to 35th Ave NE to reach the service. However, Route 65 frequency was doubled during the daytime, so wait times and transfer times have been reduced. Route 64 was revised to provide a new connection to South Lake Union and a faster connection to First Hill. Riders heading to downtown Seattle can take Link for the connection between the U District and downtown, making for less in-vehicle time than before, when riders had to transfer to Routes 71, 72, or 73 during off-peak periods.

Montlake

Route 25 was discontinued because of poor ridership, so some former riders must walk a significant distance to reach transit. If those riders are heading to downtown Seattle, they may also have to transfer, as Route 43 was reduced to peak-only. To help offset these travel-time impacts, Route 48 frequency was increased, helping to reduce wait times and transfer times.

North Capitol Hill

As in Montlake, the discontinuation of Route 25 means some riders must walk to reach alternative transit service. We increased the frequency of routes 49 and 70 to help reduce wait times and transfer times.

Northgate

Route 26 replaced Route 16 service between Northgate and downtown Seattle via E Green Lake. This change improved in-vehicle travel time to the Northgate Transit Center for some riders, but came at the cost of more transfers for riders wishing to travel further north along Meridian Ave N, and longer wait times as a result of service operating somewhat less frequently during off-peak times (every 30 minutes instead of every 20).

Direct service to Overlake is no longer available because of the discontinuation of Route 242. The improved frequency of Routes 67 and 75 has resulted in shorter wait times and transfer times for riders of those routes. New Route 63 provides an “express” route to South Lake Union and First Hill, using I-5 instead of local arterials through the U District and along Eastlake (old Route 66), so commuters to these destinations are saving 15 to 20 minutes of in-vehicle travel time. However, riders traveling between Northgate and South Lake Union during off-peak times must now transfer to make this connection.

Northshore

Route 372 received a major increase in service on weekdays, from 79 to 146 daily trips, reducing wait times and transfer times on this major trunk route.

Phinney Ridge

Route 44 received improved service frequency, so riders going to the U District now have shorter wait times and transfer times.

Pinehurst

The main change for Pinehurst is that Route 73 was revised to terminate at UW Station instead of downtown Seattle. For Pinehurst residents, however, riding Route 73 was never the fastest way to downtown Seattle; Route 41, which operates on I-5 between Northgate and downtown Seattle, is the fastest option. Improved frequency on routes 41 and 75 helped to reduce wait and transfer times for Pinehurst residents along NE Northgate Way and NE 125th St.

Ravenna

The discontinuation of routes 68 and 72 eliminated coverage on NE 75th and NE 80th streets in the north end of Ravenna; people in this area must walk to service on 15th Ave NE, 25th Ave NE, Lake City Way NE, or NE 65th St. To reduce wait times and transfer times, we increased the frequency of bus routes on 25th Ave NE and NE 65th St. The new Route 522 stop at Lake City Way NE and 20th Ave NE offers a new, fast, all-day connection to downtown Seattle for north Ravenna residents.

Ridgecrest

The only change in the Ridgecrest area was added trips on Route 373, which reduced wait times for riders.

Roosevelt

The area around future Roosevelt Station experienced some of the most significant changes of any neighborhood, mainly because most routes previously funneled through the Roosevelt area on their way to the U District. With the opening of UW Station, it no longer makes sense for most northeast Seattle residents to travel through Roosevelt and then backtrack to UW Station. For this reason we shifted resources from north-south routes (e.g. routes 66 and 72) through Roosevelt to new east-west Route 62. Not only does this new, frequent connection help reduce the number of transfers, it also reduces wait and transfer times for east-west riders.

Even with the significant changes to all-day service, Roosevelt retains direct peak period “express” service to downtown Seattle on Route 76. The number of weekday trips was almost doubled, providing more frequent service and extending the hours of operation earlier and later in each peak period. Route 64 was revised to serve South Lake Union, providing a faster option from Roosevelt to South Lake Union than previously existed on Route 66.

Service reliability in Roosevelt is much improved as well, as the all-day routes are shorter. Route 45, which replaced the north portion of Route 48, now begins at UW Station instead of Mount Baker Transit

Center, avoiding the Montlake bottleneck. Reliability of northbound trips departing the U District improved significantly as a result of this change.

Sand Point

The transit network in Sand Point was significantly upgraded with the Link changes: existing Route 75 is more frequent and new Route 62 now provides frequent east-west connections from Sand Point to Bryant, Ravenna, Roosevelt, Green Lake, Wallingford and Fremont. Almost all travel time components are better than before the change as riders wait less, transfer less and have faster trips.

South Lake Union

New Route 63 and revised Route 64 have made getting to South Lake Union from Maple Leaf, Roosevelt, Ravenna, Bryant, Wedgwood and Meadowbrook much faster for commuters than previously, as riders no longer need to go through (or transfer in) the U District. Improved frequency on Routes 8, 62 and 70 have significantly reduced wait times and transfer times for riders heading to and from South Lake Union.

Off-peak riders heading between South Lake Union and locations north of the U District no longer have Route 66 but have gained new Route 62, which provides frequent all-day service to the NE 65th St corridor. Riders in other locations must now transfer to and from Route 70 in the U District, but benefit from the frequent service now provided by Routes 65, 67, 75 and 372.

University District

Link provides faster service for people trying to reach Capitol Hill, downtown Seattle or the Rainier Valley, compared to previous bus-only options. The redistribution of service from bus routes between the U District and downtown Seattle to other routes connecting to northeast Seattle neighborhoods has increased the frequency of service, reducing wait and transfer times.

View Ridge

New Route 62 provides a level of service not previously seen in View Ridge, providing very frequent connections to many destinations in north Seattle. However, this has been offset by Route 71 being truncated at UW Station instead of going to downtown Seattle. For the large number of students headed to and from Roosevelt High School, new Route 62 provides more frequent service than Route 71, reducing wait times. Route 62 also provides new east-west connections to Sand Point, Bryant, Ravenna, Roosevelt, Green Lake, Wallingford, and Fremont.

View Ridge retains direct peak period “express” service to downtown Seattle on Route 76. The number of weekday trips was almost doubled, providing more frequent service and extending the hours of operation earlier and later in each peak period.

Wallingford

New Route 62 replaced service previously provided by Route 16 between Wallingford and downtown Seattle. Route 62 operates on Dexter Ave instead of Aurora Ave, like former Route 16. This change created more robust crosstown service connecting more locations, at the cost of a slower trip to downtown Seattle from the heart of Wallingford. For riders in south and east Wallingford, the conversion of all Route 26 trips to express routing via Aurora Ave has resulted in faster trips to downtown Seattle at the cost of connections to Fremont. Improved frequency on Route 44 and new Route 62 means that wait and transfer times are reduced, making transfers easier. Routes 31 and 32 continue to provide frequent service to Fremont and the U District, but now operate on Wallingford Ave, instead of Stone Way, where Route 62 now operates.

Wedgwood

Route 65 frequency was doubled at most times of the day, and the route continues to operate on 35th Ave NE. It connects to Link at UW Station and provides an alternative to meandering Route 71, that used to go all the way to downtown Seattle but traveled east through View Ridge before turning back west.

Wedgwood retains direct peak period “express” service to downtown Seattle on Route 76. However, in the afternoon, Link and Route 65 are faster for Wedgwood riders, as that connection takes between 30 to 40 minutes instead of 45 to 50 minutes on Route 76.

Wedgwood riders who work in South Lake Union benefit from Route 64, which was redirected to serve South Lake Union. This new connection takes about 30 to 40 minutes instead of about an hour including a transfer in the U District.

Whittier Heights

Route 28 was converted to “all express,” which produced mixed outcomes for Whittier Heights. The peak periods have more express trips (i.e. less wait times), but they take longer to reach downtown Seattle than before, since service was rerouted to enter Aurora Ave in lower rather than upper Fremont. In the off-peak, service to downtown Seattle is faster than before, but the loss of a connection to the heart of Fremont means that local trips may now require a transfer or longer walk to complete.

IMPLEMENTATION SUCCESSES AND LESSONS LEARNED

As with any service change of this magnitude, it is difficult to anticipate all the challenges and problems will arise during implementation. Metro closely monitored service and customer comments during the weeks and months following the March service change. We took some actions to solve immediate problems with overcrowding, and continue to follow up where issues remain.

Some notable successes that we hope to replicate in future service changes include:

- Metro held a small reserve of service hours to address overcrowding and other issues that appeared immediately after the change. This enabled us to respond by adding trips and address other immediate rider concerns. It is critical that Metro continue to reserve some service hours whenever a major change occurs. We made investments in April 2016, May 2016, July 2016, September 2016 and March 2017. A list of follow-up investments is below.
- Metro and Sound Transit “street teams” were present before and after the changes in key locations, helping riders learn about the changes and become familiar with new travel patterns.
- Extensive marketing and public outreach helped to raise awareness of the changes. Distribution of ORCA cards to thousands of existing and potential riders helped people transfer between buses and Link.
- Strong partnerships with other entities such as the City of Seattle, the University of Washington, and Seattle Children’s helped employees and students learn about, prepare for, and adapt to changes.
- Internal Metro preparations such as Operations training and information sharing across the agency were successful, resulting in largely smooth rollout of the new changes and well-prepared customer service staff.
- Bus stop facilities at UW Station were completed on time and have been working well.

Some notable lessons learned that should benefit future large-scale changes include:

- Metro initially assigned a mix of 40-foot (standard) and 60-foot (articulated) buses to some routes. On some routes, this resulted in overcrowding and pass-bys on trips that had standard buses. Over the long-term, we will continue to review and adjust the assignment of buses to focus articulated buses to the busiest routes when possible. However, bus size assignments should be reviewed more closely when planning service for future major service changes.
- Metro underestimated ridership on some routes that connect to UW Station, leading to some overcrowding immediately following the service change in March. We also failed to anticipate a large jump in ridership on Route 70, serving South Lake Union, in June 2016. In most cases, we responded to crowding by adding trips and taking action to ensure the consistent assignment of 60-foot articulated coaches where possible. In future restructures, Metro should maintain contingency funds to respond to these instances and should also consider providing higher service levels on routes connecting with Link stations.
- Where ridership patterns changed significantly, some bus schedules were no longer accurate. For example, some running times ended up being too high where ridership had declined, leading to early operation and buses needing to pause on route to stay on schedule. In future planning, more attention should be paid to areas where schedule adjustments may be needed in addition to routing changes.

- Despite an extensive public engagement effort that generated nearly 20,000 comments and survey responses, Metro nonetheless heard from individuals who felt outreach was insufficient or was not effective at reaching them. Additional resources during the planning period would have helped to get the word out to more riders. In addition, Metro should continue to build on the successes of the Metro bus-Link integration outreach process by partnering with community groups, using multiple outreach and media channels, and seeking out a variety ways to get feedback from as many people as possible.
- Though riders are using Metro's revised bus network to connect with Link at UW Station and overall transit ridership is up, some remain displeased about no longer having direct service to downtown Seattle throughout the day.

Table 62: Follow-up Investments

Route	Added Service	Reason for addition	Added in:
8	Improve frequency in late PM Peak	High Ridership	September-16
8	Extend 15-minute frequency later on Weekdays	High ridership, improve connections to Link Light Rail	March-17
8	Extend 20-minute frequency earlier and later on Sundays	High ridership, improve connections to Link Light Rail	March-17
26	Add one new AM Peak trip	Overcrowding	September-16
26	Add one new AM Peak trip	Overcrowding	March-17
28	Add two new AM Peak and one new PM Peak trips	Overcrowding	April-16
28	Add one new AM Peak trip	Overcrowding	March-17
62	Add two new AM Peak trips	Overcrowding	April-16
62	Add one new AM Peak trip, adjust schedule	Overcrowding	September-16
62	Add one new AM Peak and one new PM Peak trips	Overcrowding	March-17
63	Add one new AM Peak trip	Extended hours of operation	September-16
63	Add one new PM Peak trip	Overcrowding	March-17
65	Add three new PM Peak trips, adjust schedule	Overcrowding, high ridership	September-16
65	Improve Sunday frequency to every 20 minutes	High ridership, improve connections to Link Light Rail	September-16
65	Extend evening 15-minute frequency until 10 p.m. on Weekdays and Saturday	High ridership, improve connections to Link Light Rail	March-17
67	Add one new AM Peak and two new PM Peak trips	Overcrowding	May-16
67	Add one new AM Peak and three new PM Peak trips.	Overcrowding	September-16
67	Improve Sunday frequency to every 20 minutes	High ridership, improve connections to Link Light Rail	September-16
67	Extend evening 15-minute frequency until 10 p.m. on Weekdays and Saturday	High ridership, improve connections to Link Light Rail	March-17
70	Add two new AM Peak trips	Overcrowding	July-16
70	Add two new AM Peak and one new PM Peak trips	Overcrowding	March-17
73	Add Sunday service	Extended hours of operation	September-16
74	Add two new AM Peak trips	Overcrowding	March-17
75	Extend evening 15-minute frequency 30 minutes later on Weekdays	High ridership, improve connections to Link Light Rail	March-17
76	Add two new AM Peak trips	Extended hours of operation	May-16
77	Add two new AM Peak and two new PM Peak trips	Extended hours of operation	September-16
355	Add one new AM Peak trip and improve reliability	Overcrowding and Reliability	March-17
372	Add one new AM Peak and two new PM Peak trips	Overcrowding, high ridership	September-16
372	Extend 15-minute frequency later on Weekdays by one hour	High ridership	March-17
372	Improve Sunday frequency to every 20 minutes	High ridership, improve connections to Link Light Rail	March-17
373	Add four new AM Peak trips	Overcrowding, Extended hours of operation	May-16
373	Add one new PM Peak trip	New bell time at Roosevelt High School	September-16

SECTION II: CUSTOMER SATISFACTION

KEY FINDINGS

The Metro Bus-Sound Transit Link Integration customer assessment summarizes satisfaction with the bus network changes around the extension of Link to Capitol Hill and University of Washington stations. Below are significant findings from the assessment; background and more information are in the chapters that follow.

- **Comparing Pre and Post reconfiguration survey results indicates that the changes made to integrate bus service with the two new Link stations have had a positive impact on rider satisfaction.**
 - Among respondents surveyed on-board routes in the U-Link area, overall satisfaction with Metro Transit increased significantly in the Post survey – with an eight point increase in those very satisfied and a six point increase in combined very satisfied/satisfied ratings (70% to 76%).
- **Among respondents surveyed onboard buses eight months after the service change, more said transit service was better than said it was not as good.**
 - Those who said service was better (32%) cited more frequent bus service, the benefits of light rail, faster service, and more comfortable rides.
 - Those who said service was not as good (22%) said they wanted their old routes back, the new service is slower or less frequent, and there are now fewer transit options.
- **Satisfaction with specific elements of service improved across the board.**
 - Out of 38 service elements measured in the onboard surveys, respondents were more satisfied with 35 of them in the “after” survey than in the “before” survey (10 of these increases were statistically significant). None of the other three elements had significant declines.
 - Improvements were seen with waiting times between transfers, on-time performance, the frequency of service, less crowding on buses, cleaner buses, and smoother rides.
 - The highest ratings in the “after” survey were for lighting inside the bus (90% were “very” or “somewhat” satisfied), safety on the buses (88%), safety while waiting in the daytime (86%), ease of getting on and off buses (84%), being able to see buses coming (84%), the buses being free of graffiti (83%), and convenience of the bus stops (82%).
 - The lowest ratings were for protection from the weather at the bus stops (49% were “very” or “somewhat” satisfied), weekend frequency of service (50%), the bus coming on time when transferring (53%), seating availability at bus stops (53%), evening and nighttime frequency of service (53%), and transfer information at the stops (53%).
- **The transfer environment was a key focus of the surveys, and satisfaction was about the same after the service change as before.**
 - After the service change, respondents were most satisfied with the number of transfers they make (71%), the distances between stops when transferring (71%), and the helpfulness of the bus operators in ensuring connections (69%).

- The lowest satisfaction was for the bus coming on time when transferring (53%), transfer information at the stops (53%), how long the entire trip takes (54%), and protection from the weather at the transfer locations (56%).
- As noted above, onboard respondents who transfer were more satisfied with waiting times between transfers after the service change than before (58% to 47%).
- **Nearly half of non-riders in the ZIP codes served by Link and connecting bus routes were not aware of the service changes Metro made in response to the opening of the new Link stations. However, the non-riders have positive opinions of Metro, and their only significant barrier to riding Metro is that they feel it takes more time than driving alone.**
 - Telephone respondents in these ZIP codes who did not ride transit in the 30 days before being surveyed said that Metro is an agency they like and respect (90% agreed “strongly” or “somewhat”), Metro values its customers (89%), riding Metro helps the environment (85%), and riders can do other things while on the bus (83%).
 - When asked about barriers to riding Metro, most said that riding Metro takes too much time compared with driving (75%). This was much higher than other barriers, the biggest of which were the behavior of others on the bus (51%) and at bus stops (50%), crowding on the buses (48%) and infrequent service (47%).

In summary, riders generally were satisfied with the March 2016 service changes. Improvements were perceived in the onboard experience: less crowded buses, cleaner buses, smoother rides, as well as improvements in on-time performance and weekday bus frequency. Opportunities to improve include the waiting experience at the bus stops (including the transfer locations) and the frequency of service in the evenings and weekends. A significant barrier for non-riders in the areas served by connecting routes to Link is the perception that riding Metro takes too long compared with driving. And half were not aware of the Metro service changes. Otherwise, they have positive attitudes about Metro.

STUDY BACKGROUND AND OBJECTIVES

As part of our research to understand the impacts and the opportunities of the integration and reconfiguration of bus service around the new Link stations, Metro worked with Pacific Market Research, LLC, to solicit customer feedback in the form of surveys onboard buses, near Link stations, and via telephone and Internet. This customer research was intended to answer the following broad questions:

- Have riders' travel patterns changed as a result of the service reconfiguration?
- Have riders' satisfaction with transit changed as a result of the revisions, both overall and with specific components of service such as frequency, hours of service, transferring, and other service characteristics?
- What concerns do riders have with the new service and what recommendations do they have for changes or enhancements?

The overall study goal was to help evaluate any impact of the reconfiguration and integration, and to identify any improvements Metro could make.

Study Components

- **Phase 1**
On-board self-administered surveys (February/March 2016). Referenced in this report as the "Pre" survey (prior to reconfiguration) – designed to establish a baseline for rider travel patterns and satisfaction with Metro and with 38 specific elements of service.
- **Phase 2**
On-board self-administered surveys (November/December 2016). Referenced in this report as the "Post" survey (after reconfiguration) – designed to measure any changes in travel patterns and satisfaction.

Link Station Transfer self-administered surveys (November/December 2016). Referenced in this report as the "Link Station Transfer" survey (after reconfiguration) – designed to measure satisfaction among customers who transfer between Link and Metro buses.
- **Phase 3**
On-board Phase 1 Follow-up Telephone/Internet surveys (December 2016/January 2017). Referenced in this report as the "Follow-up Survey" (after reconfiguration) – completed with respondents who provided contact information in the "Pre" research (Phase 1) in order to assess ridership frequency changes post reconfiguration, understand reasons for ridership changes, and obtain input on transit service improvements.
- **Phase 4**
Non-Rider Telephone surveys (November/December 2016). Referenced in this report as the "Non-Rider Survey" (after reconfiguration) – completed with residents in the nearby areas of the two new Link stations in Capitol Hill and University of Washington who do not ride transit. The purpose is to explore barriers to riding Metro and opportunities to increase consideration of Metro bus or Link for at least some of their travel. The data are compared with prior Non-Rider surveys conducted by Metro in past years.

Study Component	Qualified Respondent	Completed Surveys	Data Collection Dates
Phase 1: Pre Survey	On-board self-administered surveys on 59 Metro bus trips distributed among 25 Metro routes – among customers of routes that later had significant changes or were deleted in the integration	n=1,410	February 23 – March 16, 2016
Phase 2: Post Survey On-board	On-board self-administered surveys gathered over the course of 65 bus trips distributed among 23 Metro routes – among customers whose routes were impacted by implementation of service changes and on new routes	n=1,229	November 14 – December 7, 2016
Phase 2: Post Survey Link Station Transfer	Self-administered surveys gathered at bus stops near the new Link stations – among customers who transfer between Link light rail and Metro buses	n=122	November 28 – December 6, 2016
Phase 3: Follow-up Survey	Telephone/Internet survey with Metro customers who provided contact information in the “pre” research (Phase 1)	n=160	December 6, 2016 – January 10, 2017
Phase 4: Non-Riders Survey	Telephone survey with non-riders: a person age 16+ who did not ride transit (bus or rail) in the previous 30 days; randomly selected from the following zip codes: 98011, 98028, 98102, 98103, 98105, 98107, 98109, 98112, 98115, 98117, 98118, 98122, 98125, 98144, and 98155	n=250	November 21 – December 12, 2016

Notes on the Report

Significance was tested at the 95 percent level. Where significance between Pre and Post respondents or between groups is noted, it is at this level. Data cross-tabulations with comprehensive significance testing are available under separate cover.¹³

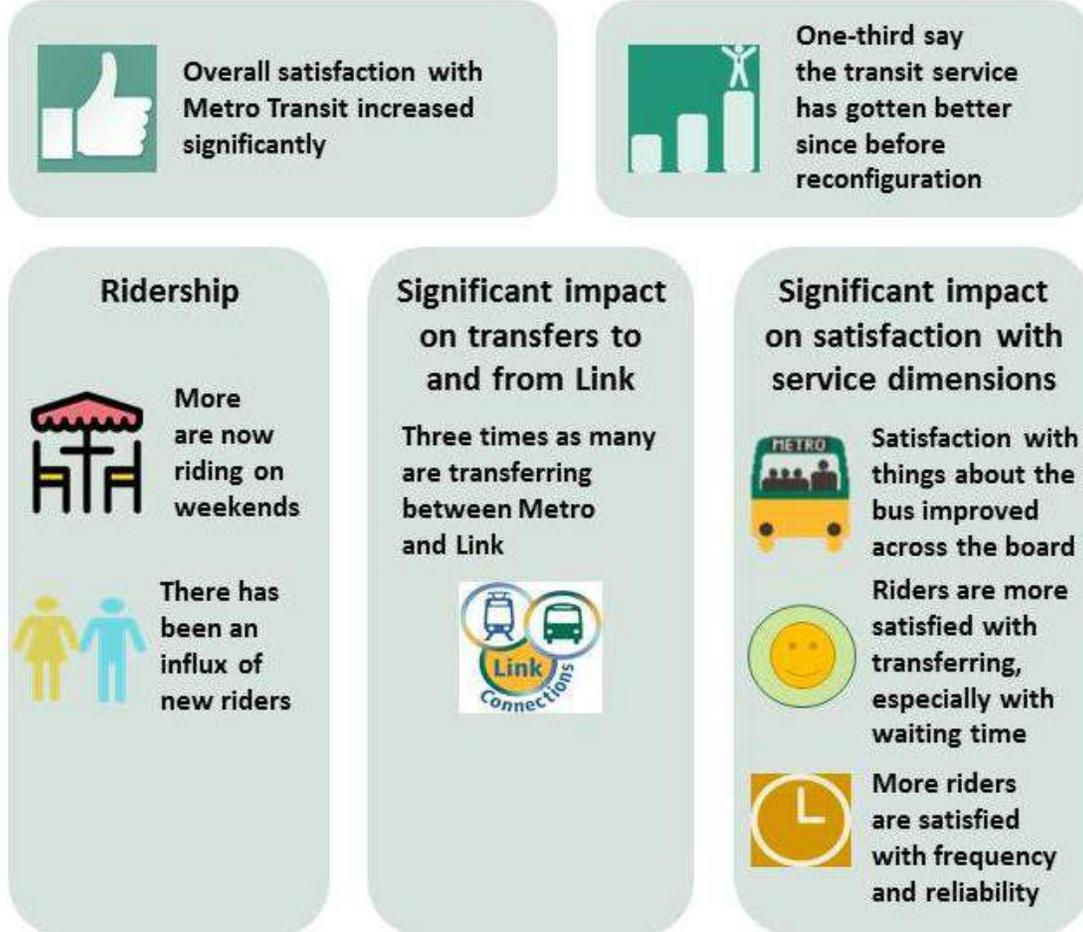
In the report chapter comparing results from Phases One and Two (Pre/Post Surveys), significant differences in the Post study compared to Pre study are noted with an arrow (↑↓).

Response proportions presented in text and displayed in graphs and in tables exclude the number of respondents who did not answer the questions and also the number of respondents who indicated “not applicable”.

Rounding mechanisms inherent in the software can make response proportions shown in graphs and reported in text vary from cross tabulation results by up to 1 percentage point.

¹³ The on-board survey design was a mixture of judgment sampling and convenience sampling. The judgment sampling was the selection of trips about proportional to: a) the number of trips operated by each route in the study population; b) the number of trips in the weekday schedule in a.m. peak (6-9 a.m.), midday (9 a.m. – 3 p.m.), and p.m. peak (3-6 p.m.) for this population of routes; and c) the number of inbound and outbound trips by time period for this population. The convenience sampling was in the structure of surveyor shifts that linked trips close together in time and area for efficient data collection. While not a random sample, the sample was designed to be reflective of the study population. Further, on-board surveys are “cluster” samples, where every passenger on a bus is asked to participate. Because there is some homogeneity among passengers on the same trip, cluster sampling has a larger sampling error (“margin of error”) than simple random sampling for the same number of respondents. Based on the question about satisfaction with the route overall, the samples of 1,410 and 1,229 respondents in the first and second waves have the same sampling error as simple random samples of about 525 and 480, or about +/-4% with 95% confidence.

Takeaways: Onboard Surveys – Pre vs. Post Reconfiguration



Findings: Satisfaction

Comparing Pre and Post reconfiguration survey results indicates that the changes made to integrate bus service with the two new Link stations have had a positive impact on rider satisfaction. Respondents in the second wave gave higher satisfaction ratings (very satisfied/satisfied) to 35 of the 38 **service elements**; ten of those increases were statistically significant. Another three elements had significant increases in the respondents saying they were “very satisfied”. Of the three elements that saw declines in satisfaction, none declined significantly.

Overall satisfaction with Metro Transit increased significantly in the Post reconfiguration survey – with an eight point increase in those very satisfied and a six point increase in combined very satisfied/satisfied ratings (70% to 76%).

Compared with transit service before March 2016, approximately one third (32%) of those responding in the Post survey felt transit service has gotten better, while 22% said it was not as good.

Experiences with **things about the bus** improved across the board. Riders were significantly more satisfied with five of the nine elements rated: cleanliness of the bus interior, being able to get a seat, having room to stand if no seats are available, having enough bars and straps to hold onto while

standing, and the smoothness of the ride. Overall, the elements in this dimension had the highest average satisfaction (78%).

About half of riders could speak to the **ease of transferring** to and from the route. Compared to earlier in the year, satisfaction increased across a wide range of elements in this service dimension, including a significant increase with the waiting time between transfers. However, this dimension had the lowest average satisfaction rating (61%).

Satisfaction with **frequency and reliability** improved after the changes. The number of riders saying they are satisfied increased significantly for half of the elements of this service dimension: the bus getting them to their destination on time, how often the bus runs in the evening and during midday hours, and the bus not leaving the stop late.

The other dimensions studied saw increases in overall satisfaction for most of their elements, but none with statistical significance: **personal safety, the waiting area, and trip time.**

Findings: Travel Patterns and Paying Fares

Ridership did not vary between the Pre and Post surveys in terms of **transit trips** taken in the past 30 days and the U-Link integration did not appear to result in changes in the **trip purpose.**

Most passengers ride during the peak traffic times of weekday mornings and evenings (6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m.). Significantly more rode on the **weekends** after the service change (an increase from 16% to 24%). (Note, the survey was conducted on weekdays, but asked about travel at all times.)

The reconfiguration resulted in a significant increase in those **transferring, especially to or from Link.** The proportion of respondents transferring to or from another bus or rail increased from 31% to 38%. *More than three times as many transferred with Link after the service change than before (from 3% to 10%).*

The ORCA card remains the most popular method of fare payment, with 89% of respondents having one. Among ORCA card holders in the Post Wave, 70% said they have an ORCA card provided by an employer or school.

Summary Table: Significant Increases in Satisfaction with Service Dimension Elements from Pre to Post Survey

Percentages shown are combined very satisfied/satisfied

Dimensions	Service Elements	Pre	Post	Increase in Satisfaction
Things About the Buses on the Route	Cleanliness of the bus interior	75%	82%	+7
	Enough bars/straps to hang onto while standing	75%	81%	+6
	Being able to get a seat	71%	77%	+6
	Having room to stand if no seats are available	68%	74%	+6
	Smoothness of the ride	62%	69%	+7
Ease of Transferring to/from the Route	Waiting time between transfers	47%	58%	+11
Frequency and Reliability of Buses on the Route	The bus getting me where I'm going on time	58%	67%	+9
	How often the bus runs during midday hours (9 am to 3 pm)	54%	62%	+8
	The bus not leaving the stop late	46%	55%	+9
	How often the bus runs in the evening/night	45%	53%	+8

Findings: Link Station Transfer Survey

The integration of Metro services with the U-Link light rail extension has resulted in customer satisfaction among the respondents surveyed at bus stops near the U-Link stations who were transferring from Link.

These respondents expressed **high overall satisfaction with Metro Transit in general**, with more than eight in ten (85%) satisfied (combined very satisfied/satisfied). Three quarters (75%) are satisfied with all transit service in the area. These Link Station Transfer respondents expressed significantly higher overall satisfaction with Metro Transit than the Onboard Pre and Post survey respondents.

Link Station Transfer respondents have notably high satisfaction with several elements related to the Ease of Transferring. Nearly nine in ten are satisfied (combined *very satisfied/satisfied*) with **the number of transfers they make**, and around eight in ten are satisfied with **the distance between stops** where they transfer, and with the **helpfulness of drivers** when making a transfer.

Around two thirds are satisfied with how long the entire trip takes and with the way buses are scheduled to make their connection. Around six in ten Link Station Transfer respondents are satisfied with protection from the weather and with transfer information in the waiting area. The lowest satisfaction levels (about half) are with the waiting time between transfers and with the bus coming on time when transferring.

Prior to the extension of Link light rail to UW and Capitol Hill, about six in ten (61%) of these transferring respondents rode the bus for their entire trip, while around two in ten (18%) made their trip by driving, and thirteen percent did not make the trip. This suggests that the extension of light rail encouraged many riders to take transit, including trips involving transfers between buses and Link.

Riders in the Link Station Transfer survey were asked to give one **recommendation for improving the service**. Nearly one quarter (23%) requested more frequent bus service. Other top suggestions included more bus routes (14%), more/improved shelters (9%), improved light rail to bus transfers (8%), and for buses to run on time (8%).

Findings: Follow-up Survey

A brief Follow-up Telephone/Internet survey (December 2016/January 2017) was conducted with 160 respondents who provided contact information in the “Pre” research (Phase 1) in order to assess ridership frequency changes post reconfiguration, understand reasons for ridership changes, and gather recommendations for improvements.

Survey results revealed that the reconfiguration and its associated changes in service have led some riders to increase their transit usage (bus, Link, and streetcars), while leading others to make fewer trips than before.

Compared to prior to March 2016, roughly two thirds (68%) are riding about the same, while eighteen percent are riding **less frequently** and fourteen percent are riding **more frequently**. (The difference between the last two is not statistically significant.)

- Among those riding less: average number of trips in a typical 30-day period dropped from 40 to 18.
- Among those riding more: average number of trips in a typical 30-day period rose from 24 to 44.

About half of the respondents who changed their number of trips did so because of the service reconfiguration. Having **less service to choose from** (specifically due to cancelled routes) is the primary reason given for riding *less frequently* than before (31%). Changes in their work/school location or schedule, and changes to where they live were secondary reasons.

A **change in their schedule** (22%), and **taking the Link as part of their trip** (with Link being more convenient) (17%), were the top reasons given for riding *more frequently*.

Regarding how service could be improved, the two top recommendations include **more frequent** bus service (20%) and **more routes** (19%) – including bringing back their old route.

Findings: Non-riders Survey

Percentages shown are combined strongly agree/somewhat agree

Perceptions of convenience are barriers to riding the bus among respondents in the U-Link area who did not ride transit in the previous month. Three quarters (75%) feel that compared to driving, riding the Metro takes too much time, and about half feel Metro buses are too crowded (48%) or that service is too infrequent to make it convenient to use (47%).

Personal safety concerns can play a role as well – about half say the behavior of some people on the bus (52%) or in the waiting area (50%) makes them feel uncomfortable or unsafe. One third (32%) worry about their personal safety on Metro buses.

Available routes can be a barrier for around four in ten who say they would not ride if they had to transfer (43%) or who say there is no Metro service available to get them where they want to go (42%).

Around half of Non-Riders **see some appeal in the idea of riding Metro**. Fifty-four percent said the idea of using Metro to get to their destination was either *very appealing* or *somewhat appealing*, fourteen percent were neutral and one third (32%) found the idea unappealing.

Comparing responses to those from the 2015 Non-Rider Metro Survey (comparing only to respondents in the same zip codes) shows that similar proportions found the idea of using Metro appealing, but in 2016 more tend to give neutral ratings instead of considering the idea unappealing.

Nearly half of respondents (48%) were **unaware of changes in Metro service** in their area that involved the integration of Metro with U-Link light rail, suggesting the need for more communications about the changes.

Regarding their current method of commuting, the majority of non-riders who commute to work or school **drive alone** (75%). Carpool/vanpooling (15%), walking (12%) or bicycling (8%) are other methods for getting to work or school.

Overall Conclusions

The **Onboard Pre/Post** survey revealed that *after the integration of the U-Link extension*, riders rated many service elements higher than prior to the integration, and they have higher overall satisfaction, demonstrating that riders like the integration of U-Link and it is contributing to rider satisfaction.

Overall Metro Transit satisfaction Post integration is higher (+6%) than Pre integration. Compared to Pre integration responses, riders are significantly more satisfied (*very satisfied/satisfied*) with ten of the 38 service elements. Another three elements had a significant increase in the percent who are “*very satisfied*” with the various service elements.

The most dramatic increases in combined *very satisfied/satisfied* ratings are with Waiting time between transfers (+11% in satisfaction), with the Bus getting me there on time (+9%) and with the Bus not leaving the stop late (+9%). There were no significant decreases in combined *very satisfied/satisfied* ratings on any of the measures. The only three declines regarded bus stops: a five point drop in satisfaction with Amount of lighting, a two point drop with Convenience of the bus stop, and a one point drop with Protection from the weather.

While ridership didn’t seem to vary in terms of trips taken or reasons for using Metro, more are now riding their route on the weekend (+8%).

The most dramatic change in ridership is the increase in the portion of riders transferring. In the Pre wave, 31% transferred to or from the route they were surveyed on; this increased to 38% in the Post wave. Those transferring with Link light rail increased from 3% to 10%.

The contribution of the U-Link integration to ridership satisfaction is also supported by the high overall satisfaction of the **Link Station Transfer respondents** surveyed while waiting for a bus, and their higher satisfaction with various transfer service elements. More than eight in ten (85%) are satisfied with Metro Transit in general, which is higher satisfaction than the Onboard Post reconfiguration riders (76%). They also have higher satisfaction than the Onboard Pre or Post survey respondents on some of

the Ease of Transferring elements, most especially with the Number of transfers they make and with how long their entire trip takes.

The U-Link integration appears to have brought new riders into the Metro Transit system. Prior to the U-Link extension, over one quarter of the **Link Station Transfer respondents** either made their trip by car or another means of transportation other than the bus, and thirteen percent did not make the trip at all.

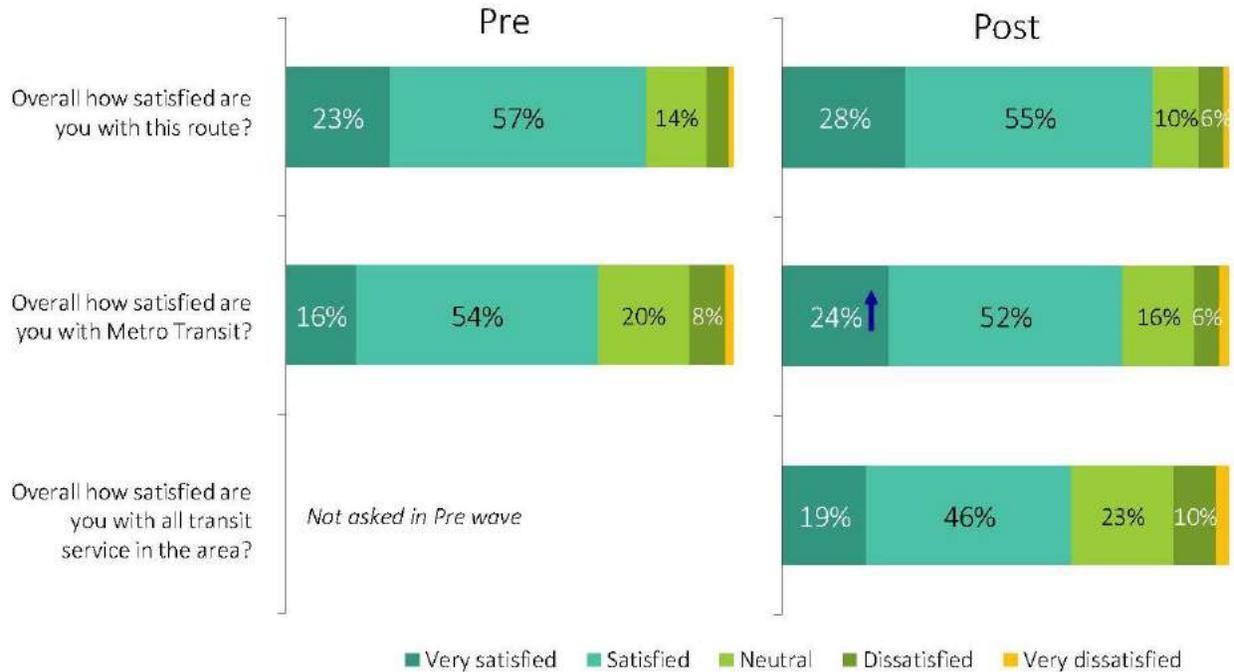
The **Follow-up Telephone/Internet** Survey results revealed that the reconfiguration and its associated changes in service have led to roughly two-thirds (68%) riding about the same, while eighteen percent are riding *less frequently* and fourteen percent are riding *more frequently*. (The difference between the last two is not statistically significant.)

The **Non-Rider** survey revealed that nearly half of those surveyed *were not aware* of changes in Metro service in their area that involved the integration of the U-Link extension. Increasing this awareness might help to overcome some Non-Rider resistance to riding Metro. Around half of Non-Riders see some appeal in the idea of riding Metro, and the majority of Non-Riders have positive opinions regarding Metro and recognize that riding Metro can offer advantages over driving. If the U-Link extension can help to overcome their primary barrier – *the concern that it takes too much time compared to driving* – and if Metro can increase awareness of this service extension, the agency may be able to increase ridership among this population.

PRE AND POST RECONFIGURATION SURVEYS

Overall Findings

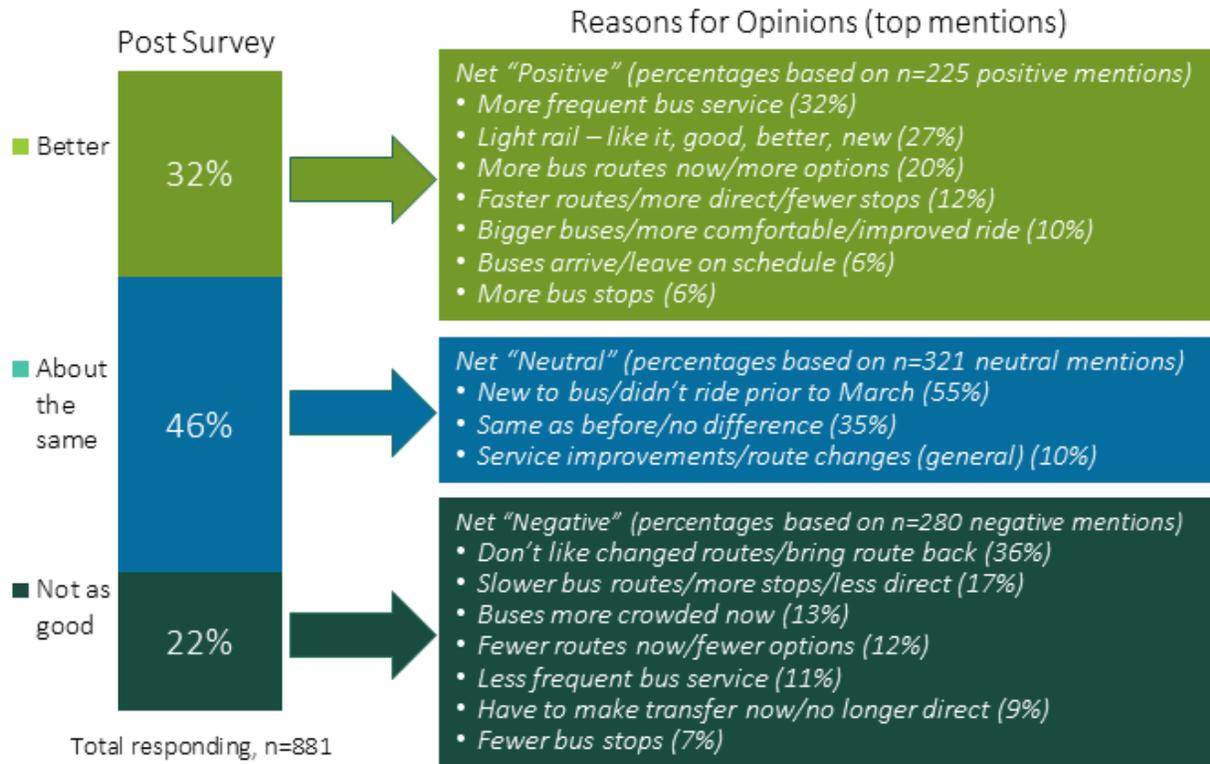
The surveys on board Metro buses before and after the service reconfiguration showed a significant increase in riders saying they are very satisfied with Metro. More riders also said they are very satisfied with their route, although the increase is not statistically significant. (No route had less than 64% satisfaction in the Post surveying.) While not tested previously, satisfaction with Metro is higher than with overall transit service in the area.



Q7A/7B/7C – Overall how satisfied are you with...this route? ...with Metro Transit? ...with all transit service in the area?
 Base: All respondents answering. Base sizes vary: n=1334

Noticed Changes in Transit Service

When asked about Metro service now compared with before last March, about one third (32%) said they had noticed improvement in service, while 46% said it is about the same and 22% feel it is not as good. Many of the negative comments focused on routes being changed, reduced, or deleted. This is consistent with feedback provided to Metro’s Customer Communications group in the weeks after the service change. More than half of the complaints about the service change focused on route changes. Many of the positive comments from the survey respondents focused on more frequent bus service, better options, and the ability to ride Link light rail.



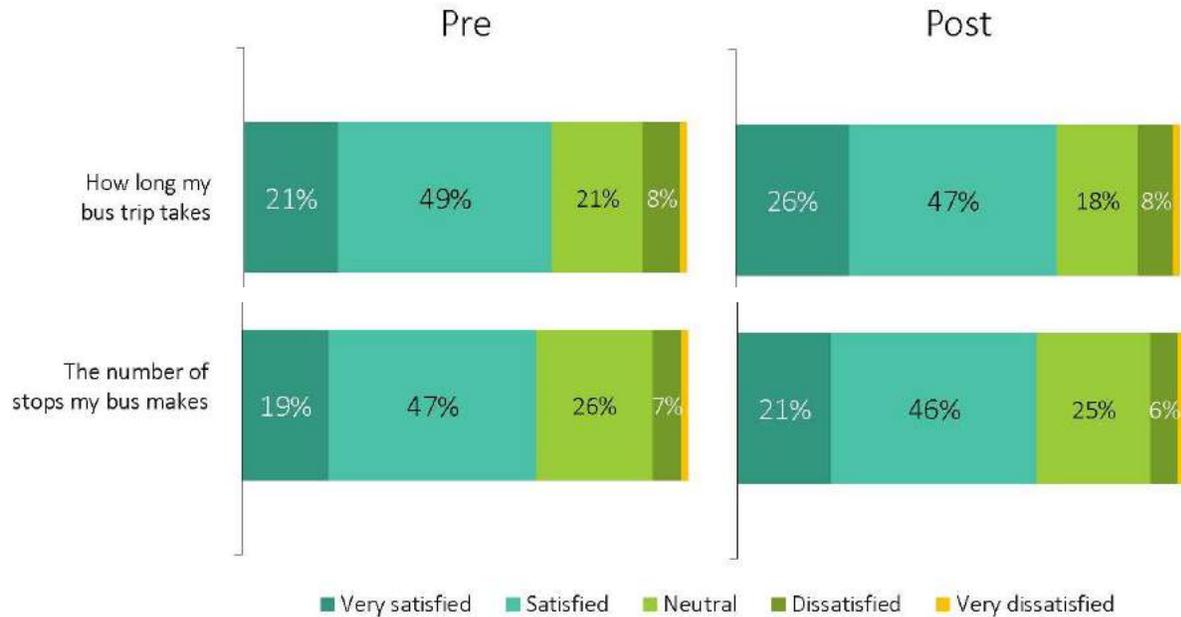
Q7AA - Compared with transit service before last March, would you say transit service is now...?

Q7BB – Why do you say that? (n=817 responding)

Base: Post-Wave - All respondents giving a rating: n=881; n=348 or 28% said "don't know" or did not respond.

Service Dimension: Trip Time

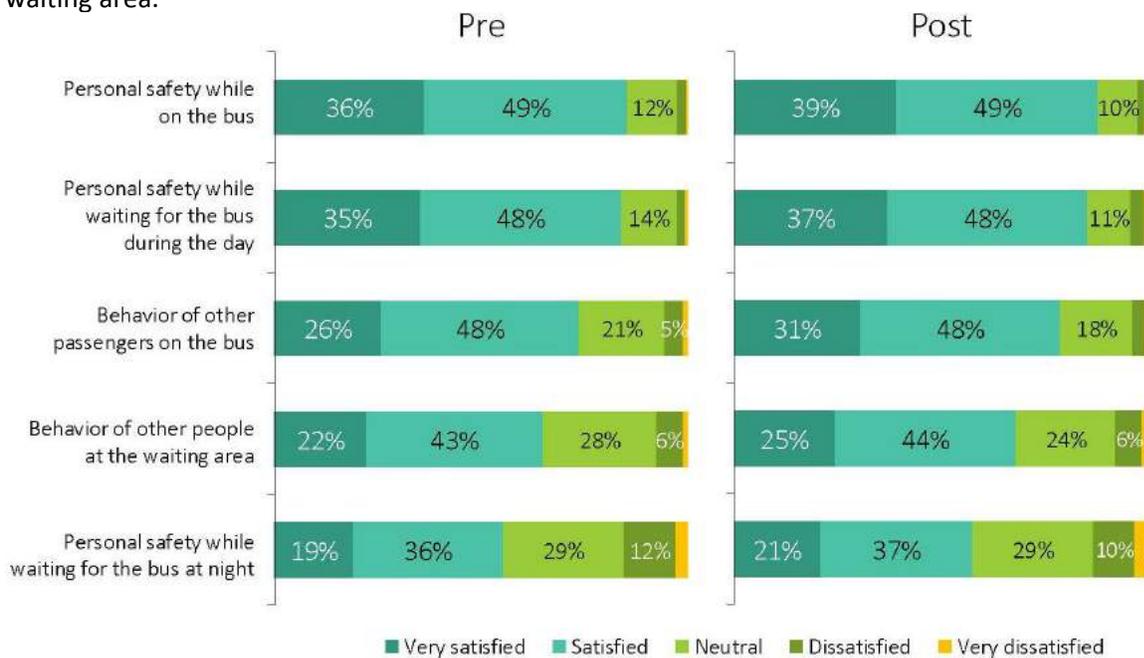
Regarding the trip time on the route, the reconfiguration resulted in increased satisfaction with the length of the trip, although not significantly. Satisfaction regarding the number of stops is about the same as before the reconfiguration.



Base: All respondents answering. Base sizes vary by service element: n=1159-1334

Service Dimension: Personal Safety

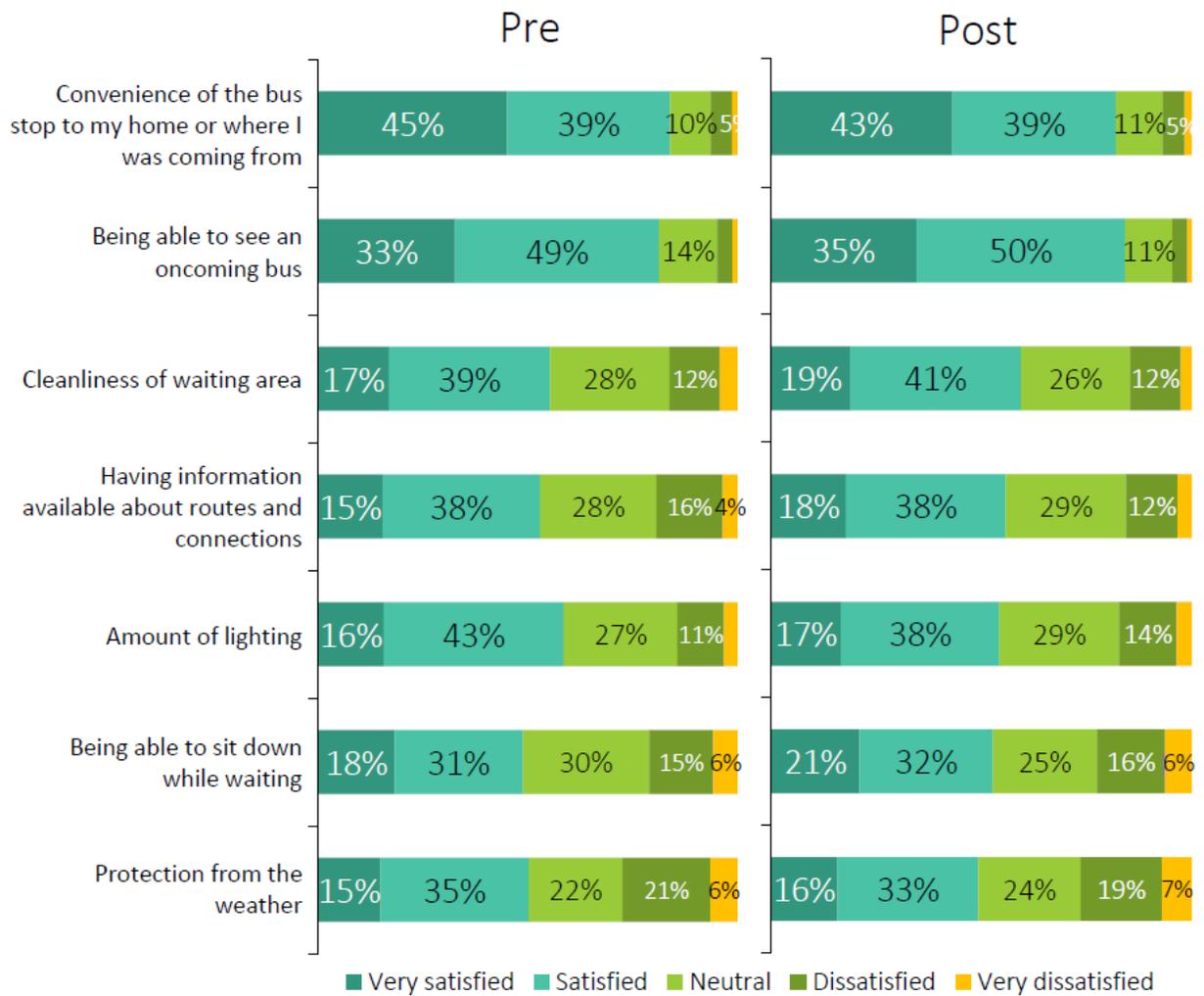
Feelings of personal safety increased slightly on all measures rated, although not significantly. Satisfaction is lowest with waiting for the bus at night and with the behavior of other people at the waiting area.



Base: All respondents answering. Base sizes vary by service element: n=1064-1370

Service Dimension: Waiting Area/Bus Stop Where Boarded

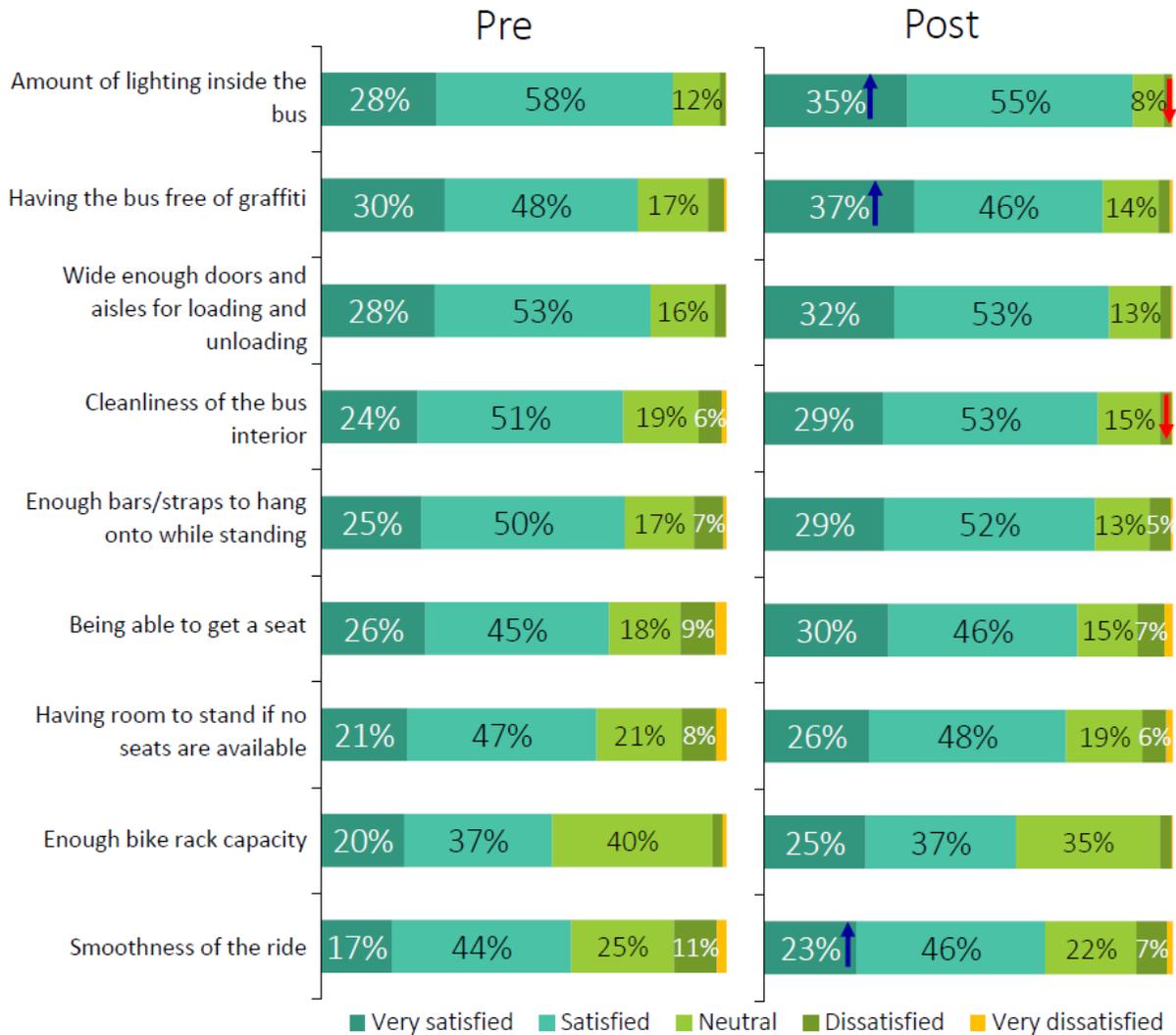
Satisfaction with the waiting area was very similar in the Pre and Post waves. Some of the lowest ratings were in this dimension, particularly for protection from the weather, availability of seating and the lighting.



Base: All respondents answering. Base sizes vary by service element: n=1142-1371

Service Dimension: Things about the Bus

Experiences with things about the bus improved across the board and were rated the highest among the dimensions studied. Riders are more satisfied on every element rated. Two elements had significant increases in “very satisfied” ratings: the amount of lighting inside the bus, and having the bus free of graffiti. Five elements had significant increases in the combined “very satisfied”/“satisfied” ratings: cleanliness of the bus interiors, having enough straps and bars to hold, the ability to get a seat, having room to stand if no seats are available, and the smoothness of the ride



Base: All respondents answering. Base sizes vary by service element: n=683-1369

Service Dimension: Ease of Transferring

About half of riders could speak to the ease of transferring to and from the route. Compared to earlier in the year, satisfaction increased across a wide range of elements on this service dimension, though the only significant increase was in the total satisfaction with the waiting time between transfers. While the ratings overall are higher in the Post survey, “ease of transferring” had the lowest average satisfaction ratings.



Base: All respondents answering. Base sizes vary by service element: n=597-764

Service Dimension: Frequency and Reliability

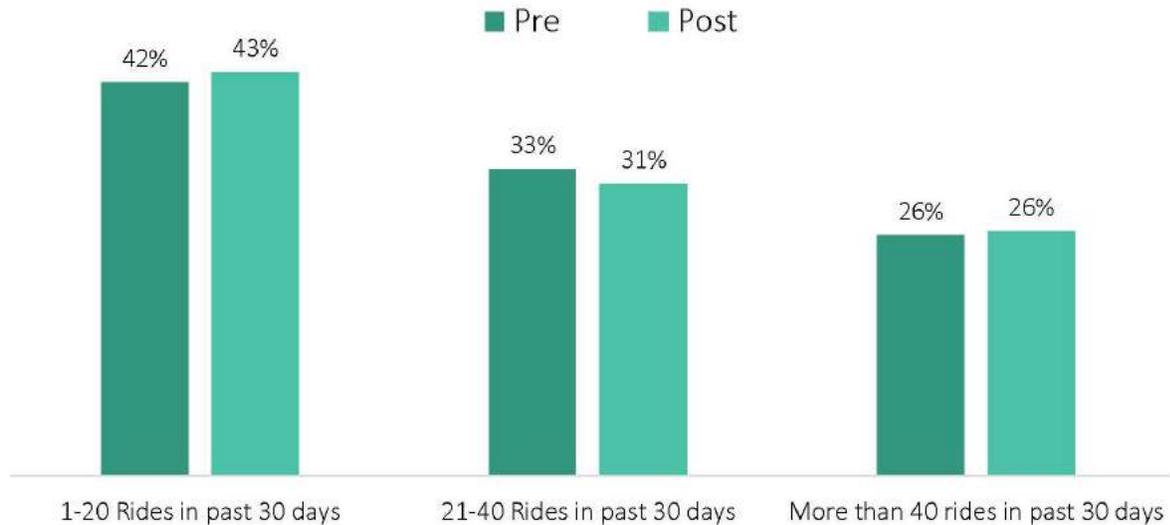
Satisfaction with frequency and reliability improved after the changes. The number of riders saying they are “very satisfied” increased for every aspect of this service dimension, with a significant increase for how often the bus runs during peak hours. The total satisfaction ratings had a significant increase for the bus getting the respondents to their destinations on time, how often the buses run midday and in the evenings and night, and the bus not leaving the stop late.



Ba

Transit Trips Taken

Ridership did not vary between the Pre and Post surveys in terms of transit trips taken. Approximately four in 10 took 20 trips or fewer; around three in 10 took between 21 and 40 trips; and one quarter took more than 40 trips in the previous 30 days.

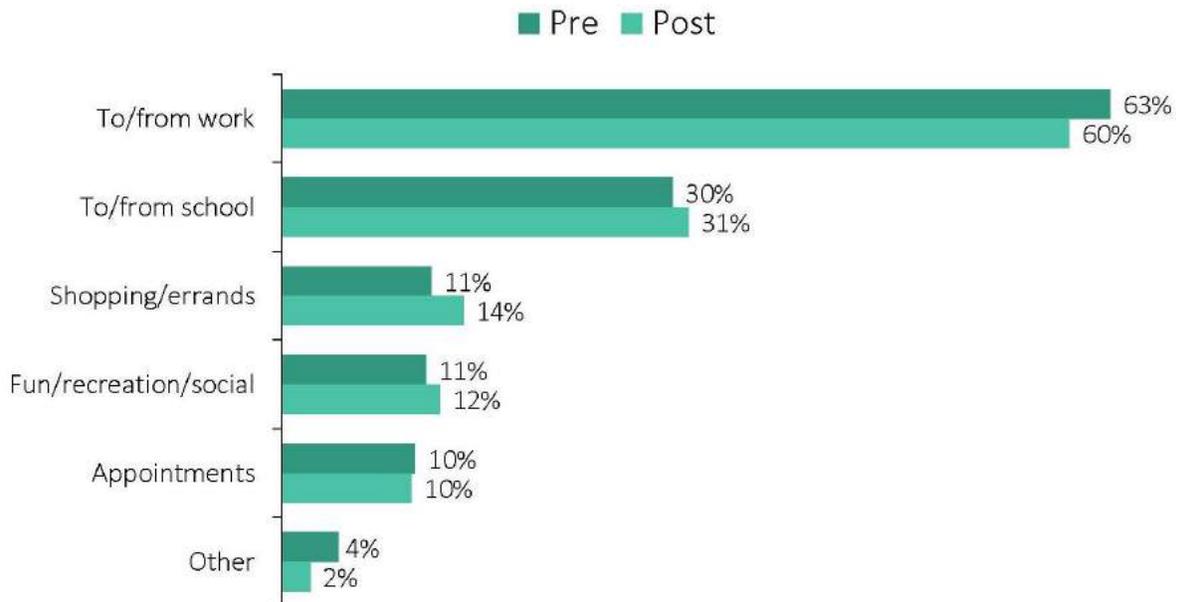


Q9 – What is the purpose of the trip you take most often on this route?

Base: All respondents answering – Pre Survey (n=1352), Post Survey (n=1176)

Reason for Riding

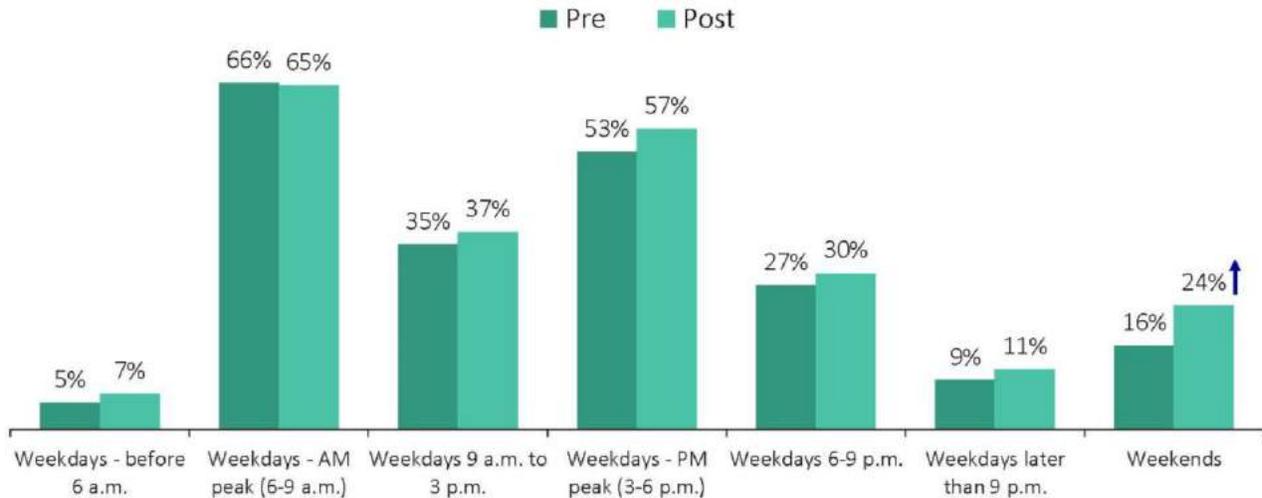
Respondents were also asked to list the purposes of the trip that they take most often on this route. Most of the time, riders are using Metro to get to and from work or school. The Metro-Link integration did not result in changes to their reasons for riding.



Q9 – What is the purpose of the trip you take most often on this route? Base: All respondents answering – Pre Survey (n=1325), Post Survey (n=1176)

Days and Times of Riding

Most passengers ride during the peak traffic times of weekday mornings and evenings (6 a.m. to 9 a.m. and between 3 p.m. to 6 p.m.). Significantly more ride on weekends since the service changes (an increase from 16% to 24%). (Note: survey was conducted on weekdays but asked about weekend ridership.)

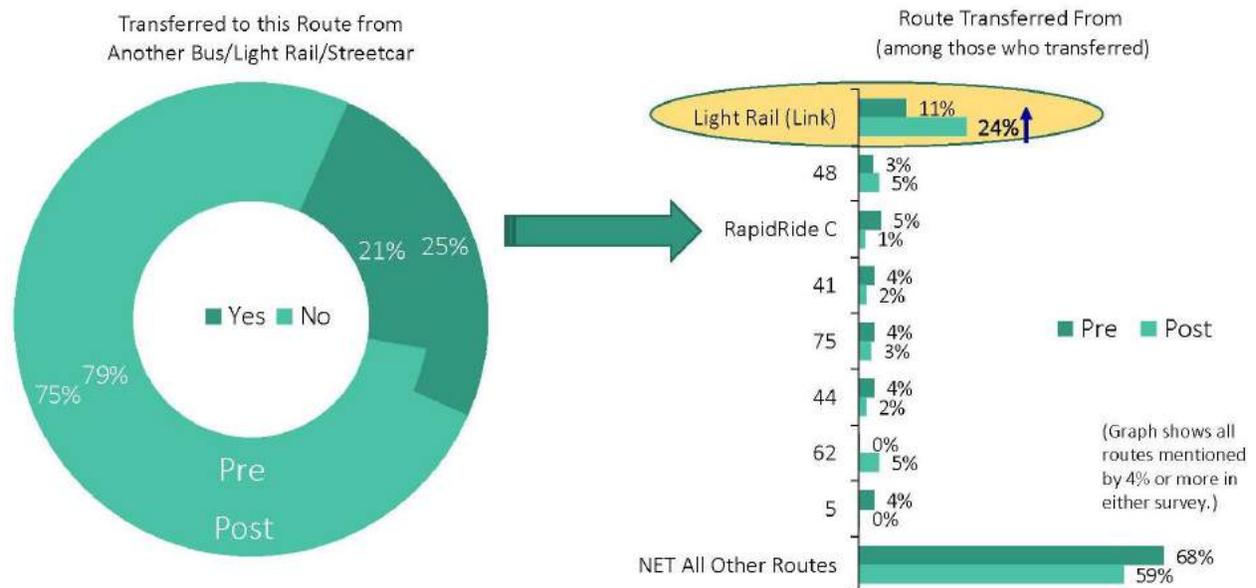


Q10– When do you usually ride this route?

Base: All respondents answering – Pre Survey (n=1310), Post Survey (n=1155)

Transferring to the Route

The respondents who transferred to the route from another bus, light rail, or streetcar increased slightly from the Pre to the Post survey. Regarding transfers to the route, more than twice as many reported that they are transferring from Link after the restructure (a significant rise from 11% to 24%).

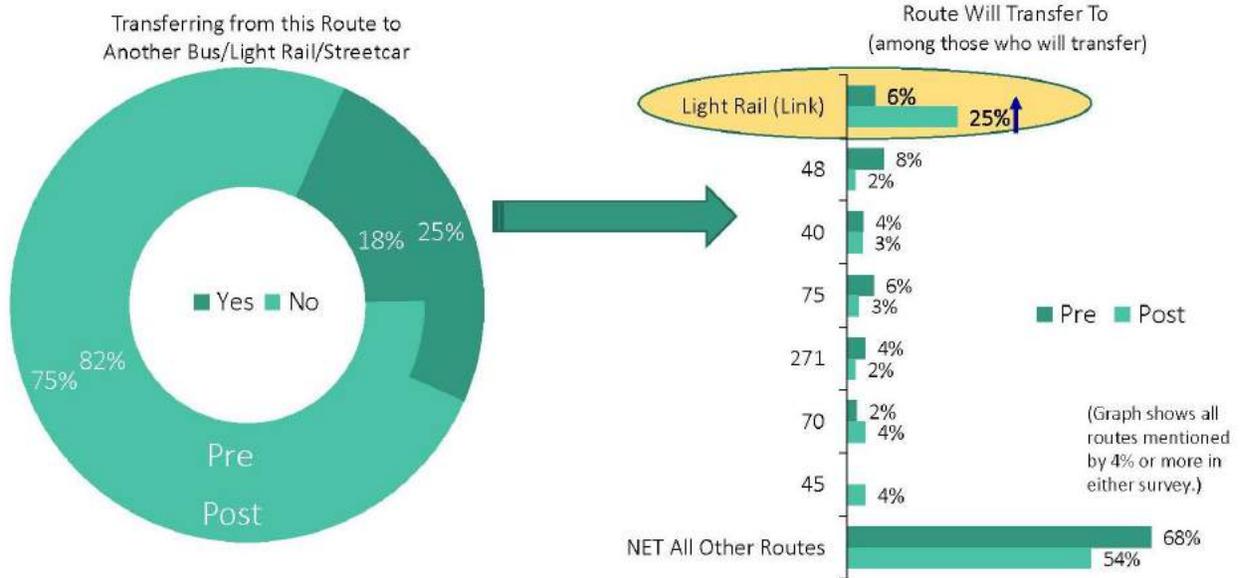


Q11 - Did you transfer TO this route from another bus, light rail or streetcar on this trip today? Base: All respondents answering – Pre Survey (n=1328), Post Survey (n=1137)

Q11A – From what did you transfer? Base: Those who transferred – Pre Survey (n=263), Post Survey (n=268)

Transferring from the Route

After the restructure, significantly more said they plan to transfer from their route to another bus, light rail, or streetcar to reach their destination (an increase from 18% to 25%). Regarding what they planned to transfer to, more than four times as many reported plans to transfer to Link post changes (a significant rise from 6% to 25%). Among all respondents, those transferring to or from the route on which they were surveyed increased from 31% to 38%. Those transferring with Link increased from 3% to 10%.



Q12 - Will you transfer FROM this route to another bus, light rail or streetcar to reach your destination on this trip today?

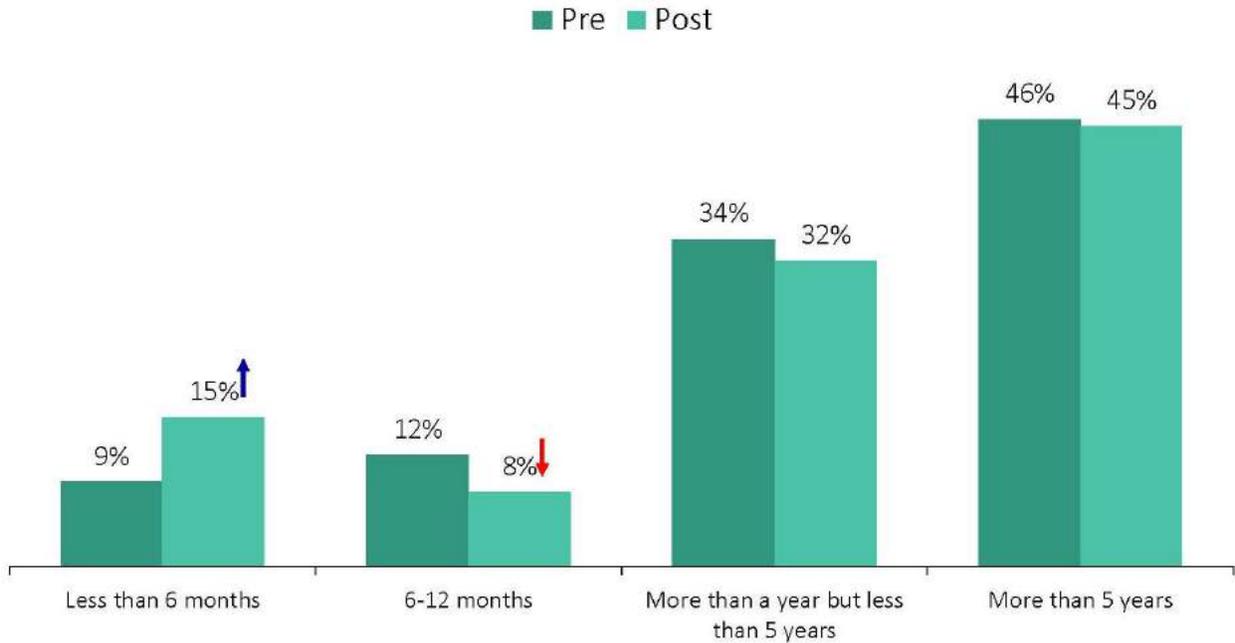
Base: All respondents answering – Pre Survey (n=1248), Post Survey (n=1057)

Q12A – To which route will you transfer?

Base: Those who planned to transfer – Pre Survey (n=220), Post Survey (n=263)

Length of Time as a Metro Rider

The Post wave shows a significant increase in the proportion of new riders (those who have been riding for less than six months), from 9% to 15%. (This could be a function of the timing of the surveys, although both waves were conducted less than six months after the start of the UW academic year.)

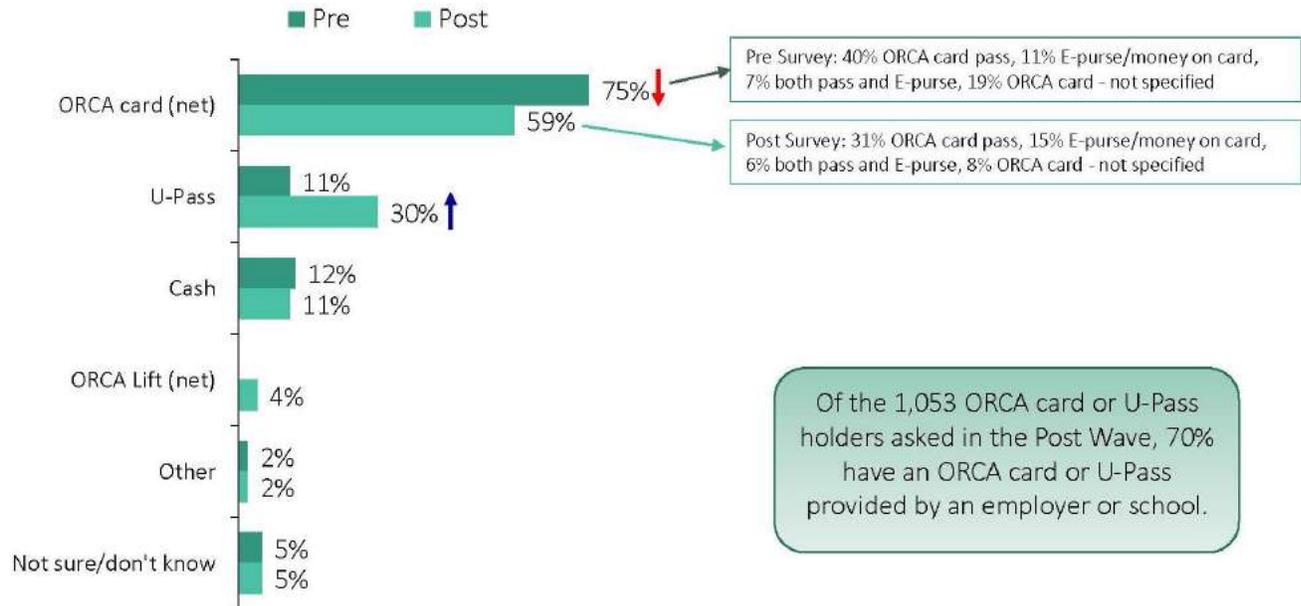


Q13 – How long have you been a Metro rider?

Base: All respondents answering – Pre Survey (n=1338), Post Survey (n=1155)

Fares

The ORCA card remains the most popular method of payment, but fewer reported using it in the Post reconfiguration survey. This is due to a revision in the Post survey instrument that added a separate category for fare payment with a U-Pass. Combining the Post ORCA card, ORCA LIFT, and U-Pass gives a similar net percentage of ORCA/U-Pass for Pre (86%) and Post (89%).



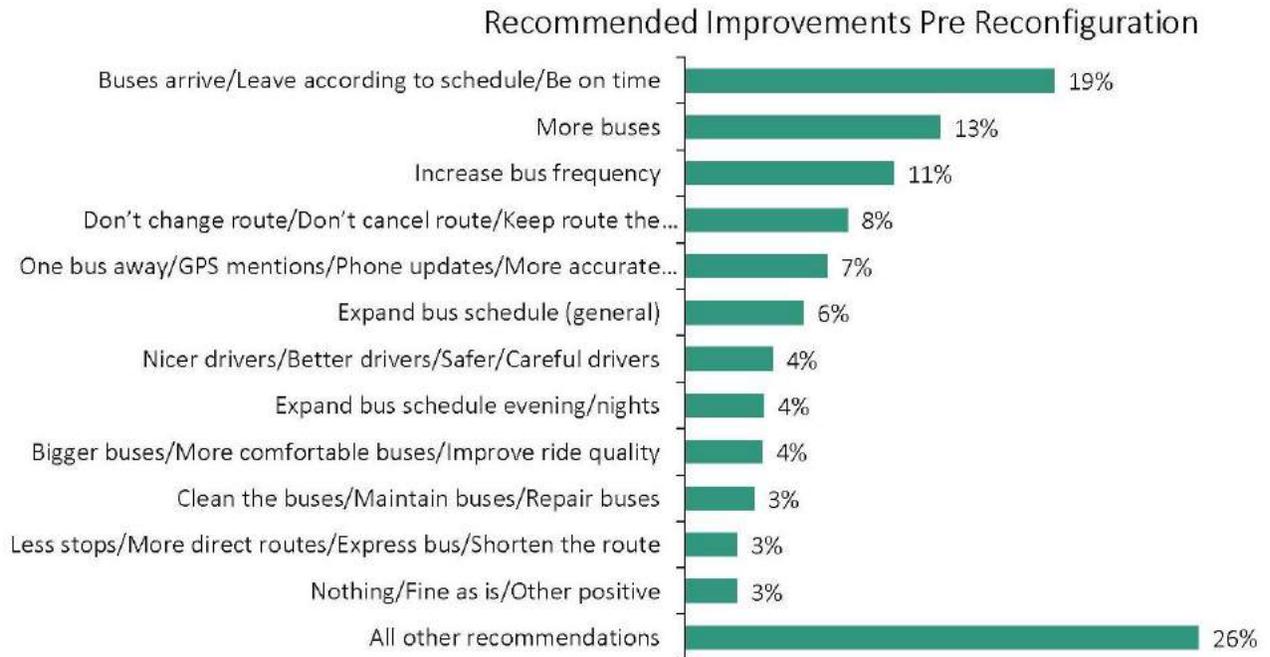
Q1r- How do you pay your fare? (multiple responses possible)

Base: All respondents answering – Pre Survey (n=1410), Post Survey (n=1229)

Q14 A – If you have an ORCA card, is it provided by your employer or school?

Recommendations for Improvement

Riders in the Pre reconfiguration survey were asked to give one recommendation for improving the service. The top suggestions were that the bus stay on time/on schedule (19%), that more buses be added (13%), and that buses run more frequently (11%). (Riders in the Post survey were asked why they think service is better or not as good since the reconfiguration, reported earlier.)

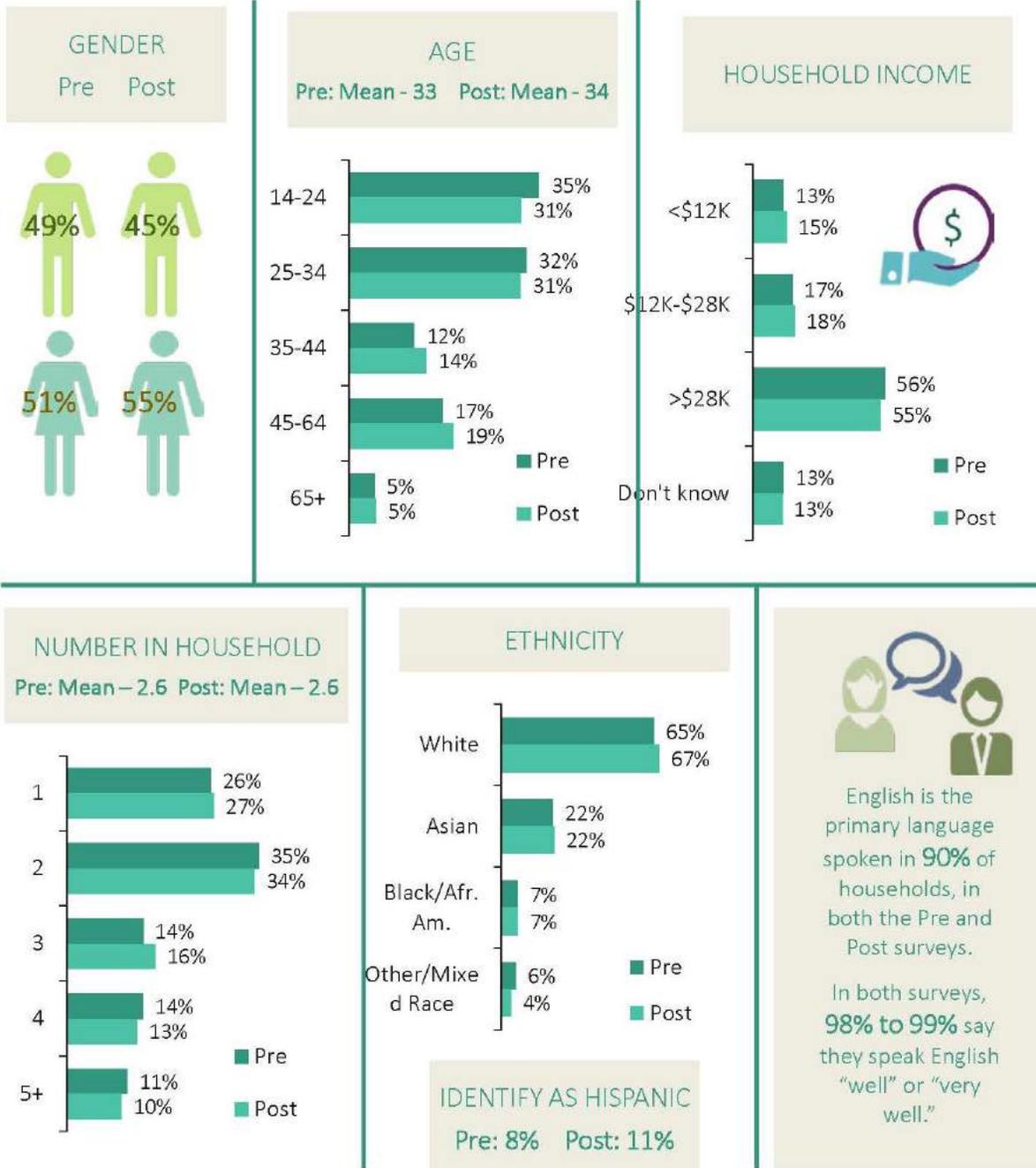


(Graph shows all mentions by 3% or more.)

Q25 - Finally, what ONE THING would you recommend to improve Metro service for you? (Pre Reconfiguration Survey Only)

Base: All respondents answering – Pre Survey (n=947)

Respondent Profile



Base: All respondents answering. Base sizes vary: n=1050-1311

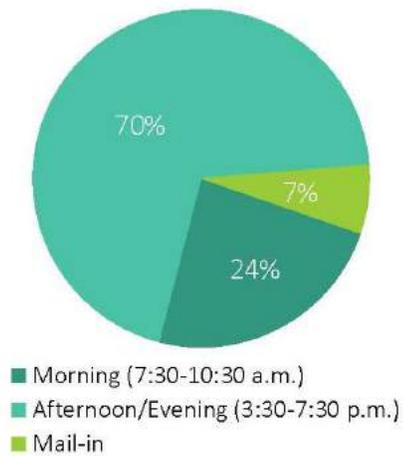
LINK STATION TRANSFER SURVEY

Link Station Transfer Respondent Intercept

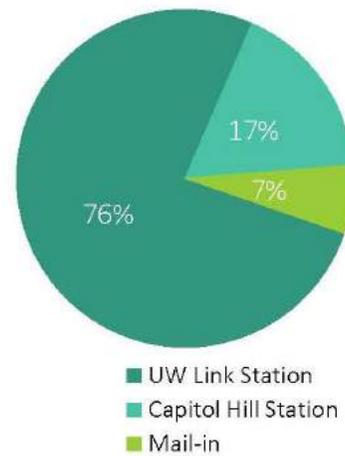
The Link Station Transfer survey, taken at bus stops near the two U-Link stations, had 122 respondents. They were asked if they were transferring from Link, and if so were then asked to fill out a questionnaire. Seven in 10 (70%) were surveyed in the afternoon and evening (between 3:30 and 7:30 p.m.), about one quarter (24%) were surveyed in the morning (between 7:30 and 10:30 a.m.), and the remainder (7%) participated by mailing in their survey.

About three quarters (76%) were surveyed near the UW Station and nearly one-fifth (17%) near Capitol Hill Station. (The remainder mailed their surveys.)

Time When Intercepted For Survey



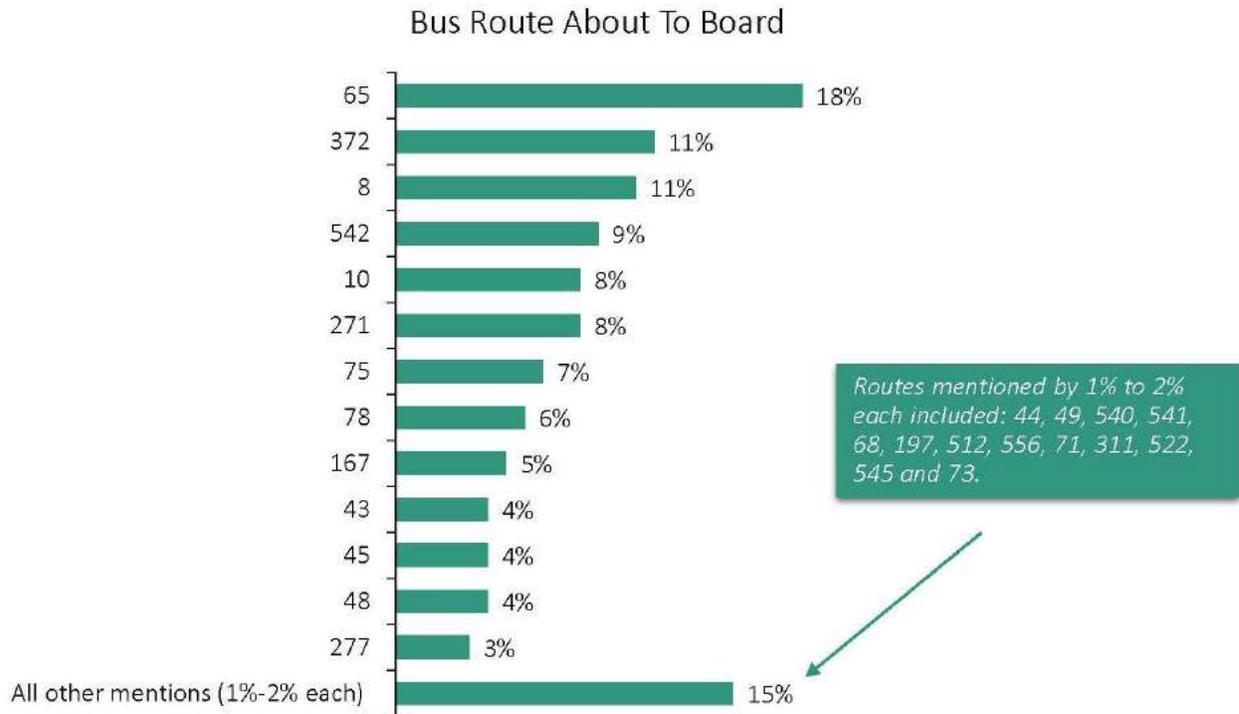
Location Where Intercepted



Base: All respondents answering (n=122)

Bus Route About to Board

These Link Station Transfer riders mentioned a wide range of buses they were about to board. Route 65 was most commonly mentioned (18%), followed by routes 372, 8, 542, 10, and 271 – each mentioned by around one in 10 respondents (8% to 11%).

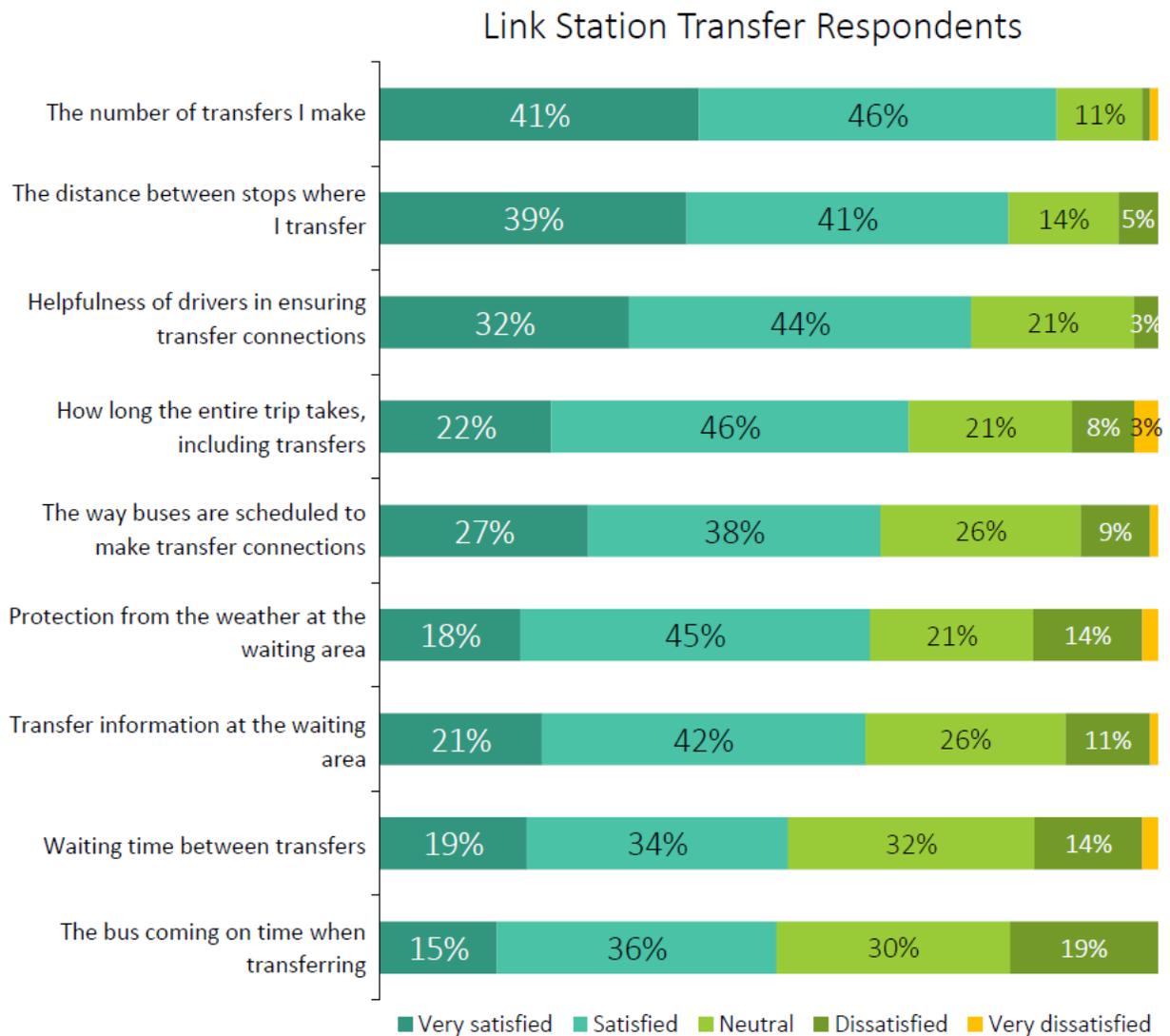


Q1. Which bus route are you about to board?
Base: All respondents answering (n=122)

Service Dimension: Ease of Transferring

Link Station Transfer respondents are highly satisfied with some of the elements related to the ease of transferring. Nearly nine in 10 are satisfied (combined very satisfied/satisfied) with the number of transfers they make, and around eight in 10 are satisfied with the distance between stops where they transfer, and with the helpfulness of drivers. Around two-thirds are satisfied with how long the entire trip takes and with the way buses are scheduled to make their connection.

Around six in 10 Link Station Transfer respondents said they are satisfied with protection from the weather and with transfer information in the waiting area. About half are satisfied with the waiting time between transfers and with the bus coming on time when transferring. One-fifth or fewer are very satisfied with these elements and notable portions are dissatisfied, indicating potential areas to target for improvement.



Q2A-2I – How satisfied are you with transferring between Link light rail and the route you are about to ride (in regard to...)?
 Base: All respondents answering. Base sizes vary by service element (n=103-114)

Summary: Link Station Transfer Respondents Satisfaction with Transfer Elements Compared to all Riders in the Pre and Post Integration Surveys

The Link Station Transfer respondents have significantly higher satisfaction than both Onboard Pre and Post survey respondents with the number of transfers they make—nearly nine in 10 Link Station Transfer respondents are satisfied with this element (combined *very satisfied/ satisfied*) compared to seven in 10 Pre and Post survey respondents.

Link Station Transfer respondents are also significantly more satisfied than Post survey respondents when it comes to how long their entire trip takes, including transfers.

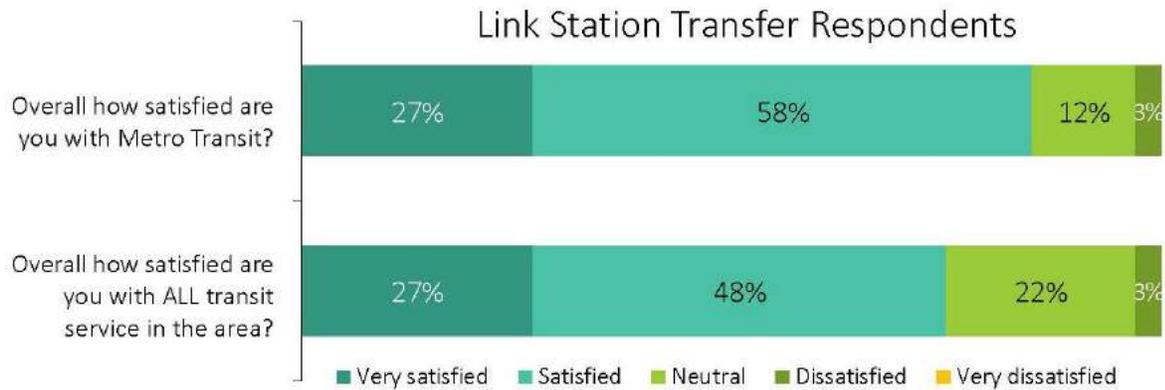
Link Station Transfer respondents have significantly higher satisfaction than Pre survey respondents regarding helpfulness of drivers and transfer information at the waiting area.

Top 2 Box Satisfaction Ratings with Transfer Service Elements (combined satisfied/very satisfied)	Link Station Transfer Survey (B)	Onboard Post Survey (C)	Onboard Pre Survey (D)
The number of transfers I make.	88% CD	72%	71%
The distance between stops where I transfer.	81%	72%	(not asked)
Helpfulness of drivers in ensuring transfer connections.	76% D	69%	62%
How long the entire trip takes, including transfers.	68% C	54%	(not asked)
The way buses are scheduled to make transfer connections.	64%	60%	56%
Protection from the weather at the waiting area.	63%	55%	53%
Transfer information at the waiting area.	62% D	53%	46%
Waiting time between transfers.	53%	58% D	47%
The bus coming on time when transferring.	51%	53%	49%

Note: Letters (B, C, D) are assigned to each respondent group simply to allow for designation of any significant differences between groups.

Overall Satisfaction

Link Station Transfer respondents expressed high overall satisfaction with Metro Transit in general, with more than eight in 10 (85 percent) satisfied (combined very satisfied/satisfied). Three-quarters (75 percent) are satisfied with ALL transit service in the area. Link Station Transfer respondents expressed significantly higher overall satisfaction with Metro than Onboard Pre and Post survey respondents, and they have significantly higher satisfaction than Post respondents with ALL transit service in the area.



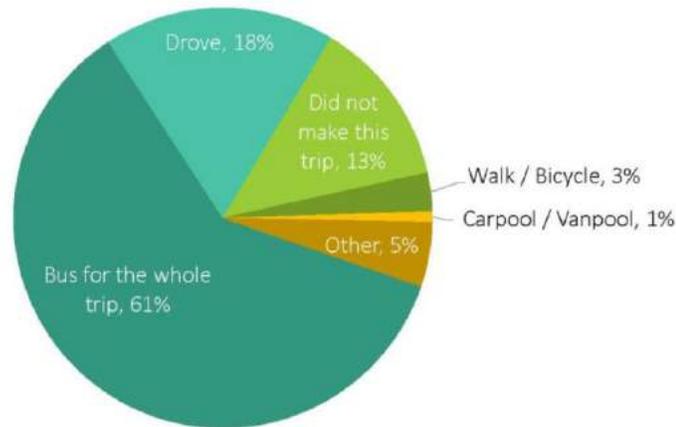
Top 2 Box Overall Satisfaction Ratings	Link Station Transfer Survey (B)	Onboard Post Survey (C)	Onboard Pre Survey (D)
Overall how satisfied are you with Metro Transit?	85% CD	76% D	70%
Overall how satisfied are you with ALL transit service in the area?	75% C	65%	(not asked)

Note: Letters (B, C, D) are assigned to each respondent group simply to allow for designation of any significant differences between groups.

Q2J/2K - Overall how satisfied are you with... Metro Transit? ...with all transit service in the area?
 Base: All respondents answering. Base sizes vary (n=115-110 Link Station Transfer respondents)

How Trip was Made Prior to Link Light Rail Extension

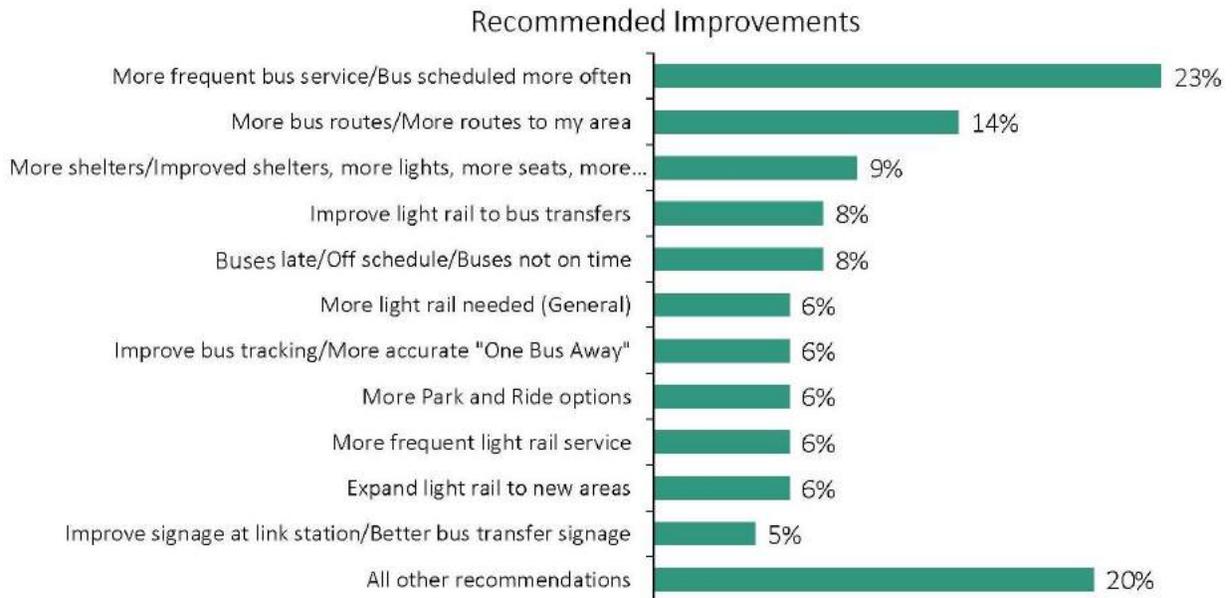
When asked how they made this trip prior to the extension of Link to UW and Capitol Hill, about six in 10 (61 percent) respondents said they rode the bus for their entire trip. Around two in 10 (18 percent) previously made their trip by driving, while 13% did not make this trip. This implies that the extension of light rail encouraged many riders to take transit, including trips involving transfers between buses and Link.



Q3. How did you make this trip prior to when Link light rail was extended to UW and Capitol Hill last March?
Base: All respondents answering (n=108)

Recommendations for Improvement

Riders in the Link Station Transfer survey were asked to give one recommendation for improving Metro's service. Nearly one quarter (23%) requested more frequent bus service. Other top suggestions included more bus routes (14%), more/improved shelters (9%), improved light rail to bus transfers (8%), and for buses to run on time (8%).



Q4 - What ONE THING would you recommend to improve Metro service for you?
Base: All respondents giving a recommendation (n=64)

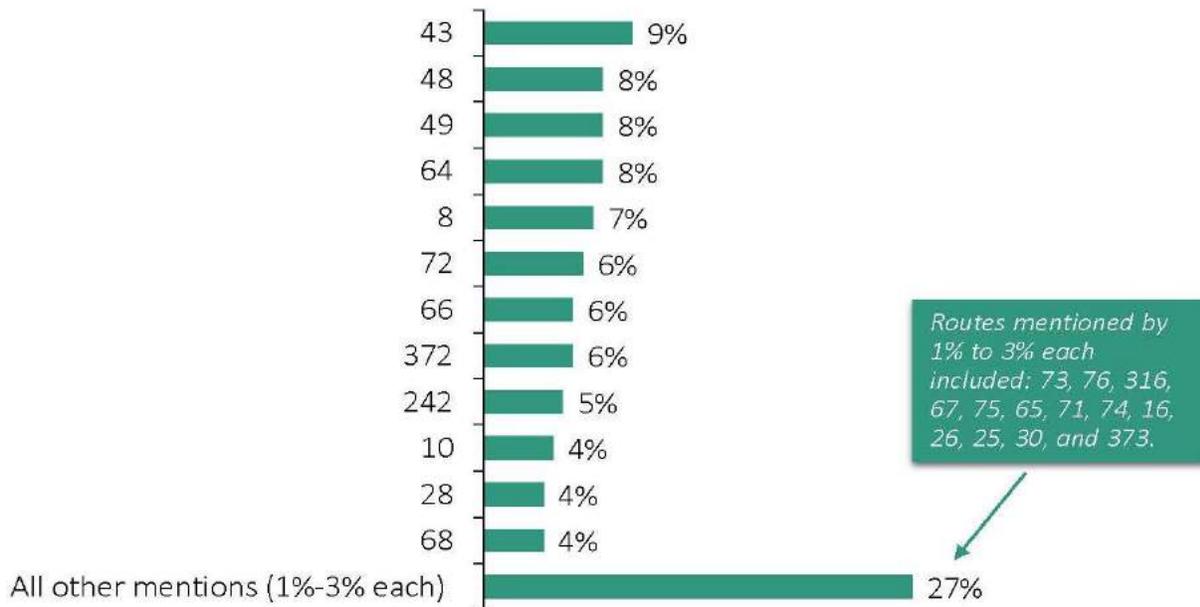
SURVEY WITH PHASE 1 ONBOARD RESPONDENTS

Follow-Up Survey with Phase 1 Onboard Respondents

This Follow-up Telephone/Internet survey was conducted with respondents who provided contact information in the “Pre” research (Phase 1). We conducted this survey to assess ridership frequency changes post-reconfiguration, understand reasons for ridership changes, and solicit input on transit service improvements.

This survey had 160 participants. They had been surveyed in the Pre survey on a wide variety of routes.

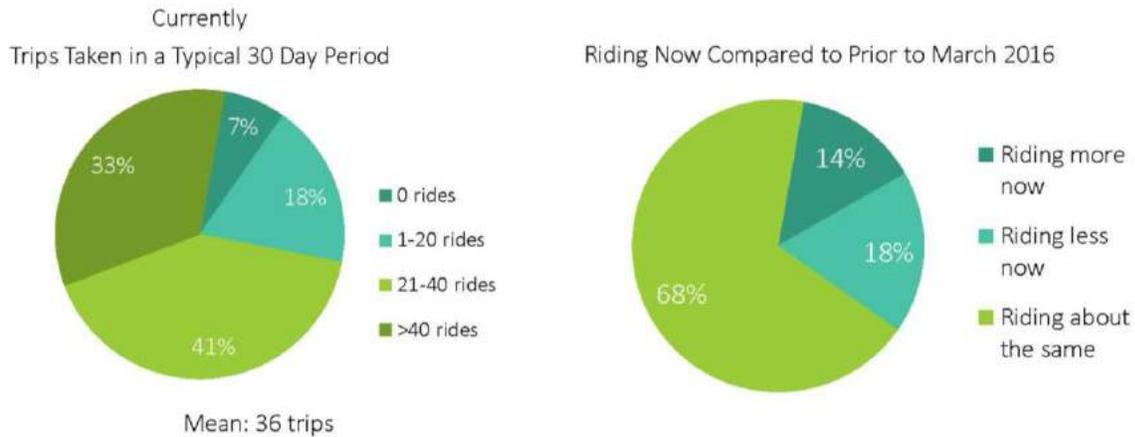
Bus Route in Pre Onboard Survey



Base: All respondents answering (n=160)

Riding Frequency Compared to Pre-Reconfiguration (Before March 2016)

On average, respondents are currently taking 36 transit trips in a typical 30-day period. Compared to *before* March 2016 (prior to reconfiguration), roughly two-thirds (68 percent) said they are currently riding about the same in a typical 30-day period, while 18 percent are riding *less frequently*, and 14 percent are riding *more frequently* (not a statistically significant difference between the last two responses, given the sample size).



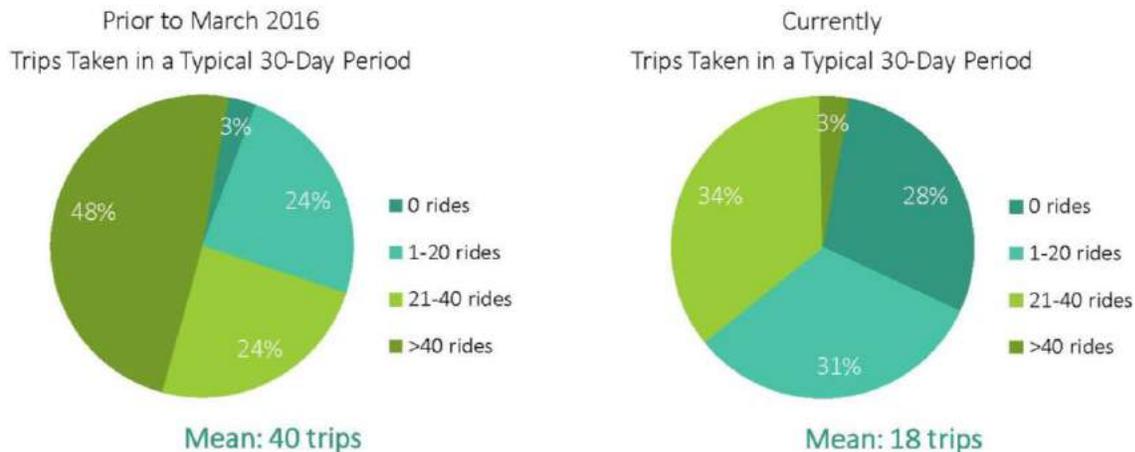
Q1 – Thinking about buses, light rail, and streetcars in King County, how many one-way trips do you currently take in a typical 30 day period?

Q2 – Are you currently riding more frequently than in a typical 30-day period prior to March 2016, less frequently, or about the same?

Base: All respondents answering (n=160)

Decline in Trips Among Those Riding Less

Among those *riding less* (n=29), their average number of trips in a typical 30-day period dropped from 40 to 18.



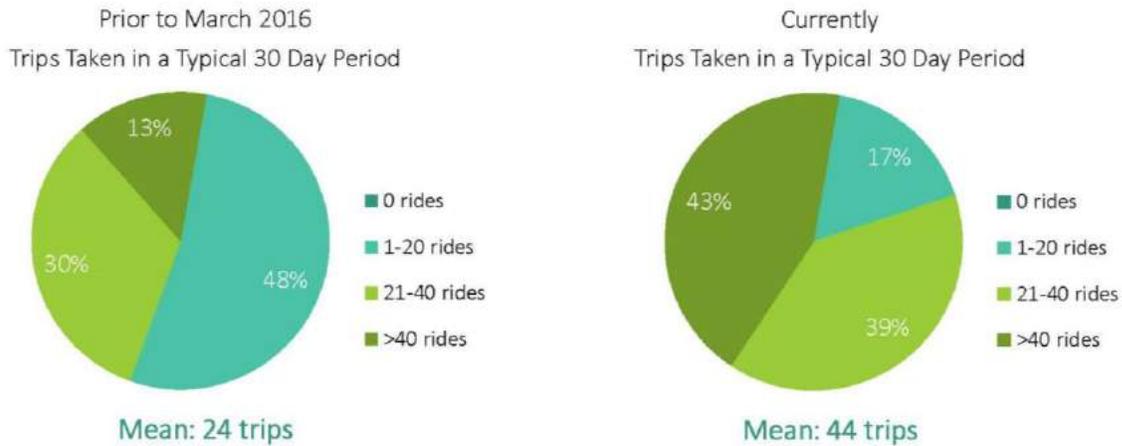
Q1 – Thinking about buses, light rail, and streetcars in King County, how many one-way trips have you taken in the last 30 days?

Q3A – How many trips were you making in a typical 30-day period prior to March 2016?

Base: Respondents riding less (n=29)

Rise in Trips Among Those Riding More

Among those riding more, their average number of trips in a typical 30-day period rose from 24 to 44.



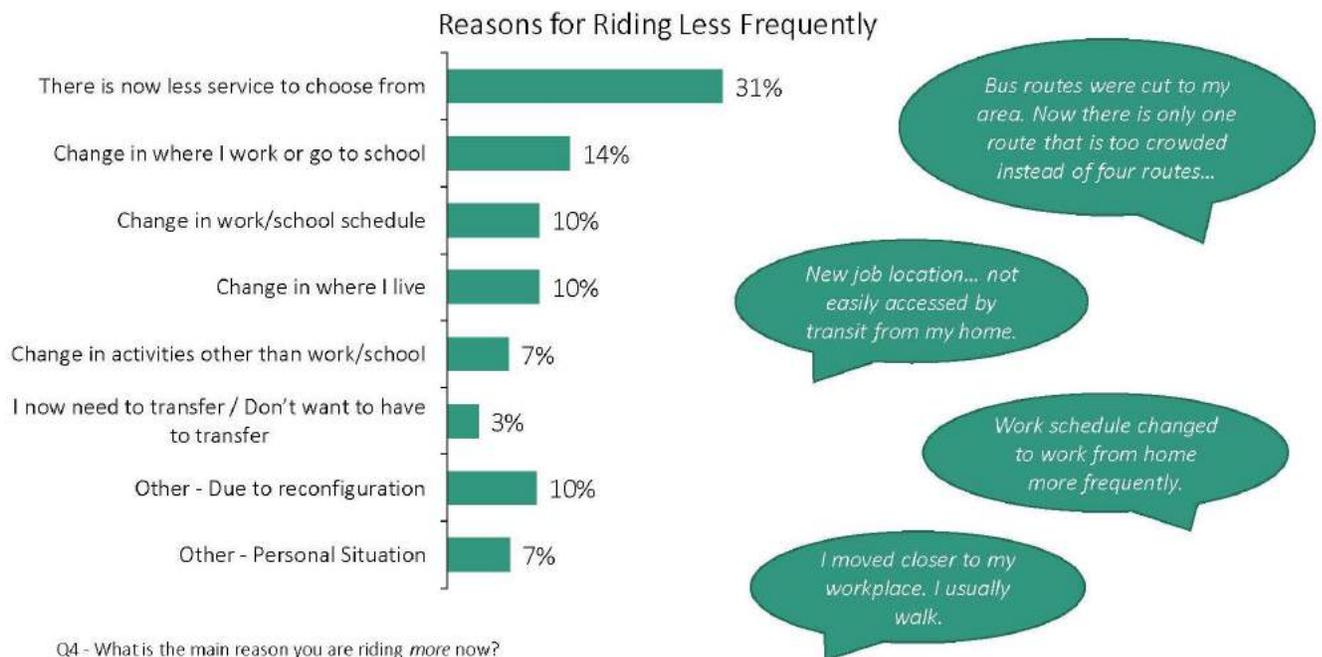
Q1 – Thinking about buses, light rail, and streetcars in King County, how many one-way trips have you taken in the last 30 days?

Q3A – How many trips were you making in a typical 30-day period prior to March 2016?

Base: Respondents riding more (n=23)

Main Reasons for Riding Less Frequently

About half of respondents who are riding less now cited the service changes as their reason. Two respondents stopped riding altogether because of the changes (so would not have been reached in the “post” phase of the onboard survey). Having less service to choose from (canceled routes) is the primary reason given for riding *less frequently* than before. Over half of riders (55%) cite changes in their personal situation for riding less now: work/school location or schedule changes, and changes in where they live.

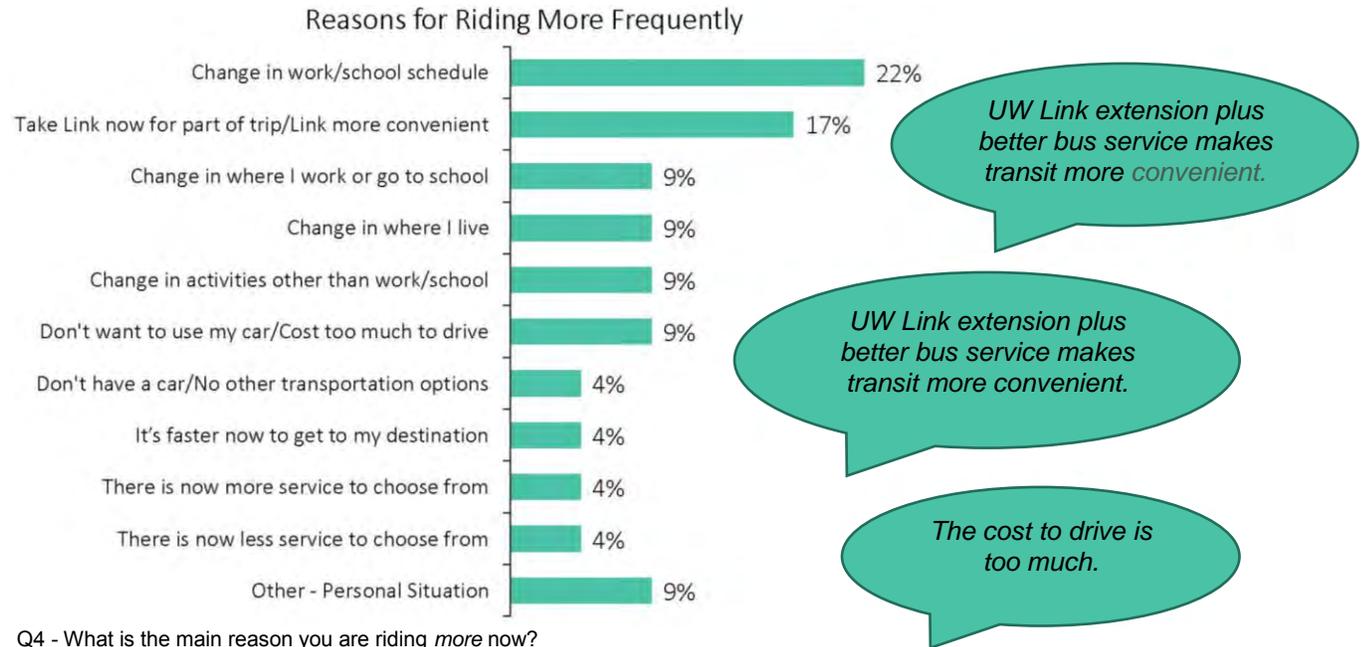


Q4 - What is the main reason you are riding *more* now?

Base: Respondents riding more (n=29)

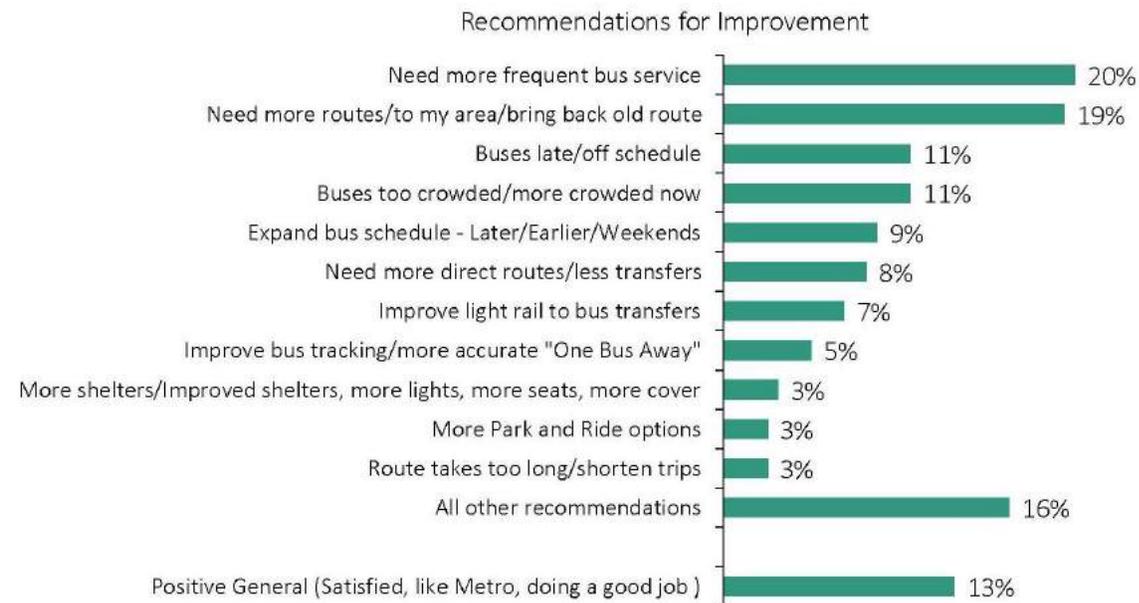
Main Reasons for Riding More Frequently

About one-third of the respondents who are riding more now cited the service changes as their reason. A change in their schedule, and taking Link as part of their trip (or Link being more convenient), were the primary reasons given for riding *more frequently*.



Recommendations for Improvements

Riders in the Follow-Up survey were asked how service could be improved. The two top recommendations, each mentioned by around one-fifth, included more frequent bus service and more routes—including bringing back their old route.



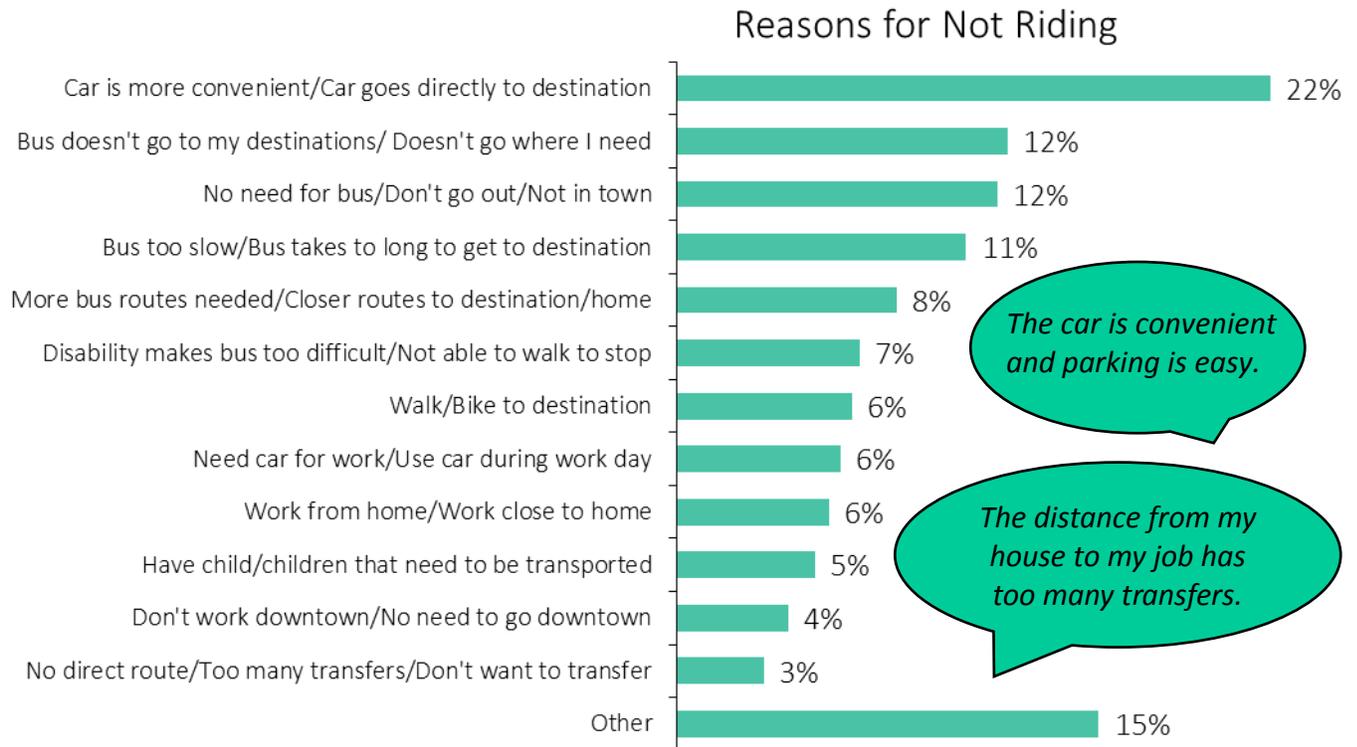
Q5 - Finally, please tell us how service could be improved for you.

Base: All respondents answering (n=160)

NON-RIDERS Survey

Main Reason for Not Riding Bus or Rail

Non riders were asked the main reason for not riding the bus or rail at all or more frequently. Nearly one quarter (22%) stated their car is more convenient to their destination. Other top reasons are that their destinations are not served by bus or rail routes (12%) and the trip takes too long by transit (11%).

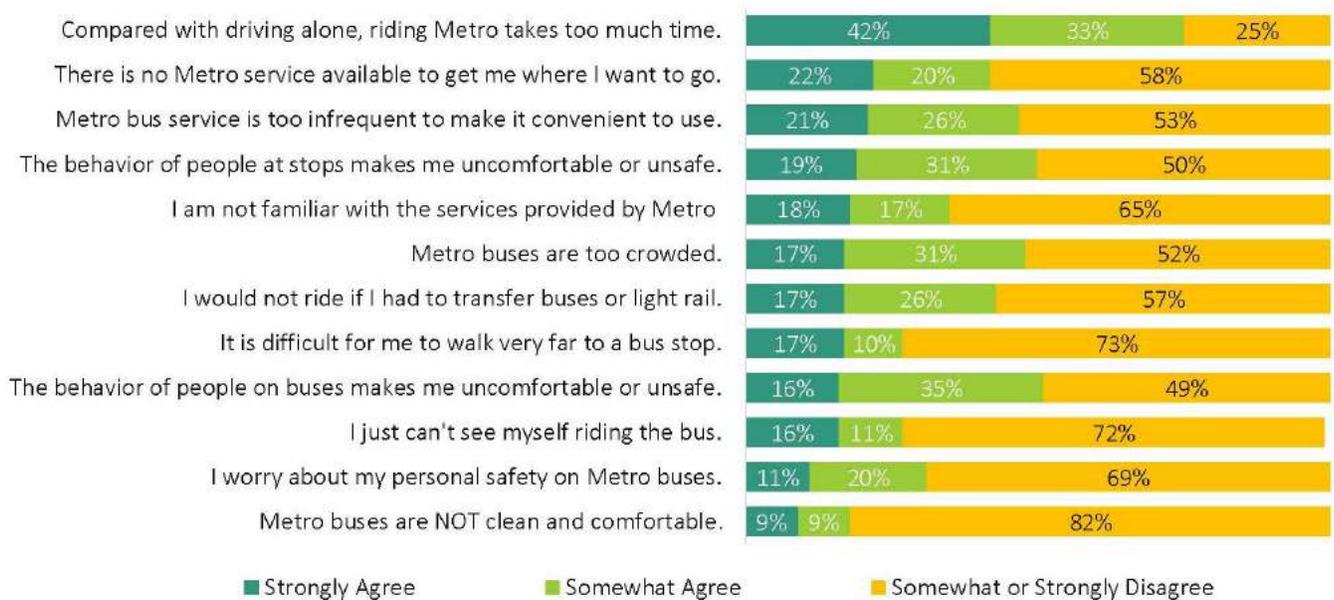


Q1 - What is the main reason you don't ride the bus (more)?
Base: All respondents answering (n=250)

Agreement with Statements about Metro: Potential Barriers

For respondents in the U-Link area who did not ride transit the prior month, perceptions of convenience appear to play a role in their decision not to ride the bus. Three-quarters feel that compared to driving, riding Metro takes too much time, and about half feel Metro buses are too crowded, or that service is too infrequent to make it convenient to use. Four in 10 would not ride if it requires making a transfer, or said no service is available to get them to where they want to go. Lack of familiarity with Metro services is a barrier for one-third of Non-Riders.

Nearly seven in 10 Non-Riders do not worry about their personal safety on Metro buses; however, about half agree that the behavior of some of the people on the buses or around the bus stops makes them feel uncomfortable or unsafe.



Q2.1 to 2.12 - Please tell me if you agree or disagree... Base: All respondents answering (n=175 to 247)
 Metro buses are clean and comfortable was asked as a positive scale and reversed in analysis for comparison purposes.

Summary: Non-Riders' Agreement with Statements about Metro—2016 vs. 2013 Ratings by Respondents within the Same ZIP Codes

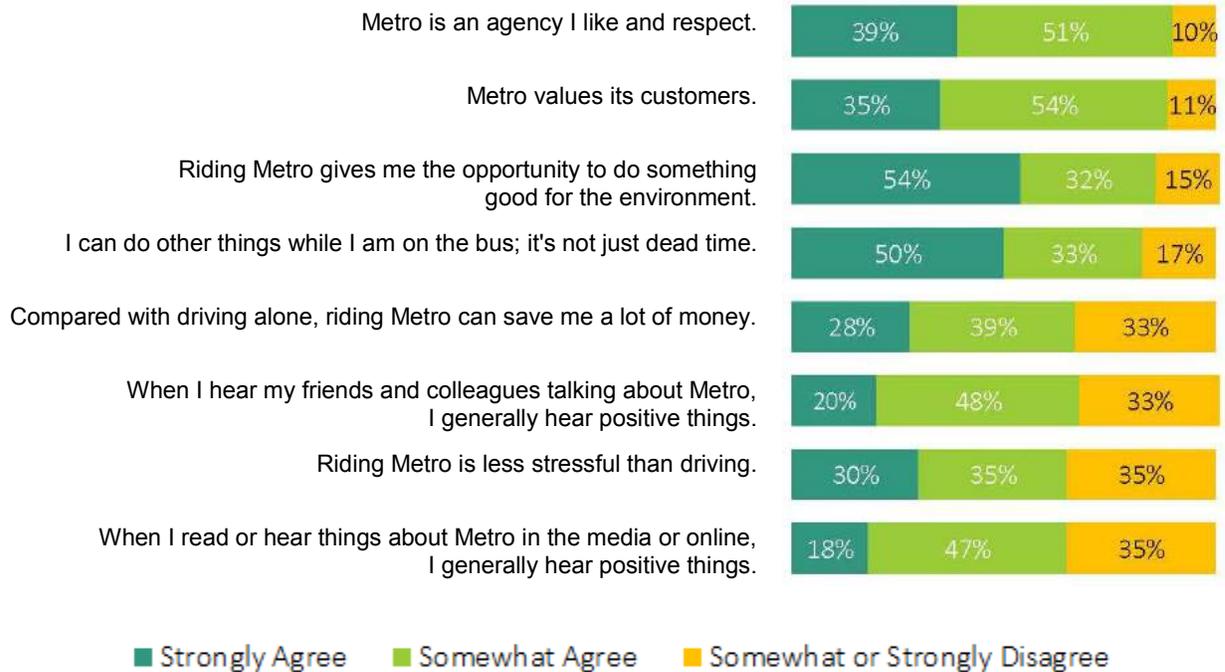
The most notable change in agreement ratings between 2013 and the current survey is an increase in those who feel *there is no Metro service available to get them where they want to go*, and those who are *not familiar with the services provided by Metro*. This suggests opportunity for more communications from Metro about the services. The respondents in the U-Link area see the buses as more crowded than respondents elsewhere in King County. Otherwise, the barriers to riding are similar to those cited in past years and in the rest of the county. A 2012 Sound Transit Market Share report found similar barriers, where trip time and service flexibility were cited as major barriers to riding.

Statement	Combined "Agree" and "Strongly Agree"		
	POST METRO U LINK INTEGRATION	2013 AMONG THOSE IN SAME ZIP CODES	2013 COUNTYWIDE
Compared with driving alone, riding Metro takes too much time.	75%	78%	77%
The behavior of some of the people on Metro buses makes me feel uncomfortable or unsafe.	51%	49%	51%
The behavior of some of the people at or near the bus stops makes me feel uncomfortable or unsafe.	50%	45%	46%
Metro buses are too crowded.	48%	40%	34%
Metro bus service is too infrequent to make it convenient to use.	47%	47%	54%
I would not ride if I had to transfer buses or light rail.	43%	50%	53%
There is no Metro service available to get me where I want to go.	42%	28%	39%
I am not familiar with the services provided by Metro -that is, what services are available, schedules, routes, etc.	35%	19%	28%
I worry about my personal safety on Metro buses.	31%	30%	32%
I just can't see myself riding the bus.	28%	26%	34%
It is difficult for me to walk very far to a bus stop.	27%	17%	27%
Metro buses are NOT clean and comfortable.	18%	21%	15%

Base: 2016 Post Metro-Link Integration Survey – All respondents answering (n=208 to 243 in 2016, 87 to 225 in these zip codes in 2013 and 2015 and 1184 to 2985 in 2013 and 2015 County wide.)

Agreement with Statements about Metro: Positive Attributes

The majority of Non-Riders have positive opinions regarding Metro. Between eight and nine out of 10 *agree* that they like and respect Metro, that Metro values its customers, and that riding Metro is good for the environment and allows them to do other things during that time. Around two-thirds *agree* that riding Metro can save them money and is less stressful than driving, and that they hear and read positive things about Metro.



Q3.1 to 3.8 Please tell me if you agree or disagree...
 Base: All respondents answering (n=208 to 243)

Summary: Non-riders' Agreement with Statements about Metro –2016 vs. Past Ratings by Respondents within the Same ZIP Codes

Compared to 2013 and 2015, Non-Riders have about the same perceptions regarding Metro and their recognition of the potential advantages gained by riding Metro compared to driving.

Statement	Combined "Agree" and "Strongly Agree"		
	2016 POST METRO AND U-LINK INTEGRATION	2013-2015 AMONG THOSE IN SAME ZIP CODES	2013-2015 COUNTYWIDE
Metro is an agency I like and respect.	90%	87%	87%
Metro values its customers.	89%	87%	88%
Riding Metro gives me the opportunity to do something good for the environment.	85%	90%	91%
I can do other things while I am on the bus; it's not just dead time.	83%	81%	88%
Compared with driving alone, riding Metro can save me a lot of money.	67%	63%	78%
When I hear my friends and colleagues talking about Metro, I generally hear positive things.	67%	74%	69%
Riding Metro is less stressful than driving.	65%	57%	74%
When I read or hear things about Metro in the media or online, I generally hear positive things.	65%	62%	64%

Base: 2016 Post Metro-Link Integration Survey – All respondents answering (n=208 to 243 in 2016, 87 to 225 in these zip codes in 2013 and 2015 and 1184 to 2985 in 2013 and 2015 County wide.)

Overall Appeal of Using Metro

More than half of the Non-Riders (54 percent) said the idea of using Metro to get to their destination was either very appealing or somewhat appealing, 14 percent were neutral and one-third (32 percent) found the idea unappealing.

Comparing responses to those from the 2015 Non-Rider Metro Survey (comparing only respondents in the same ZIP codes) shows that similar proportions found the idea of using Metro appealing, but in 2016 more gave neutral ratings instead of considering the idea unappealing. Compared to the rest of the county, Non-Riders in the Metro-Link project ZIP codes are more open to riding Metro.



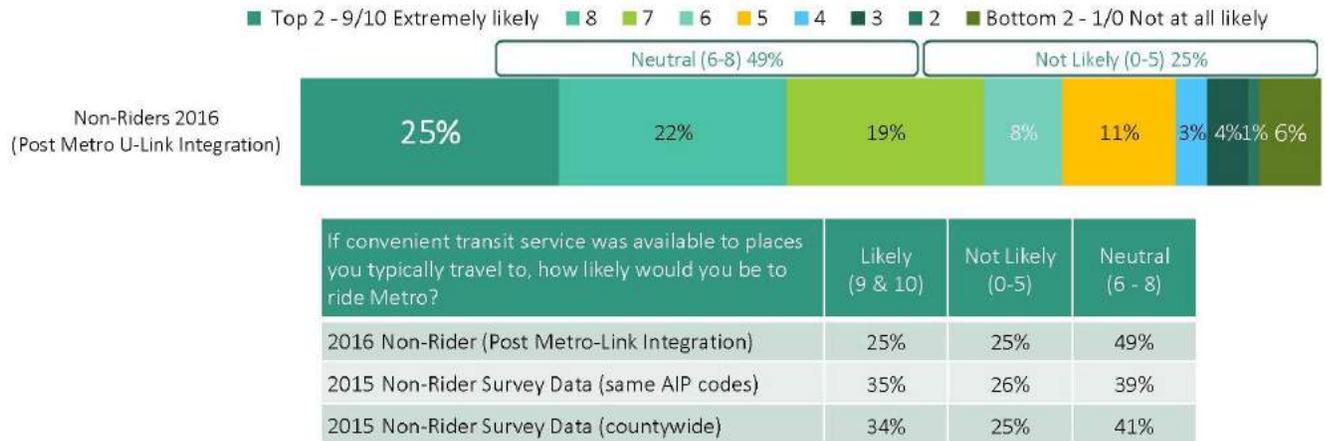
Overall, how appealing to you personally is the idea of using Metro to get to your destination?	% Appealing	% Not Appealing	% Neutral
2016 Non-Rider (Post Metro U-Link Integration)	54%	32%	14%
2015 Non-Rider Survey Data (same zip codes)	57%	40%	3%
2015 Non-Rider Survey Data (County wide)	48%	50%	2%

Q4A - Overall, how appealing to you personally is the idea of using Metro to get to your destination? Would you say...
 Base: All respondents answering (n=249 in 2016, 144 (including 3 neutral) in these zip codes in 2015, 803 in all zip codes in 2015.)

Likelihood of Riding Metro if Convenient Transit Service is Available

Among Non-Riders who find riding Metro appealing (or are neutral), one-quarter have a high likelihood (rating of 9/10) of riding Metro if convenient transit service were available.

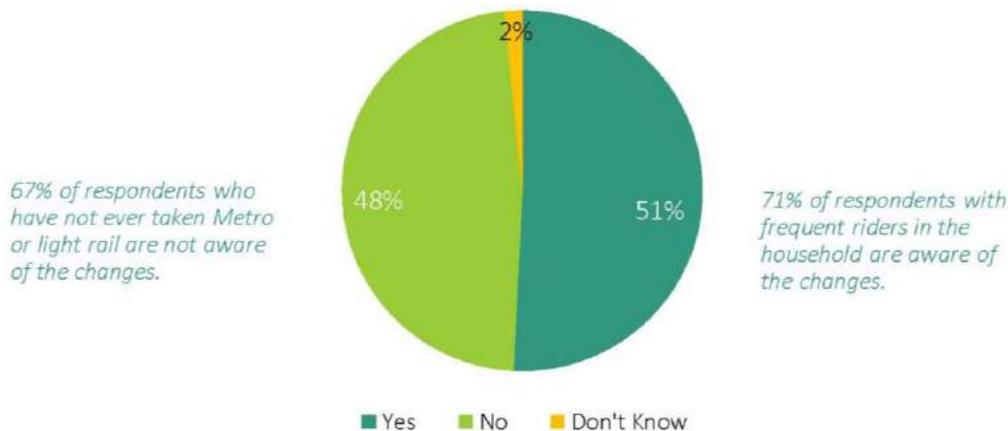
A comparison of responses to those from a 2015 Non-Rider Metro Survey (among respondents in the same ZIP codes) shows a decline in likelihood to use Metro—from around one-third of respondents highly likely (35 percent) in 2015 to one-quarter (25 percent) in 2016. Likewise, these respondents are less likely than Non-Riders elsewhere in the county. They tend to be more neutral, though. (The question was about Metro; Link is now an available alternative for many of these respondents.)



Q4B - If convenient transit service was available to places you typically travel to, how likely would you be to ride Metro?
Base: All respondents answering (n=170 in 2015, 81 in these zip codes in 2015, and 405 in all of King County in 2015)

Aware of Changes Regarding Metro Bus Integration with Link

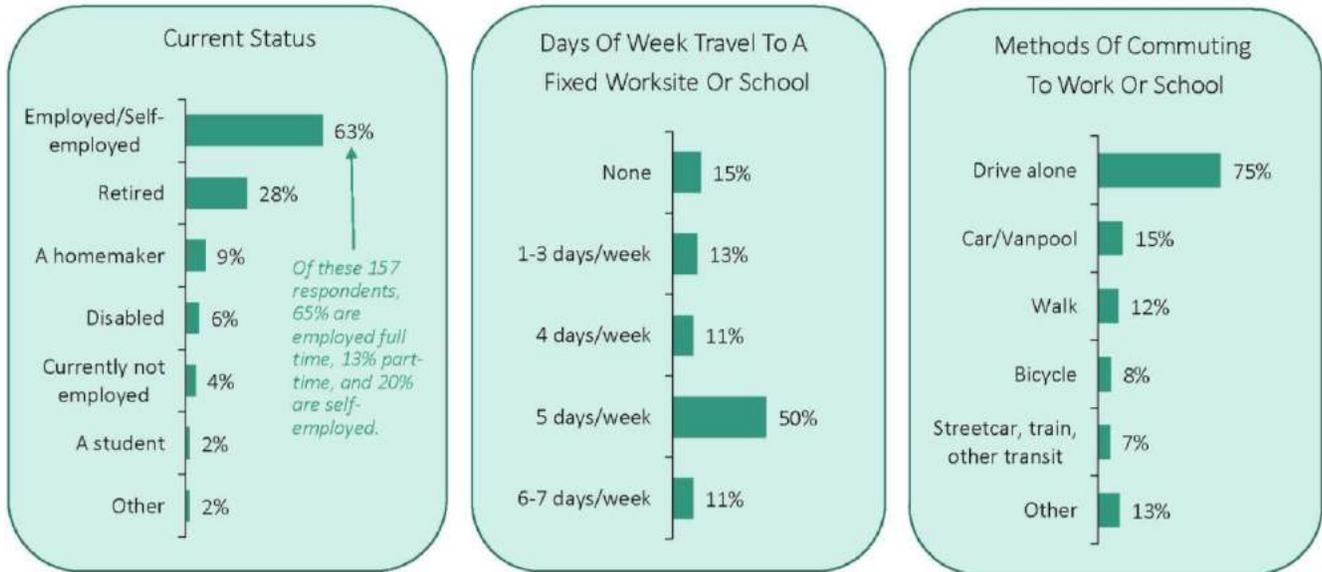
Nearly half (48 percent) of respondents were unaware of changes in Metro service in their area to integrate Metro with Link light rail. Looking at subgroups of respondents, those with frequent riders in their household had higher awareness, and those who had never taken the Metro or light rail had lower awareness.



Q5. Are you aware of changes in Metro service in your area earlier this year in response to Sound Transit opening new light rail stations in Capitol Hill and the U District? Base: All respondents answering (n=250)

Commuting to Work or School

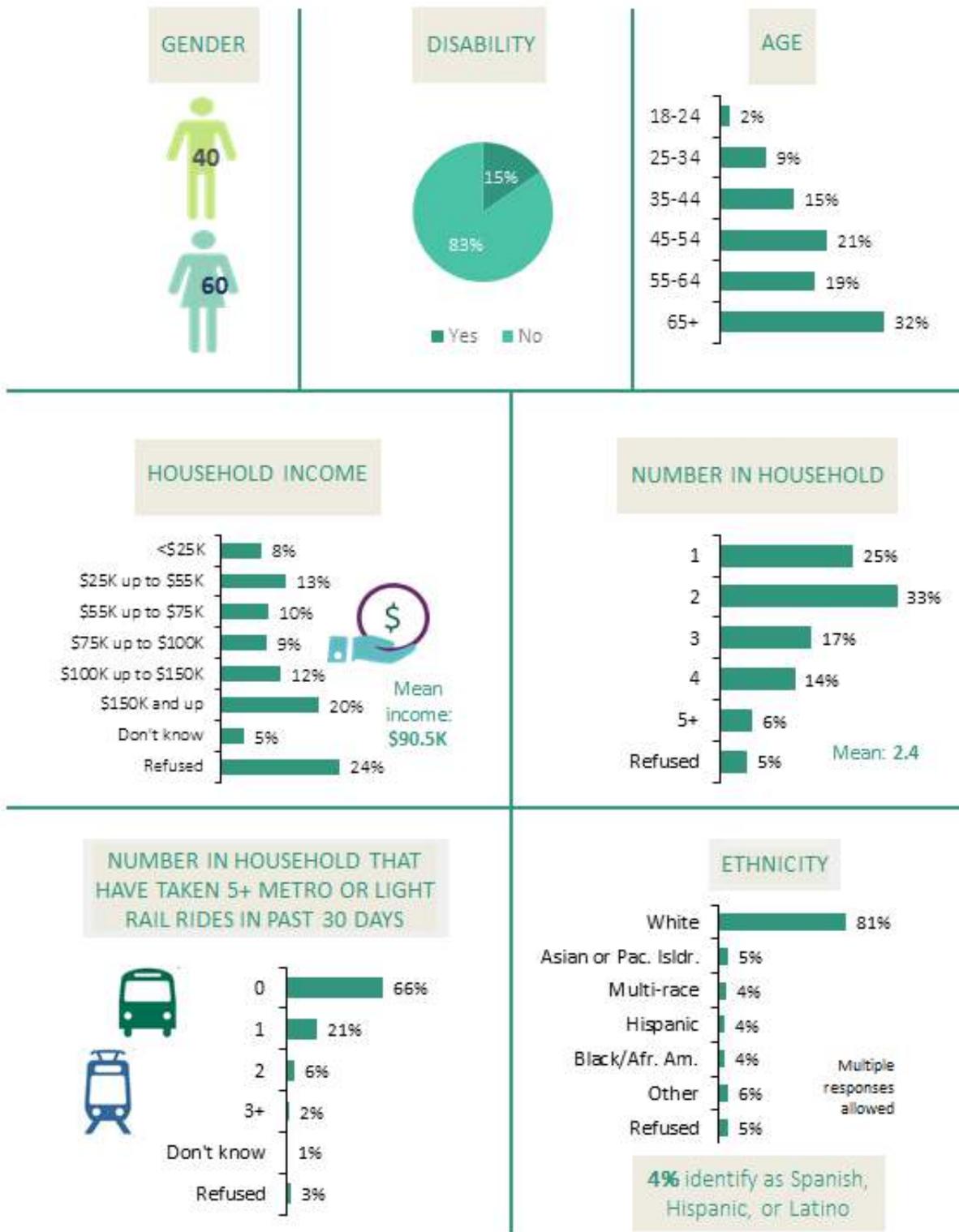
Nearly two-thirds (63 percent) of Non-Rider respondents are employed, and about two-thirds of this population (65 percent) work full-time. A small number are students. The majority of those who work or go to school are traveling five or more days a week. Three-quarters (75 percent) drive alone; 15 percent carpool/vanpool; 12 percent walk; 8 percent bicycle to work or school.



QCS1. Are you currently...? Base: all respondents answering (n=250) QCS1-2. Are you employed/a student full time...? Base: all employed/students responding (n=160)

QCS2B. How many days a week do you travel to a fixed worksite/to school? CS4. How do you typically get to (work or school)? Base: all employed/students responding (n=160)

Respondent Profile: Non-Rider Survey



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Pre On-Board Routes Surveyed

Intercepts for the Pre On-Board Integration Survey occurred February 23 to March 9, 2016. Trips to be surveyed were selected to provide a variety of routes as well as both peak and non-peak riders. Data was collected on weekdays only.

Route	Start time	Completed	Route	Start time	Completed
Route 10	10:56 AM	8	Route 49	8:50 AM	54
Route 10	11:42 AM	6	Route 49	9:47 AM	19
Route 10	7:01 AM	10	Route 64	3:37 PM	47
Route 10	7:39 AM	30	Route 65	7:53 AM	8
Route 10	9:43 AM	22	Route 65	8:54 AM	19
Route 16	6:30 AM	31	Route 66	2:03 PM	11
Route 16	7:34 AM	8	Route 66	5:50 PM	12
Route 242	6:24 AM	25	Route 66	8:15 AM	39
Route 25	2:36 PM	16	Route 67	3:06 PM	41
Route 26	6:34 AM	20	Route 67	4:39 PM	30
Route 26	9:25 AM	4	Route 68	4:34 PM	40
Route 28	7:26 AM	7	Route 68	9:55 AM	4
Route 28	8:22 AM	31	Route 71	8:25 AM	22
Route 30	4:42 PM	3	Route 71	4:25 PM	23
Route 30	5:36 PM	9	Route 71	5:47 PM	20
Route 316	6:25 AM	33	Route 72	6:33 AM	17
Route 372	3:15 PM	28	Route 72	7:24 AM	56
Route 372	5:00 PM	41	Route 73	10:42 AM	23
Route 373	1:29 PM	21	Route 73	11:39 AM	24
Route 43	7:15 AM	33	Route 73	11:41 AM	20
Route 43	8:10 AM	26	Route 74	9:31 AM	34
Route 43	9:00 AM	23	Route 75	3:10 PM	31
Route 43	9:55 AM	17	Route 75	6:16 PM	6
Route 43	10:24 AM	12	Route 75	8:47 AM	9
Route 48	12:17 PM	37	Route 76	5:21 PM	39
Route 48	1:45 PM	44	Route 8	12:17 PM	20
Route 48	8:45 AM	34	Route 8	1:56 PM	14
Route 48	10:14 AM	34	Route 8	11:02 AM	9
Route 49	3:05 PM	39	Route 8	3:37 PM	22
Route 49	4:01 PM	23	Mail		22
			Total		1,410

Post On-Board Routes Surveyed

Intercepts for the Pre On-Board Integration Survey occurred November 14 to December 7, 2016. Trips to be surveyed were selected to provide a variety of routes as well as both peak and non-peak riders. Data was collected on weekdays only.

Route	Start time	Completed	Route	Start time	Completed
Route 10	10:34 AM	7	Route 49	6:00 PM	10
Route 10	11:12 AM	6	Route 62	12:10 PM	19
Route 10	7:39 AM	2	Route 62	1:45 PM	15
Route 10	8:09 AM	9	Route 62	3:06 PM	18
Route 10	3:15 PM	19	Route 62	8:57 AM	27
Route 10	4:10 PM	5	Route 63	6:25 AM	19
Route 26	3:15 PM	23	Route 64	3:35 PM	31
Route 26	7:00 AM	29	Route 65	9:33 AM	43
Route 28	6:33 AM	28	Route 65	6:21 PM	41
Route 28	4:43 PM	20	Route 67	8:07 AM	24
Route 28	6:06 PM	6	Route 67	2:08 PM	41
Route 316	7:03 AM	42	Route 70*	1:06 PM	20
Route 372	12:18 PM	26	Route 70*	2:11 PM	24
Route 372	1:30 PM	34	Route 70*	3:03 PM	15
Route 372	6:51 AM	21	Route 70*	4:09 PM	19
Route 372	2:48 PM	42	Route 70*	8:57 AM	14
Route 373	3:15 PM	30	Route 71	11:30 AM	4
Route 43	4:40 PM	15	Route 71	12:27 PM	10
Route 45	5:34 PM	25	Route 73	4:57 AM	20
Route 45	7:20 AM	10	Route 74	5:03 PM	32
Route 45	8:09 AM	24	Route 75	6:21 PM	21
Route 45	9:07 AM	14	Route 75	8:32 AM	11
Route 45	9:58 AM	18	Route 75	9:36 AM	21
Route 48	7:58 AM	17	Route 75	10:37 AM	7
Route 48	8:48 AM	19	Route 76	7:13 AM	25
Route 48	9:37 AM	9	Route 78	8:39 AM	3
Route 48	10:28 AM	16	Route 78	9:05 AM	1
Route 48	4:08 PM	13	Route 8	7:59 AM	16
Route 48	5:01 PM	12	Route 8	9:00 AM	18
Route 49	8:38 AM	19	Route 8	10:05 AM	17
Route 49	9:37 AM	16	Route 8	11:08 AM	17
Route 49	10:25 AM	12	Mail		31
Route 49	3:02 PM	7	Total		1,229
Route 49	6:00 PM	10			

* Route 70 was in the Post wave only. Its inclusion did not affect any of the satisfaction ratings by more than one percent.

Pre On-Board Questionnaire

Instructions

Please check the box to show how satisfied or dissatisfied you are with this route you are riding. Check "NA" if the item does not apply to you. Remember to rate this route you are riding, not other routes or Metro Transit in general. THANK YOU!

1. Trip Time on <u>This Route</u>	Very				Very	
	Satisfied	Satisfied	Neutral	Dissatisfied	Dissatisfied	Not Applicable
▼ How long my bus trip takes	<input type="checkbox"/>					
▼ The number of stops my bus makes	<input type="checkbox"/>					

2. Personal Safety on <u>This Route</u>	Very				Very	
	Satisfied	Satisfied	Neutral	Dissatisfied	Dissatisfied	Not Applicable
▼ Personal safety while on the bus	<input type="checkbox"/>					
▼ Behavior of other passengers on the bus	<input type="checkbox"/>					
▼ Personal safety while waiting for this bus during the day	<input type="checkbox"/>					
▼ Personal safety while waiting for the bus at night	<input type="checkbox"/>					
▼ Behavior of other people at the waiting area	<input type="checkbox"/>					

3. Waiting Area/Bus Stop Where You Boarded <u>This Route</u> for This Trip	Very				Very	
	Satisfied	Satisfied	Neutral	Dissatisfied	Dissatisfied	Not Applicable
▼ Being able to sit down while waiting	<input type="checkbox"/>					
▼ Cleanliness of waiting area	<input type="checkbox"/>					
▼ Amount of lighting	<input type="checkbox"/>					
▼ Protection from the weather	<input type="checkbox"/>					
▼ Having information available about routes and connections	<input type="checkbox"/>					
▼ Convenience of the bus stop to my home or where I was coming from	<input type="checkbox"/>					
▼ Being able to see an oncoming bus	<input type="checkbox"/>					

4. Things About Buses on <u>This Route</u>	Very				Very	
	Satisfied	Satisfied	Neutral	Dissatisfied	Dissatisfied	Not Applicable
▼ Being able to get a seat	<input type="checkbox"/>					
▼ Having room to stand if no seats are available	<input type="checkbox"/>					
▼ Amount of lighting inside the bus	<input type="checkbox"/>					
▼ Cleanliness of the bus interior	<input type="checkbox"/>					
▼ Having the bus free of graffiti	<input type="checkbox"/>					
▼ Smoothness of the ride	<input type="checkbox"/>					
▼ Enough bike rack capacity	<input type="checkbox"/>					
▼ Wide enough doors and aisles for loading and unloading	<input type="checkbox"/>					
▼ Enough bars/straps to hang onto while standing	<input type="checkbox"/>					

Pre On-Board Questionnaire, cont.

If you make a transfer on this route, please rate the items in this box. If you do NOT make a transfer on this route, go on to Question 6 below the box.

5. Ease of Transferring to or from This Route	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ The number of transfers I make	<input type="checkbox"/>					
▼ The way buses are scheduled to make transfer connections	<input type="checkbox"/>					
▼ Waiting time between transfers	<input type="checkbox"/>					
▼ Helpfulness of drivers in ensuring transfer connections	<input type="checkbox"/>					
▼ The bus coming on time when transferring	<input type="checkbox"/>					
▼ Transfer information at the waiting area	<input type="checkbox"/>					
▼ Protection from the weather at the waiting area	<input type="checkbox"/>					

6. Frequency and Reliability of Buses on This Route	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ The bus not leaving the stop early	<input type="checkbox"/>					
▼ The bus not leaving the stop late	<input type="checkbox"/>					
▼ The bus getting me where I'm going on time	<input type="checkbox"/>					
▼ How often the bus runs during peak hours (6-9 a.m. and 3-6 p.m.)	<input type="checkbox"/>					
▼ How often the bus runs during midday hours (9 a.m. to 3 p.m.)	<input type="checkbox"/>					
▼ How often the bus runs in the evening/night	<input type="checkbox"/>					
▼ How often the bus runs on weekends	<input type="checkbox"/>					
▼ How early the bus runs in the morning	<input type="checkbox"/>					

7. Overall Satisfaction	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ Overall how satisfied are you with this route?	<input type="checkbox"/>					
▼ Overall how satisfied are you with Metro Transit?	<input type="checkbox"/>					

8. How many rides have you taken on this route in the last 30 days? (Count a roundtrip as 2 rides) _____ rides

9. What is the purpose of the trip you take **most often** on this route? (Please check one).

- | | |
|---|--|
| <input type="checkbox"/> To/from work | <input type="checkbox"/> Fun/recreation/social |
| <input type="checkbox"/> To/from school | <input type="checkbox"/> Appointments |
| <input type="checkbox"/> Shopping/errands | <input type="checkbox"/> Other |

10. When do you usually ride this route? (Please check all that apply).

- | | | |
|--|---|-----------------------------------|
| <input type="checkbox"/> Weekdays—before 6 a.m. | <input type="checkbox"/> Weekdays 9 a.m. to 3 p.m. | <input type="checkbox"/> Weekends |
| <input type="checkbox"/> Weekdays—AM peak (6-9 a.m.) | <input type="checkbox"/> Weekdays 6-9 p.m. | |
| <input type="checkbox"/> Weekdays—PM peak (3-6 p.m.) | <input type="checkbox"/> Weekdays later than 9 p.m. | |

11. Did you transfer **TO** this route from another bus or light rail on this trip today?

- Yes — Which route? _____ No

12. Will you transfer **FROM** this route to another bus or light rail to reach your destination on this trip today?

- Yes — Which route? _____ No Not sure

Pre On-Board Questionnaire, cont.

13. How long have you been a Metro rider?
 Less than 6 months More than a year but less than 5 years
 6-12 months 5 years or more
14. How do you pay your fare?
 Cash Other _____
 Tickets
 ORCA card —what product(s) do you have on your ORCA card?
 Pass E-purse/money on the card Both a pass and an e-purse
15. Are you? Male Female
16. How old are you? _____ years
17. Do you consider yourself Hispanic or Latino? Yes No
18. Do you consider yourself (please select one)
 White Asian
 Black or African American Native Hawaiian or Other Pacific Islander
 American Indian or Alaska Native Some other race or more than one race (please specify)

19. What is your total household income?
 Less than \$12,000 per year \$24,001 to \$28,000
 \$12,000 to \$19,000 More than \$28,000
 \$19,001 to \$24,000 I don't know
20. Including yourself, how many people live in your household? _____
21. What is the primary language spoken at home?
 English Other, please specify _____
22. How well do you speak English? Very well Well Not well Not at all
23. What is your home zip code? _____
24. If you ride transit to work or school, what is the zip code at work or school? _____
Or what is the nearest intersection to your work or school?
_____ and _____
25. What ONE THING would you recommend to improve Metro service for you?

26. We will be conducting a very brief phone / internet survey next fall to ask about how often you are riding Metro after the service changes this coming year. May we contact you? If so, please provide the best phone number and/or email address to reach you:

Phone number: _____

Email address: _____

THANK YOU VERY MUCH FOR YOUR HELP.

Pre On-Board Questionnaire, cont.

Route: _____ Date: _____ Time: _____



We'll Get You There

Rider Report Card

Starting March 26, Metro's spring service changes will take effect. These changes include a redesigned network of bus service to better connect riders with Link light rail and to provide new neighborhood connections.

To help evaluate these changes and to identify any improvements that could be made, Metro is asking customers how satisfied they are with service now, and will ask again later this year after the changes are made.

Please help us in this effort by completing the questionnaire and returning it to the survey worker.

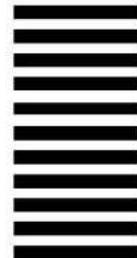
Thank you very much for your help.

IF YOU HAVE ALREADY COMPLETED A QUESTIONNAIRE FOR THIS ROUTE, PLEASE RETURN THIS TO THE SURVEY WORKER.

Fold questionnaire closed with return address showing and drop in any mailbox – Postage free.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
FIRST-CLASS MAIL PERMIT NO. 579 RENTON, WA

POSTAGE WILL BE PAID BY ADDRESSEE

PACIFIC MARKET RESEARCH
15 S GRADY WAY STE 620
RENTON WA 98057-9978



Post On-Board Questionnaire

Instructions

Please check the box to show how satisfied or dissatisfied you are with this route you are riding. Check “NA” if the item does not apply to you. Remember to rate **this route** you are riding, not other routes or Metro Transit in general. THANK YOU!

1. Trip Time on <u>This Route</u>	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ How long my bus trip takes	<input type="checkbox"/>					
▼ The number of stops my bus makes	<input type="checkbox"/>					

2. Personal Safety on <u>This Route</u>	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ Personal safety while on the bus	<input type="checkbox"/>					
▼ Behavior of other passengers on the bus	<input type="checkbox"/>					
▼ Personal safety while waiting for this bus during the day	<input type="checkbox"/>					
▼ Personal safety while waiting for the bus at night	<input type="checkbox"/>					
▼ Behavior of other people at the waiting area	<input type="checkbox"/>					

3. Waiting Area/Bus Stop Where You Boarded <u>This Route</u> for This Trip	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ Being able to sit down while waiting	<input type="checkbox"/>					
▼ Cleanliness of waiting area	<input type="checkbox"/>					
▼ Amount of lighting	<input type="checkbox"/>					
▼ Protection from the weather	<input type="checkbox"/>					
▼ Having information available about routes and connections	<input type="checkbox"/>					
▼ Convenience of the bus stop to my home or where I was coming from	<input type="checkbox"/>					
▼ Being able to see an oncoming bus	<input type="checkbox"/>					

4. Things About Buses on <u>This Route</u>	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ Being able to get a seat	<input type="checkbox"/>					
▼ Having room to stand if no seats are available	<input type="checkbox"/>					
▼ Amount of lighting inside the bus	<input type="checkbox"/>					
▼ Cleanliness of the bus interior	<input type="checkbox"/>					
▼ Having the bus free of graffiti	<input type="checkbox"/>					
▼ Smoothness of the ride	<input type="checkbox"/>					
▼ Enough bike rack capacity	<input type="checkbox"/>					
▼ Wide enough doors and aisles for loading and unloading	<input type="checkbox"/>					
▼ Enough bars/straps to hang onto while standing	<input type="checkbox"/>					

Post On-Board Questionnaire, cont.

If you make a transfer on this route (with another bus, Link light rail or streetcar), please rate the items in this box. If you do NOT make a transfer on this route, go on to Question 6 below the box.

5. Ease of Transferring to or from This Route	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ The number of transfers I make	<input type="checkbox"/>					
▼ The way buses are scheduled to make transfer connections	<input type="checkbox"/>					
▼ The distance between stops where I transfer	<input type="checkbox"/>					
▼ Waiting time between transfers	<input type="checkbox"/>					
▼ How long the entire trip takes, including transfers	<input type="checkbox"/>					
▼ Helpfulness of drivers in ensuring transfer connections	<input type="checkbox"/>					
▼ The bus coming on time when transferring	<input type="checkbox"/>					
▼ Transfer information at the waiting area	<input type="checkbox"/>					
▼ Protection from the weather at the waiting area	<input type="checkbox"/>					

6. Frequency and Reliability of Buses on This Route	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ The bus not leaving the stop early	<input type="checkbox"/>					
▼ The bus not leaving the stop late	<input type="checkbox"/>					
▼ The bus getting me where I'm going on time	<input type="checkbox"/>					
▼ How often the bus runs during peak hours (6-9 a.m. and 3-6 p.m.)	<input type="checkbox"/>					
▼ How often the bus runs during midday hours (9 a.m. to 3 p.m.)	<input type="checkbox"/>					
▼ How often the bus runs in the evening/night	<input type="checkbox"/>					
▼ How often the bus runs on weekends	<input type="checkbox"/>					
▼ How early the bus runs in the morning	<input type="checkbox"/>					

7. Overall Satisfaction	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Not Applicable
▼ Overall, how satisfied are you with this route?	<input type="checkbox"/>					
▼ Overall, how satisfied are you with Metro Transit?	<input type="checkbox"/>					
▼ Overall, how satisfied are you with <u>all</u> transit service in the area?	<input type="checkbox"/>					

7a. Compared with transit service before last March, would you say transit service is now:
 Better About the same Not as good Don't know

7b. Why do you say that? _____

8. How many rides have you taken on this route in the last 30 days? (Count a roundtrip as 2 rides)
 _____ rides

Post On-Board Questionnaire, cont.

19. What is your total household income?
 Less than \$12,000 per year \$19,001 to \$24,000 More than \$28,000
 \$12,000 to \$19,000 \$24,001 to \$28,000 I don't know
20. Including yourself, how many people live in your household? _____
21. What is the primary language spoken at home?
 English Other, please specify _____
22. How well do you speak English? Very well Well Not well Not at all
23. What is your home zip code? _____
24. If you ride transit to work or school, what is the zip code at work or school? _____
Or what is the nearest intersection to your work or school?
_____ and _____

THANK YOU VERY MUCH FOR YOUR HELP.

Link Station Transfer Questionnaire



Survey About Transferring Between Link Light Rail and Buses

In March 2016, King County Metro redesigned the network of bus service to better connect riders with Link light rail and to provide new neighborhood connections.

To help evaluate these changes and to identify any improvements that could be made, Metro is asking customers who transfer between Link light rail and buses to tell us how satisfied they are with the transit service.

Please help us in this effort by completing the questionnaire and returning it to the survey worker.

Thank you very much for your help.

IF YOU HAVE ALREADY COMPLETED A QUESTIONNAIRE, PLEASE RETURN THIS TO THE SURVEY WORKER.

1. Which bus route are you about to board? Route _____

2. Please check the boxes below to show how satisfied or dissatisfied you are with **transferring** between Link light rail and the route you are about to ride. (Check "NA" if the item does not apply to you.)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	NA
▼ The number of transfers I need to make	<input type="checkbox"/>					
▼ The way buses are scheduled to make transfer connections	<input type="checkbox"/>					
▼ The distance between stops where I transfer	<input type="checkbox"/>					
▼ Waiting time between transfers	<input type="checkbox"/>					
▼ How long the entire trip takes, including transfers	<input type="checkbox"/>					
▼ Helpfulness of drivers in ensuring transfer connections	<input type="checkbox"/>					
▼ The bus coming on time when transferring	<input type="checkbox"/>					
▼ Transfer information at the waiting area	<input type="checkbox"/>					
▼ Protection from the weather at the waiting area	<input type="checkbox"/>					
▼ Overall, how satisfied are you with Metro Transit?	<input type="checkbox"/>					
▼ Overall, how satisfied are you with <u>all</u> transit service in this area?	<input type="checkbox"/>					

3. How did you make this trip prior to when Link light rail was extended to UW and Capitol Hill last March?

- Bus for the whole trip
- Drove
- Did not make this trip
- Carpool/Vanpool
- Walk/Bicycle
- Other _____

4. What ONE THING would you recommend to improve Metro service for you?

THANK YOU VERY MUCH FOR YOUR HELP.

Time: _____

Bus Stop: _____

On-board Phase 1 Follow-up Telephone/Internet Questionnaire

Web Email:

Subject line - Five quick follow-up questions to your Metro bus survey last February.



Metro would like to hear from you:

Metro is evaluating changes we made to bus routes last March. You participated in a Metro survey onboard a bus last February, before the changes were made. Now we'd like to hear how well the route changes are working for you. We invite you to take a short online survey that should take less than 5 minutes. Your responses will be confidential.

Please click on the link below to begin.

[Click here to take survey](#)

This link is specific to you, so please do not forward to others.

If you have any questions about the survey, please contact: support@pacificmarketresearch.com

We really appreciate your input!

If you no longer wish to receive these emails, you may unsubscribe by clicking the link below.

[Unsubscribe](#)

Web Introduction:

Thank you for agreeing to this follow-up survey with participants from King County Metro's surveys on-board buses last February. We have just a few questions about your current public transportation use. Please click "next" to begin.

Phone Introduction:

Hello, my name is ____, and I am calling on behalf of King County Metro from Pacific Market Research. This is not a sales call. King County Metro is speaking with participants from our surveys on-board buses last February. You gave us follow-up contact information for future research. We are calling with just a few questions about your current public transportation use.



IF NEEDED:

- Your answers will be used to measure satisfaction with the route changes and to evaluate the impact of the U-Link light rail on ridership.
 - You gave us your contact information in an on-board survey in February.
 - Participation is completely voluntary and results will summarize responses so no individual's answers can be identified.
 - There are no right or wrong answers, and even if you rarely or never use Metro, it is important that we hear your opinions.
 - If you have any questions you may contact the toll free Pacific Market Research support line at 1-877-271-2300.
1. Thinking about buses, light rail, and streetcars in King County, how many one-way trips have you taken in the last 30 days?
Please count a round trip as 2 rides. Transfers between buses during your one-way trip count as one ride. If you need to take two or more buses, or buses and ~~Link~~ rail, to get to your destination, please count that as one, one-way trip. [IF NEEDED: Your best estimate if fine]

ENTER TOTAL NUMBER OF TRIPS. If you took more than 90 trips, please enter 90.

_____ One-way trips (ALLOW 0-90) ALLOW 0
98 Don't know
99 Refused

2. Are you currently riding more frequently than in a typical 30-day period prior to March 2016, less frequently, or about the same?
ONE RESPONSE

- 1 Riding more now than you did prior to March 2016
- 2 Riding less now than you did prior to March 2016
- 3 Riding about the same now as you did in prior to March 2016— **Skip to Question 5**
- 98 Don't know — **Skip to Question 5**
- 99 Refused — **Skip to Question 5**

- 3a. How many trips per month were you making in a typical 30-day period prior to March 2016?

(Again, this is on buses, light rail, and streetcars in King County, Please count a round trip as 2 rides. Transfers between buses during your one-way trip count as one ride. If you need to take two or more buses, or buses and rail, to get to your destination, please count that as one, one-way trip.)



ENTER TOTAL NUMBER OF TRIPS. If you took more than 90 trips, please enter 90.

- ___ One way trips [RANGE: 0-90] ALLOW 0
- 98 DON'T KNOW
- 99 REFUSED

ASK IF [Q1>Q3a and Q2=2 OR Q1<Q3a and Q2=1]

Q3b. You told me you currently have taken __Q1#__ trips on the past 30 days and prior to March 2016 you were making __Q3a__ trips. This would be < Q2 more/Less> than before. Would you like to change the number of trips or the <less/more> question?

- Go to Q1 Change # trips last 30 days
- Go to Q3a Change # trips prior to March 2016
- Go to Q2 Change less/more question
- GO to Q4 No change, all okay as is

4. What is the main reason you are riding<less / more insert based on Q2=1-2> now?
DO NOT READ 1-7 ONE RESPONSE
[FOR WEB LEAVE AS OPEN-END]

- 1 Change in where I live
- 2 Change in where I work or go to school
- 3 Change in work/school schedule
- 4 I now need to transfer / Don't want to have to transfer
- 5 It's faster now to get to my destination
- 6 There is now more service to choose from
- 7 There is now less service to choose from
- 8 Other – (Specify:) _____
- 98 Don't know
- 99 Refused

5. Finally, please tell us how service could be improved for you? [Open-end]

Thank you very much for your responses!

Non-Rider Questionnaire

U-Link Area Non-Rider Phone Survey

SCREENING QUESTIONS

BASE: ALL RESPONDENTS

PROGRAMMING: SECTION FOR TIMING

Hello, this is _____ from Pacific Market Research calling on behalf of King County Metro Transit. We are conducting a planning study for King County Metro. The study provides important information to help Metro improve transportation in your area.

AS NEEDED:

This survey will last approximately 10 minutes.

This study is being conducted for research purposes only and everything you say will be kept strictly confidential.

SAMPLE TYPE

- 01 Landline
- 02 Wireless

S1 First, are you 16 years of age or older?

- 01 YES
- 02 NO
- 98 DON'T KNOW
- 99 REFUSED

IF S1 = 01 SKIP TO S2A

IF S1 = 02, AND SAMPLE TYPE=01 CONTINUE TO S1A. IF SAMPLETYPE=02, THANK AND CONCLUDE - S1: NQ-UNDER 16 (THANK3 TEXT)

IF S1 = 98, 99 THANK AND CONCLUDE [S1: SCREENER REFUSAL (THANK5 TEXT)]

DO NOT SHOW S1A IF SAMPLETYPE=02 (Wireless phone)

S1A May I please speak with an individual in your household, 16 years of age or older?

- 01 NEW RESPONDENT AVAILABLE / WILLING TO PARTICIPATE (**REREAD INTRO FROM FLYSHEET) (GO BACK TO S1)**
- 02 NEW RESPONDENT NOT AVAILABLE (**FOLLOW-INSTRUCTIONS ON NEXT SCREEN) (GO TO "STOP SCREEN" (FROM BOTTOM OF QUESTIONNAIRE) AND COUNT AS A SCREENER INCOMPLETE) [SURVEY SHOULD RETURN TO S1]**
- 03 NEW RESPONDENT UNWILLING TO PARTICIPATE (**THANK AND CONCLUDE - S1: NQ-UNDER 16 (THANK3 TEXT)**)

S2A Are you a resident of King County?

- 01 YES
- 02 NO
- 98 DON'T KNOW
- 99 REFUSED

IF S2A = 01, CONTINUE

IF S2A = 02, THANK AND CONCLUDE

IF S2A = 98, 99 THANK AND CONCLUDE

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

S2B What is your home zip code?
 _____ ENTER CORRECT ZIP CODE [INCLUDE IF ON ZIP LIST]
 99998 DON'T KNOW
 99999 REFUSED

**IF S2B EQ 99998 OR 99999, THANK AND CONCLUDE
IF ZIP CODE NOT IN SAMPLE LIST THANK AND CONCLUDE**

S3 Thinking about the **last 30 days**, how many **one-way rides** have **you** taken on a **Metro bus or Link light rail**?
(AS NEEDED: A round trip counts as two (2) one-way rides. A trip where you had to transfer counts as one ride.)
(IF MORE THAN 90, ENTER AS 90)

 _____ ENTER TOTAL NUMBER OF METRO BUS RIDES [RANGE: 0-90]
 98 DON'T KNOW
 99 REFUSED

ASK S4 IF S3 > 0

S4 We are currently speaking with area residents who have **NOT** ridden on a **Metro Bus or Link light rail** in the **last 30 days**. May I please speak with an individual in your household, 16 years of age or older, who has **NOT** ridden in the **last 30 days**?

 01 NEW RESPONDENT AVAILABLE / WILLING TO PARTICIPATE **(REREAD INTRO FROM BOOTH NOTE) [GO BACK TO S3]**
 02 NEW RESPONDENT NOT AVAILABLE **(ARRANGE CALL-BACK)**
 03 NEW RESPONDENT UNWILLING TO PARTICIPATE **[THANK AND CONCLUDE]**
 04 NO NON-RIDER IN HOUSEHOLD **THANK AND CONCLUDE**

ASK S6A IF S3 = 0

S6A Have **you ever** taken a ride on a **Metro bus or Link light rail**?

 01 YES
 02 NO
 98 DON'T KNOW
 99 REFUSED

ASK S6B IF (S6A = 01)

S6B When was the last time **you** rode a **Metro bus or Link light rail**? Would you say...

 01 Within the last 1 to 3 months
 02 Within the past 4 to 6 months
 03 Six months to one year ago
 04 Between 1 and 5 years ago, or
 05 More than 5 years ago?
 06 NEVER
 98 DON'T KNOW
 99 REFUSED

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

MAIN SURVEY
BASE: QUALIFIED RESPONDENTS

Qualified (S3 = 0 and S6B =02-99)

Q1 What is the main reason you don't ride the bus or rail [IF S6A = 1 (YES), PIPE TEXT: "more"]?

- _____ OPEN END
- 98 DON'T KNOW
- 99 REFUSED

(BARRIER QUESTIONS):

Q2 Please tell me if you agree or disagree with each of the following statements. Do you (agree /disagree) strongly or somewhat?

RESPONSE OPTIONS:

- 04 STRONGLY AGREE
- 03 SOMEWHAT AGREE
- 02 SOMEWHAT DISAGREE
- 01 STRONGLY DISAGREE
- 98 DON'T KNOW
- 99 REFUSED

STATEMENTS: ROTATE:

- 01 I am not familiar with the services provided by Metro – that is, what services are available, schedules, routes, etc.
- 02 Metro bus service is too infrequent to make it convenient to use.
- 03 Compared with driving alone, riding Metro takes too much time.
- 04 Metro buses are too crowded.
- 05 Metro buses are clean and comfortable.
- 06 The behavior of some of the people on Metro buses makes me feel uncomfortable or unsafe.
- 07 The behavior of some of the people at or near the bus stops makes me feel uncomfortable or unsafe.
- 08 I would not ride if I had to transfer buses or with light rail (AS NEEDED: from one bus to another bus or light rail to get from my home to my destination). (Italicized text is new for this year.)
- 09 It is difficult for me to walk very far to a bus stop.
- 10 There is no Metro service available to get me where I want to go.
- 11 I worry about my personal safety on Metro buses.
- 12 I just can't see myself riding the bus.

(GOODWILL QUESTIONS):

Q3 Based on anything you have seen, heard, or directly experienced, please tell me if you agree or disagree with each of the following statements. Would that be strongly or somewhat (agree/disagree)?

RESPONSE OPTIONS:

- 04 STRONGLY AGREE
- 03 SOMEWHAT AGREE
- 02 SOMEWHAT DISAGREE
- 01 STRONGLY DISAGREE
- 98 DON'T KNOW
- 99 REFUSED

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

STATEMENTS: ROTATE KEEPING 1-2 TOGETHER.

- 01 When I hear my friends and colleagues talking about Metro, I generally hear positive things.
- 02 When I read or hear things about Metro in the media or online, I generally hear positive things. **(AS NEEDED:** By media, I am talking about things like the newspaper, television, and radio. By online, I am talking about things like Internet sites, blogs, Twitter, and Facebook.)
- 03 Compared with driving alone, riding Metro can save me a lot of money.
- 04 Riding Metro is less stressful than driving.
- 05 I can do other things while I am on the bus; it's not just dead time.
- 06 Riding Metro gives me the opportunity to do something good for the environment.
- 07 Metro is an agency I like and respect.
- 08 Metro values its customers.

(APPEAL QUESTIONS):

- Q4A Overall, how appealing to you personally is the idea of using Metro to get to your destination? Would you say...
- 05 VERY APPEALING
 - 04 SOMEWHAT APPEALING
 - 02 NOT VERY APPEALING
 - 01 NOT AT ALL APPEALING
 - 03 NEITHER APPEALING NOR UNAPPEALING
 - 98 DON'T KNOW
 - 99 REFUSED
- Q4B If convenient transit service was available to places you typically travel to, how likely would you be to ride Metro? Use an 11-point scale where "0" means "not at all likely" and "10" means "extremely likely."
- 00 NOT AT ALL LIKELY
 - 01
 - 02
 - 03
 - 04
 - 05
 - 06
 - 07
 - 08
 - 09
 - 10 EXTREMELY LIKELY
 - 98 DON'T KNOW
 - 99 REFUSED
- Q5 Earlier this year Sound Transit opened new light rail stations in Capitol Hill and the U-District. Are you aware of changes in Metro bus service in your area to better connect riders with light rail?
IF NEEDED: We are asking about the bus route changes, not whether you know about the opening of the light rail stations.
- 01 YES
 - 02 NO
 - 98 DON'T KNOW
 - 99 REFUSED

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

**COMMUTER STATUS
BASE: QUALIFIED RESPONDENTS**

- CS1 Are you currently...
(READ LIST UNTIL VALID RESPONSE GIVEN; SELECT ALL THAT APPLY)
- 01 Employed/SELF-EMPLOYED
 - 02 A student
 - 03 A homemaker
 - 04 Retired
 - 05 Currently not employed
 - 94 DISABLED
 - 95 OTHER (SPECIFY)
 - 98 DON'T KNOW
 - 99 REFUSED

ASK CS1A IF CS1 = 01

- CS1A Are you employed...?
- 01 Full-time
 - 02 Part-time
 - 03 Self-employed
 - 98 DON'T KNOW
 - 99 REFUSED

ASK CS1B IF CS1 = 02

- CS1B Are you a...?
- 01 Full-time student
 - 22 Part-time student
 - 98 DON'T KNOW
 - 99 REFUSED

ASK CS2B IF CS1 = 01

- CS2B How many days a week do you travel to a fixed worksite?
_____ ENTER NUMBER OF DAYS [RANGE: 0-7, 98, 99]
- 98 DON'T KNOW
 - 99 REFUSED

ASK CS3B IF CS1 = 02

- CS3B How many days a week do you travel to school, that is, you attend class outside your home?
_____ ENTER NUMBER OF DAYS [RANGE: 0-7, 98, 99]
- 98 DON'T KNOW
 - 99 REFUSED

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

ASK CS4 IF CS1 =01 - 02

- CS4 How do you typically get to (work or school)?
(READ LIST ONLY IF NECESSARY; ENTER ALL THAT APPLY)
- 01 DRIVE ALONE
 - 02 CARPOOL (2 OR MORE PEOPLE IN CAR)
 - 03 VANPOOL
 - 04 SEATTLE [SOUTH LAKE UNION] STREETCAR
 - 05 RIDE THE SOUNDER TRAIN
 - 06 RIDE LINK LIGHT RAIL
 - 07 RIDE A SOUND TRANSIT BUS
 - 08 SCHOOL BUS
 - 09 RIDE ANOTHER SYSTEM'S BUS (SPECIFY)
 - 10 MOTORCYCLE
 - 11 BICYCLE
 - 12 WALK
 - 13 DRIVE TO PARK & RIDE LOT
 - 14 KING COUNTY WATER TAXI
 - 15 OTHER (SPECIFY)
 - 98 DON'T KNOW
 - 99 REFUSED

**DEMOGRAPHIC QUESTIONS
BASE: QUALIFIED RESPONDENTS**

DEMO Finally, I have some background questions that will be used to help us analyze the results of the study.

D2 May I please get your age?

- AGE [RANGE 1-97]
- 98 DON'T KNOW
- 99 REFUSED

ASK D2A IF D2 98, 99

D2A Would that be....

- (READ LIST UNTIL VALID RESPONSE GIVEN)
- 01 16-17
 - 02 18-19
 - 03 20-24
 - 04 25-34
 - 05 35-44
 - 06 45-54
 - 07 55-64
 - 08 65 or Older
 - 98 DON'T KNOW
 - 99 REFUSED

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

- D1 (ENTER GENDER OF RESPONDENT BY OBSERVATION DO NOT READ)
- 01 MALE
 - 02 FEMALE
 - 98 DON'T KNOW
 - 99 REFUSED
- DIS1 Do you have a disability that limits your ability to do one or more major life activities?
(AS NEEDED: Such as walking or climbing stairs, running errands, hearing announcements, using a computer.)
- 01 YES
 - 02 NO
 - 98 DON'T KNOW
 - 99 REFUSED
- D4A Are you Spanish, Hispanic, or Latino?
(READ IF RESPONDENT SEEMS UNSURE: Are you or were your ancestors Mexican, Puerto Rican, Cuban, Central or South American, or from Spain?)
- 01 YES
 - 02 NO
 - 98 DON'T KNOW
 - 99 REFUSED
- D4B I am going to read a list of race categories. Please choose one or more races you consider yourself to be:
(IF THEY SAY "HISPANIC" PROBE WITH: "In addition to Hispanic, what other race categories do you consider yourself to be?" BEFORE CODING ON LIST AS HISPANIC.)
- (READ LIST; SELECT ALL THAT APPLY)
- 01 White
 - 02 Black or African American
 - 03 American Indian or Alaskan Native
 - 04 Asian or Pacific Islander
 - 05 MULTI-RACE (NO NEED TO SPECIFY)
 - 94 HISPANIC
 - 95 OTHER (SPECIFY)
 - 98 DON'T KNOW
 - 99 REFUSED
- D5 Is your **total** annual **household** income above or below \$35,000 per year?
[IF RESPONDENT STARTS TO SAY "MY INCOME IS..." RE-READ QUESTION]
- 01 BELOW \$35,000 PER YEAR
 - 02 ABOVE \$35,000 PER YEAR
 - 98 DON'T KNOW
 - 99 REFUSED

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

ASK D5A IF D5 EQ 01

- D5A Would that be...?
- (READ LIST UNTIL VALID RESPONSE GIVEN)**
- 01 Less than \$7,500,
 - 02 \$7,500 up to \$15,000,
 - 03 \$15,000 up to \$25,000, or
 - 04 \$25,000 up to \$35,000?
 - 98 DON'T KNOW
 - 99 REFUSED

ASK D5B D5 EQ 02

- D5B Would that be...?
- (READ LIST UNTIL VALID RESPONSE GIVEN)**
- 01 \$35,000 up to \$55,000,
 - 02 \$55,000 up to \$75,000,
 - 03 \$75,000 up to \$100,000,
 - 04 \$100,000 up to \$150,000, or
 - 05 \$150,000 and up?
 - 98 DON'T KNOW
 - 99 REFUSED

- D6 Including yourself, how many people live in your household?
- (ENTER RANGE BETWEEN 1 AND 8; IF MORE THAN 8 PEOPLE IN HOUSEHOLD ENTER 8)**
- _____ ENTER NUMBER OF PERSONS IN HOUSEHOLD [RANGE 1 – 8]
- 98 DON'T KNOW
 - 99 REFUSED

ASK D7A IF D6 > 1 AND < 98

- D7A Including yourself, how many people in your household, 16 years of age or older, have taken **at least five (5)** one-way rides on a **Metro bus or Link light rail** in the **last 30 days**?
(AS NEEDED: A round trip counts as two (2) rides. A trip where you had to transfer counts as one ride.)
- _____ ENTER NUMBER OF **REGULAR** RIDERS IN HOUSEHOLD [RANGE 0 TO RESPONSE D6B]
- 98 DON'T KNOW
 - 99 REFUSED

ASK D7B IF D7A=0

- D7B Including yourself, how many people in your household, 16 years of age or older, have taken **between one (1) and four (4)** one-way rides on a **Metro Bus or Link light rail** in the **last 30 days**?
(AS NEEDED: A round trip counts as two rides. A trip where you had to transfer counts as one ride.)
- _____ ENTER NUMBER OF **INFREQUENT** RIDERS IN HOUSEHOLD [RANGE 0 TO RESPONSE D6]
- 98 DON'T KNOW
 - 99 REFUSED

- D8 Metro may be doing other studies in the future. May we contact you again if we do?
(AS NEEDED: These could be surveys or focus groups. Your responses to this particular survey will never be connected with you personally.)
- 01 YES - OKAY TO CONTACT
 - 02 NO - DON'T CONTACT / REFUSED [SKIP TO THANK]

Non-Rider Questionnaire, cont.

U-Link Area Non-Rider Phone Survey

IF D8 = 01 ASK D8A

D8A May I have your first name, so we will know who to ask for?
(IF REFUSED, TYPE MR/MRS REFUSED, DEPENDING ON GENDER)

[OPEN END]

Thank you for your participation.