TRANSIT SPEED & RELIABILITY

2020 ANNUAL SPOT IMPROVEMENTS END OF YEAR REPORT

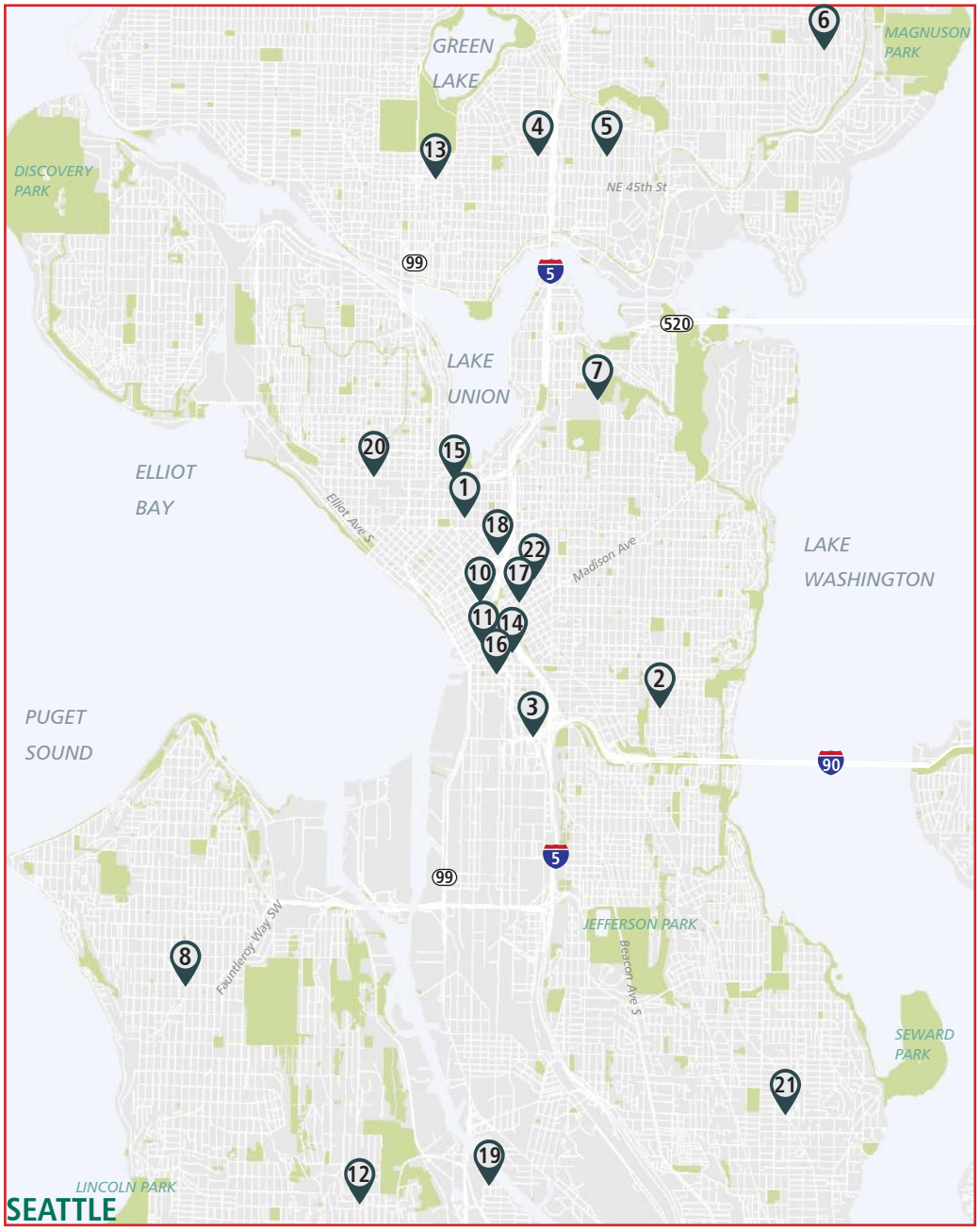
King County METRO

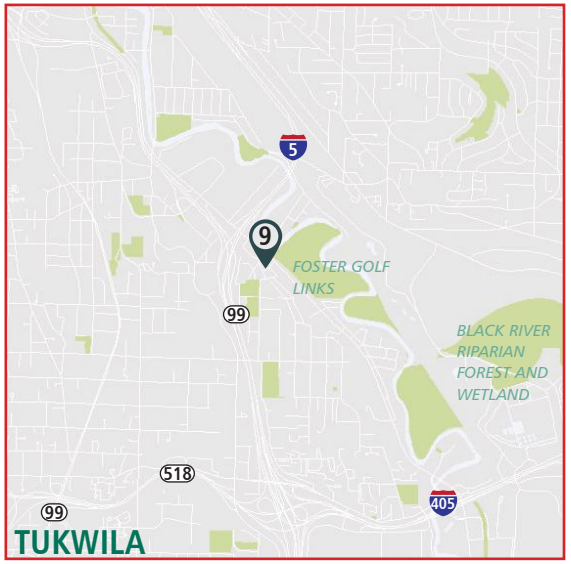
PUBLISHED JANUARY 2021

This page intentionally left blank.

CONTENTS

1. WESTLAKE AVENUE N & HARRISON STREET
2. 24TH AVENUE S & S DEARBORN STREET
3. AIRPORT WAY S & S ROYAL BROUGHAM WAY
4. LATONA AVENUE NE & NE 50TH STREET
5. NE 50TH STREET & 15TH AVENUE NE
6. NE 70TH STREET & 50TH AVENUE NE
7. GRANDVIEW PLACE E & E GARFIELD STREET
8. SW ALASKA STREET & CALIFORNIA AVENUE SW
9. INTERURBAN AVENUE S & 52ND AVENUE S
10. UNION STREET (4TH AVENUE - 7TH AVENUE)
11. 3RD AVENUE & COLUMBIA STREET
12. 16TH AVENUE SW & SW HOLDEN STREET
13. N 45TH STREET (N MIDVALE PLACE - STONE WAY N)
14. 3RD AVENUE & YESLER WAY
15. WESTLAKE AVENUE N & MERCER STREET
16. 2ND AVENUE EXTENSION S & S JACKSON STREET
17. 8TH AVENUE & SENECA STREET
18. OLIVE WAY & BOREN AVENUE
19. 8TH AVENUE S & S KENYON STREET
20. MERCER STREET & 1ST AVENUE N
21. RAINIER AVENUE S (S KENNY STREET TO S FRONTENAC STREET)
22. 9TH AVENUE & SENECA STREET
23. CARLYLE HALL ROAD N & GREENWOOD AVENUE N





INTRODUCTION

This annual report describes the spot improvements that were implemented in 2020 through partnerships with local traffic agencies. Spot improvements are low-cost capital investments aimed at improving bottleneck conditions and operational issues that affect bus travel times and reliability, which results in increased attraction to public transit as a travel mode of choice. The complexity of spot improvements can range from easier projects, such as signal timing adjustments, to more-complicated projects requiring design and public outreach, such as new bus-only lanes.

The Spot Improvements Program supports King County Metro Mobility Framework policy recommendations to support investments to increase speed & reliability and to support improvements to increase safety. The spot improvement projects utilize a set of transit supportive toolboxes identified in the Speed and Reliability Guidelines and Strategies report.

In 2020, we worked with our south King County city partners to identify and approve a set of improvements to support the Renton, Kent, and Auburn Mobility Project (RKAAMP); delivery of these projects is anticipated in early 2021. We also began conceptual design for improvements to support the North Link Connections Mobility Project (NorCon).

2020 was a challenging year for delivering spot improvements due to the COVID-19 pandemic and competition for limited city staff and financial resources. The Spot Improvement Program adapted by focusing on smaller and less complex projects that did not require significant city resources to implement and batching together projects of similar type. We also initiated a hybrid delivery model where Metro Engineering Services, Construction Management, and on-call contractor can be used to supplement city resources. We plan to continue these adaptations into 2021.

The success of each implementation was made possible with the support of cities and their willingness to make operational changes within their roadway infrastructures and traffic signal systems to benefit transit riders. For additional information regarding this program, please contact Owen Kehoe at 206-477-5811/owen.kehoe@kingcounty.gov or Logan James at 206-263-3631 / LoJames@kingcounty.gov.

Owen Kehoe
Spot Improvements Program Manager
Capital Planning – Speed and Reliability
Capital Division – King County Metro

Spot Improvement program 2020 expenditures: $377,000. This includes Metro staff time and reimbursed city costs to develop conceptual designs, develop final designs (when needed), construct these improvements, as well as administer the spot improvement program as a whole.

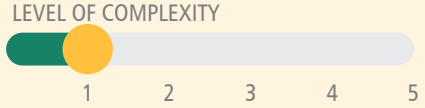
The **23** Spot improvement projects highlighted in this report benefited:

- 224,000 weekday riders
- 125 bus routes

Resulting in:

- **$357,000 in avoided additional operating cost annually; operating dollars that would otherwise need to be spent to maintaining schedule reliability.**
- **Improved bus operational safety at 10 locations.**

Spot improvements can range in complexity depending on the level of jurisdictional coordination, public outreach, design work, and funding sources needed. The complexity of the projects presented in this report are rated on a 1-5 scale, a "1" being the least complex project, for example a signal timing adjustment, to "5" for the most complicated of the projects, such as new bus-only lanes.



SPOT IMPROVEMENTS

LEVEL OF COMPLEXITY

1

WESTLAKE AVENUE N & HARRISON STREET 1

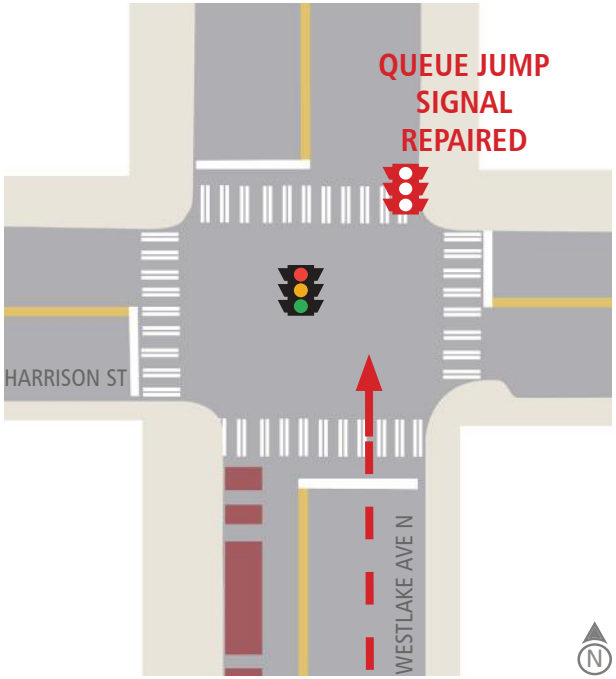
ISSUE

Buses heading northbound on Westlake Avenue N experienced delay when trying to merge back into traffic after serving a stop south of the Harrison Street. An existing queue jump signal previously allowed buses to bypass northbound queues and merge safely back into traffic, but the traffic detector was malfunctioning, and the queue jump was not getting activated.

IMPROVEMENTS MADE

Queue Jump & Traffic Signals

SDOT quickly resolved the detection issue and put the queue jump back into service just two days after being notified of the issue.



PROJECT

SEATTLE

METRO ROUTES IMPACTED: C LINE, #40

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Laura Wojcicki (SDOT)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

3 sec

Northbound Delay Reduced in the PM Peak

ROUTE BENEFIT

20 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

24,500 RIDERS

2 24TH AVENUE S & S DEARBORN STREET

LEVEL OF COMPLEXITY 2

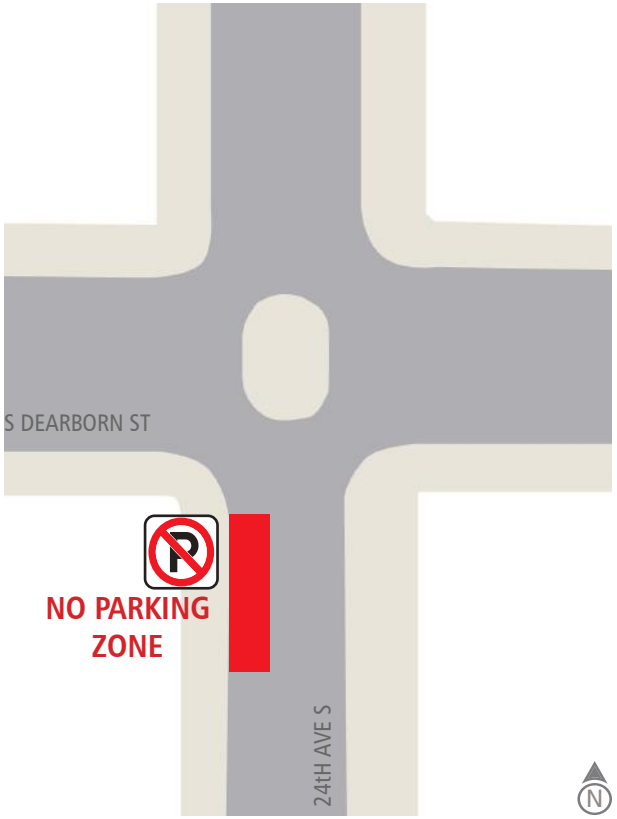
ISSUE

Eastbound buses turning right were experiencing difficulty making the turn due to parked cars southbound on the southwest corner of the intersection.

IMPROVEMENTS MADE

Bus Operations & Parking

Metro worked with SDOT to restrict about two (2) parking spots southbound on 24th Avenue S. Buses now have more space to safely make the eastbound right turn.



PROJECT

METRO ROUTES IMPACTED: #4

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Hall (SDOT)

SEATTLE

TRANSIT BENEFITS

SAFETY

Restricting parking along 24th Avenue S improves safety for buses and passengers riding along the turn and improves the speed and reliability of buses making the turn.

ROUTE BENEFIT

4 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

150 RIDERS

LEVEL OF COMPLEXITY

2

AIRPORT WAY S & S ROYAL BROUGHAM WAY 3

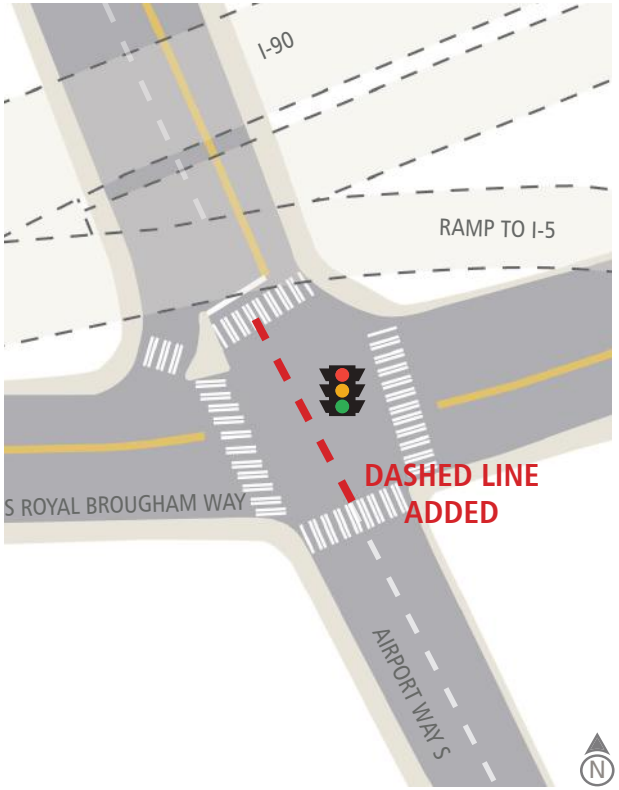
ISSUE

Buses traveling southbound through the intersection were experiencing difficulty crossing S Royal Brougham Way due to a significant jog (lane offset) between the north and south legs of the intersection. Cars would sometimes cross into the path of southbound buses in the intersection, posing a safety hazard for transit and general-purpose traffic.

IMPROVEMENTS MADE

Channelization

Metro partnered with SDOT to install dashed lane lines southbound through the intersection, clarifying the travel path for both southbound lanes.



PROJECT

SEATTLE

METRO ROUTES IMPACTED: #40, #106, #522, #545

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong (SDOT)

TRANSIT BENEFITS

SAFETY

Channelization enhancements improve safety for transit operators and riders, as well as other drivers. The improvement reduces the chances of southbound sideswipe collisions.

ROUTE BENEFIT

25 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

500 RIDERS

+Additional benefit to terminal trips headed to Atlantic/Central Base

4 LATONA AVENUE NE & NE 50TH STREET

LEVEL OF COMPLEXITY 2

ISSUE

Northbound buses turning right from westbound NE 50th Street to northbound Latona Avenue NE were experiencing difficulty making the turn due to parked cars northbound on Latona Avenue NE on the northeast corner of the intersection.

IMPROVEMENTS MADE

Bus Operations & Parking

Metro worked with SDOT to restrict about two (2) parking spots northbound on Latona Avenue NE. Buses now have more space to safely make the westbound right turn.

PROJECT

METRO ROUTES IMPACTED: #26

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Hall (SDOT)

SEATTLE

TRANSIT BENEFITS

SAFETY

Restricting parking along Latona Avenue NE improves safety for buses and passengers riding along the turn and improves the speed and reliability of buses making the turn.

ROUTE BENEFIT

4 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

1,410 RIDERS

LEVEL OF COMPLEXITY

2

NE 50TH STREET & 15TH AVENUE NE 5

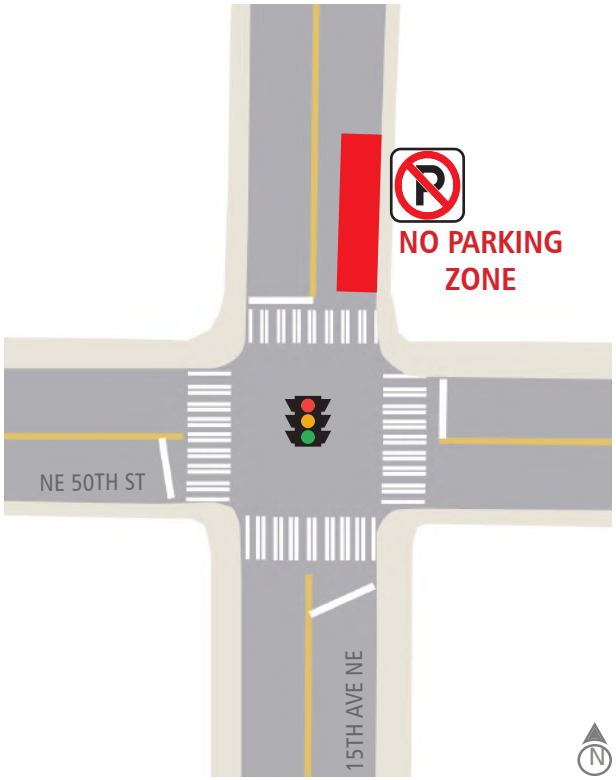
ISSUE

Eastbound buses turning left were experiencing difficulty making the turn due to parked cars northbound on the northeast corner of the intersection.

IMPROVEMENTS MADE

Bus Operations & Parking

Metro worked with SDOT to restrict about two (2) parking spots northbound on 15th Avenue NE. Buses now have more space to safely make the eastbound left turn.



PROJECT

SEATTLE

METRO ROUTES IMPACTED: #45, #71, #73

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Hall (SDOT)

TRANSIT BENEFITS

SAFETY

Restricting parking along 15th Avenue NE improves safety for buses and passengers riding along the turn and improves the speed and reliability of buses making the turn.

ROUTE BENEFIT

7 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

5,520 RIDERS

6 NE 70TH STREET & 50TH AVENUE NE

LEVEL OF COMPLEXITY 2

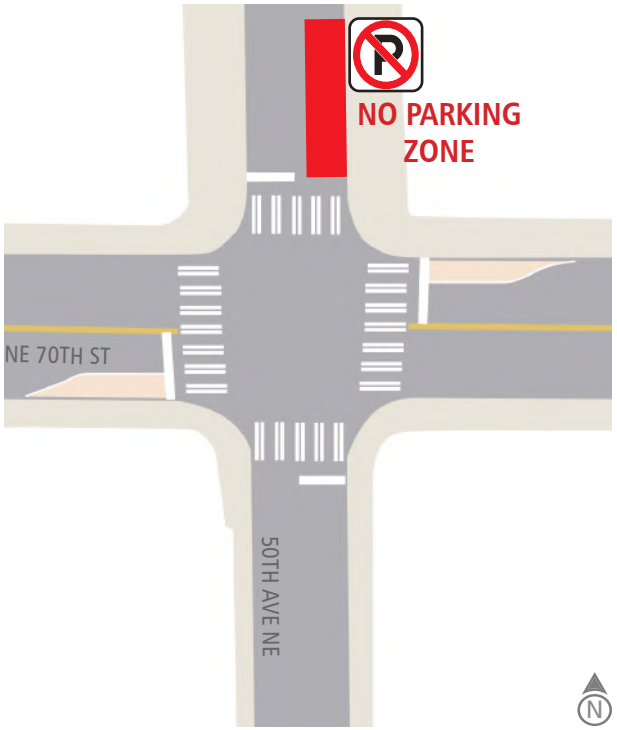
ISSUE

Northbound buses were experiencing difficulty passing stopped southbound cars due to parked cars northbound on the northeast corner of the intersection.

IMPROVEMENTS MADE

Bus Operations & Parking

Metro worked with SDOT to restrict about two (2) parking spots northbound on 50th Avenue NE. Buses now have more space to safely travel northbound.



PROJECT

METRO ROUTES IMPACTED: #71, #76

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Hall (SDOT)

SEATTLE

TRANSIT BENEFITS

SAFETY

Restricting parking along 50th Avenue NE improves safety for transit operators and riders and improves the speed and reliability of northbound buses passing southbound cars.

ROUTE BENEFIT

8 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

3,030 RIDERS

LEVEL OF COMPLEXITY

2

GRANDVIEW PLACE E & E GARFIELD STREET 7

ISSUE

Northbound buses turning left were experiencing difficulty making the turn due to parked cars westbound on the north side of the intersection.

IMPROVEMENTS MADE

Bus Operations & Parking

Metro worked with SDOT to restrict parking westbound on E Garfield Street between Grandview Place E and 15th Avenue E. Buses now have more space to safely make the northbound left turn.

PROJECT

SEATTLE

METRO ROUTES IMPACTED: #10

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Hall (SDOT)

TRANSIT BENEFITS

SAFETY

Restricting parking along E Garfield Street improves safety for buses and passengers riding along the turn and improves the speed and reliability of buses making the turn.

ROUTE BENEFIT

8 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

2,630 RIDERS

8 SW ALASKA STREET & CALIFORNIA AVENUE SW

LEVEL OF COMPLEXITY 3

ISSUE

Eastbound buses were experiencing difficulty maneuvering eastbound on SW Alaska Street approaching 42nd Avenue SW due to a midblock pinch point created by an angle in the lane lines and cars parked illegally in the midblock "no parking" zone. Buses would have to slow down and carefully cross the lane line, encroaching in the adjacent lane or risk hitting a parked vehicle.

IMPROVEMENTS MADE

Bus Operations, Parking & Signage

Metro worked with SDOT to install signage to enhance the existing parking restriction midblock. The new signs read "no stops" and – beyond a simple "no parking" restriction – prohibit vehicles from stopping curbside (e.g. for pick-up/drop-off activities). SDOT also installed red curb paint to clarify the "no stops" zone. SDOT may also consider adjusting lane lines in the future to further improve eastbound transit maneuverability.

PROJECT

METRO ROUTES IMPACTED: **C LINE, #37, #50, #55**

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS
Jonathan Dong (SDOT)

SEATTLE

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

7 sec Eastboud Delay Reduced in the PM Peak

The improved parking restrictions also enhance safety for transit by reducing the chances of collisions between eastbound buses and parked cars.

ROUTE BENEFIT

12 BUSES/HR

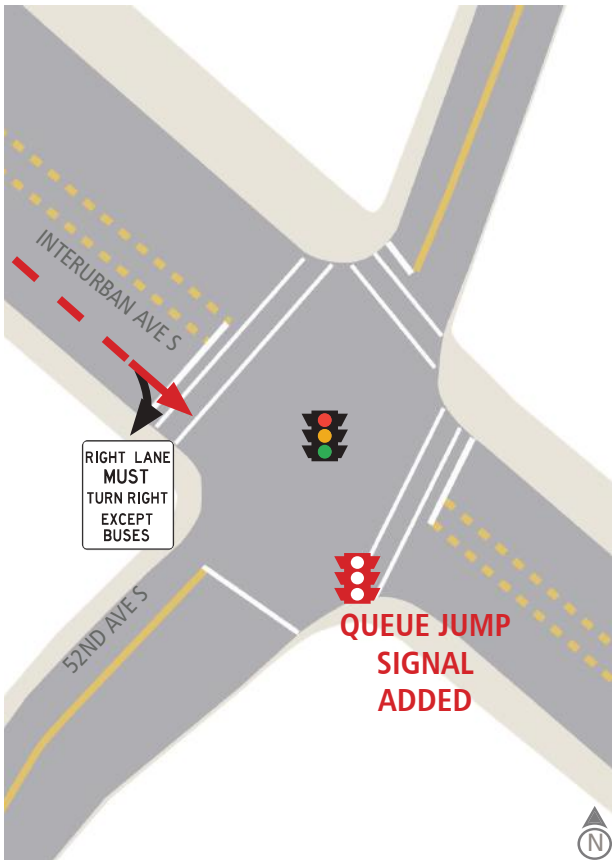
DAILY PASSENGER BENEFIT (= 1000 PERSONS)

7,060 RIDERS

LEVEL OF COMPLEXITY

4

INTERURBAN AVENUE S & 52ND AVENUE S 9



ISSUE

Southbound buses departing Tukwila Park & Ride struggled to merge left before the intersection at Interurban Avenue S and 52nd Avenue S to continue southbound, and experienced delays when traffic was heavy. Right-turning cars would use the middle southbound lane at the intersection, weaving with buses trying to go through.

IMPROVEMENTS MADE

Queue Jump, Traffic Signals, Signage, & Channelization

Metro worked with the City of Tukwila to install a southbound queue jump in the curb lane. The queue jump signal is activated when buses pull up to the stop bar and allows buses to bypass adjacent southbound traffic congestion. A new signal was installed for buses, as well as signage and pavement markings indicating that general purpose vehicles in the curb lane must turn right at 52nd Avenue S.

PROJECT

TUKWILA

METRO ROUTES IMPACTED: #150, #154

PROJECT PARTNERS

King County METRO

ACKNOWLEDGEMENTS

Scott Bates, Cyndy Knighton (City of Tukwila)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

8 sec Southbound Delay Reduced in the PM Peak

9 sec Southbound Delay Reduced in the AM Peak

ROUTE BENEFIT

5 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

2,700 RIDERS

10 UNION STREET (4TH AVENUE - 7TH AVENUE)

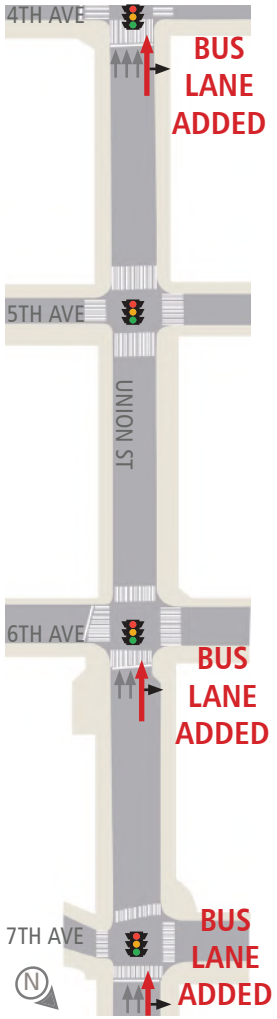
LEVEL OF COMPLEXITY 4

ISSUE

The end of joint operations in the Downtown Seattle Transit Tunnel resulted in several high-ridership, high-frequency bus routes moving from a dedicated, grade-separated right of way to downtown Seattle surface streets in traffic. Union Street (a one-way westbound street) became the new pathway for all of these relocated routes, so there was a need to ensure fast and reliable transit connections between the I-5/Union Street off-ramp and bus lanes on 2nd Avenue and 3rd Avenue.

IMPROVEMENTS MADE

Metro worked with SDOT to implement signage and channelization improvements at two intersections on Union Street to reduce westbound transit delay and provide reliable access to the bus zones. At 6th Avenue/Union Street, the right-most travel lane was converted from a through lane to a right-turn-only lane for traffic, with an exception that allows buses to travel through to access the bus zone on the far side of the intersection. At 4th Avenue/Union Street, a shared through-right turn lane (adjacent to a right-turn-only lane) was converted to a through-only lane to reduce delay for westbound buses and access the far side bus zone. Removing the dual westbound right turn at 4th Avenue/Union Street also reduced the risk of conflict between right-turning traffic and pedestrians using the northern crosswalk of the intersection.



PROJECT

METRO ROUTES IMPACTED: #41, #74, #101, #102, #150, #301, #522, #550

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong (SDOT)

SEATTLE

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

10 sec

Westbound Delay Reduced in the AM Peak Between Convention Place and 2nd Avenue

ROUTE BENEFIT

35 BUSES/HR

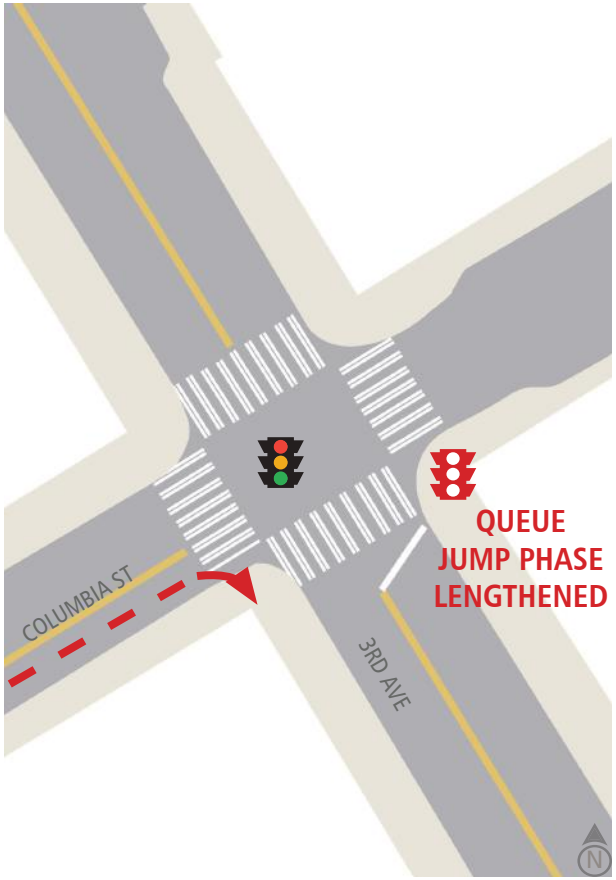
DAILY PASSENGER BENEFIT (=1000 PERSONS)

16,220 RIDERS

LEVEL OF COMPLEXITY

1

3RD AVENUE & COLUMBIA STREET 11



ISSUE

Due to deceased peak period traffic volumes (impacted by the pandemic), SDOT was running off-peak signal timing plans in the peak period in Downtown Seattle. As a result, the eastbound transit-only left turn signal on Columbia Street at 3rd Avenue was receiving shorter green times than usual during peak periods. Since transit volumes were not significantly lower along Columbia Street, buses were delayed because only one coach could make it through the intersection per cycle.

IMPROVEMENTS MADE

Traffic Signals

SDOT increased the eastbound left turn phase by five (5) seconds, allowing more than one coach to safely complete the eastbound left turn per cycle.

PROJECT

SEATTLE

METRO ROUTES IMPACTED: C LINE, #21X, #55, #56, #57, #120, #125

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Laura Wojcicki (SDOT)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

9 sec

Eastbound Transit Delay Reduced

ROUTE BENEFIT

35 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

11,590 RIDERS

12 16TH AVENUE SW & SW HOLDEN STREET

LEVEL OF COMPLEXITY 3

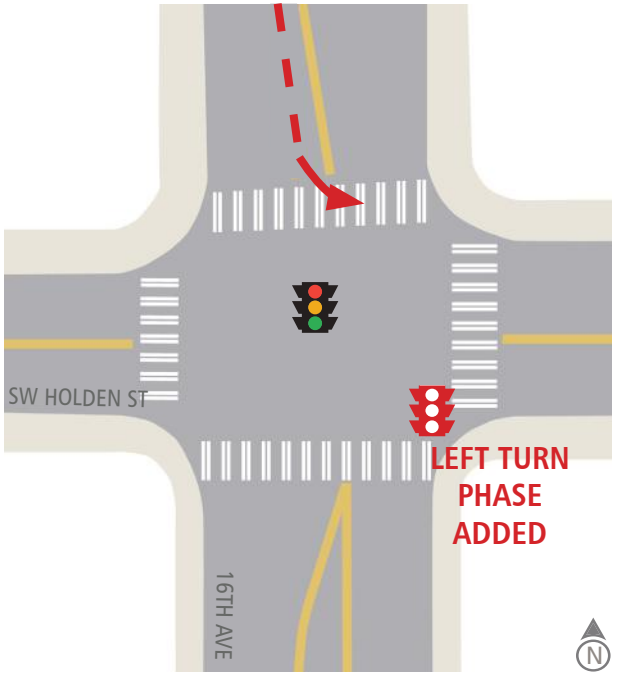
ISSUE

Buses traveling northbound and southbound through the intersection of 16th Avenue SW & SW Holden Street experienced long delays due to traffic congestion during the peak periods, which had been exacerbated with the closure of the West Seattle bridge in March 2020. The traffic congestion was primarily caused by a high volume of left-turning traffic on 16th Avenue SW that shared the single travel lane with through traffic and buses. The combination of a single travel lane and the high volume of traffic in both directions would result in left-turning vehicles blocking the lane for through vehicles and buses.

IMPROVEMENTS MADE

Traffic Signals and Channelization

SDOT implemented channelization improvements on the northbound and southbound approaches at the intersection to create a left-turn-only pocket lane to separate left-turning traffic from through traffic and buses. They also implemented signalization improvements to establish a protected turn signal phase for these movements.



PROJECT

METRO ROUTES IMPACTED: #125, #128

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Laura Wojcicki (SDOT)

SEATTLE

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

6 sec

Northbound Delay Reduced in the Weekday Midday Period Between SW Holden Street and SW Austin Street

ROUTE BENEFIT

10 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

4,450 RIDERS

LEVEL OF COMPLEXITY

5

N 45TH STREET (N MIDVALE PLACE - STONE WAY N) 13

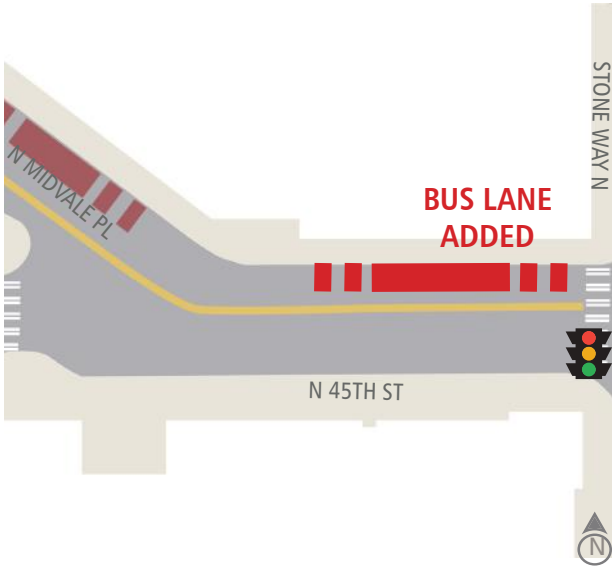
ISSUE

An existing westbound bus lane on N Midvale Place approaching Green Lake Way N provided an effective traffic bypass for Route 44 trolley buses, but the lane was not long enough and buses were getting stuck in traffic on N 45th Street between Stone Way and Midvale Place during peak periods.

IMPROVEMENTS MADE

Channelization

In combination with an intersection reconfiguration and pedestrian safety improvement project led by SDOT, the westbound bus lane was extended along N Midvale Place. and N 45th Street all the way to Stone Way N. To support the new bus lane and roadway channelization, Metro shifted the overhead trolley wire to match the new configuration. SDOT provided a funding contribution for the trolley modification, while Metro's Trolley Capital Program funded the majority of the work.



PROJECT

SEATTLE

METRO ROUTES IMPACTED: #44

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Janet Loriz (SDOT)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

15 sec

Westbound Delay Reduced in the Weekday PM Peak Period Between Stone Way N and Green Lake Way

ROUTE BENEFIT

6 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

4,620 RIDERS

14 3RD AVENUE & YESLER WAY

LEVEL OF COMPLEXITY 3

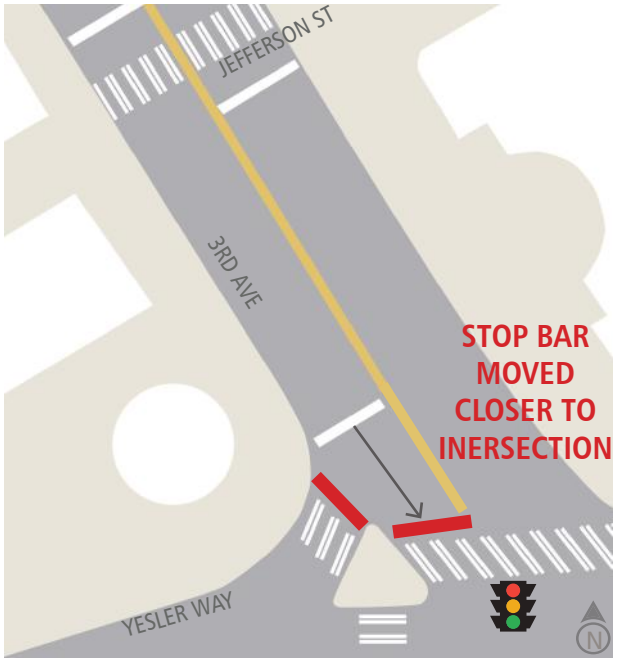
ISSUE

High volumes of Metro buses on 3rd Avenue caused buses to queue southbound on 3rd approaching Yesler Way. Oftentimes, two or more 60-foot articulated coaches would queue between the stop bar at Yesler Way and the crosswalk to the north at Jefferson Street, but there was only enough room for one 60-foot coach to fit without the second blocking the crosswalk. This resulted in either coaches blocking the crosswalk or longer southbound queues.

IMPROVEMENTS MADE

Channelization & Pedestrian Improvement

Metro worked with SDOT to shift the southbound stop bar south closer to the Yesler Way crosswalk, providing enough room for two 60-foot coaches to fit without blocking the Jefferson Street crosswalk.



PROJECT

METRO ROUTES IMPACTED: #1, #2, #3, #4, #5, #7, #10, #11, #13, #14, #15, #17, #18, #19, #21, #24, #26, #27, #28, #29, 33, 36, #37, #40, #43, #47, 49, #62, #70, #116, #118, #119, #124, #131, #132, D LINE, E LINE

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Kobashigawa (SDOT)

SEATTLE

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

3 sec — Southbound Delay Reduced in AM Peak Period

Improved channelization enhances safety for people crossing 3rd Avenue at Jefferson Street.

ROUTE BENEFIT

62 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

39,640 RIDERS

LEVEL OF COMPLEXITY

5

WESTLAKE AVENUE N & MERCER STREET 15

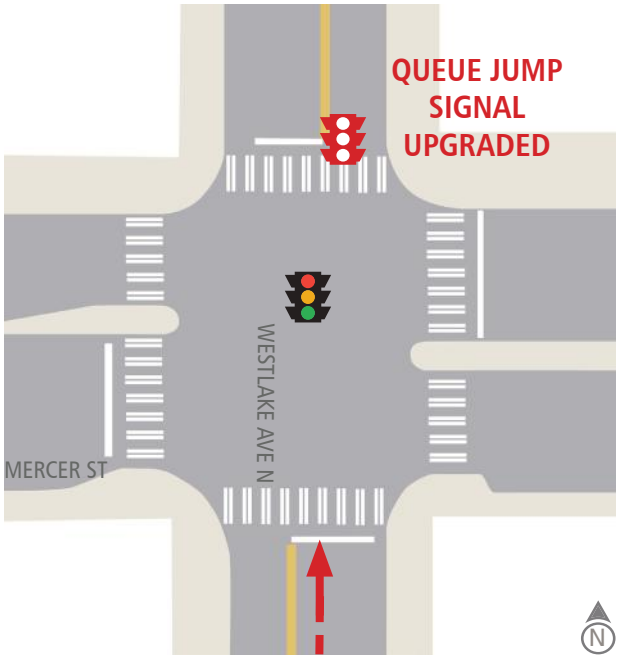
ISSUE

Metro buses were delayed when trying to use the northbound queue jump because it was effectively only five (5) seconds long. Buses were unable to clear the intersection before the queue jump phase ended, and only one bus could make the jump per cycle. Buses that missed the queue jump had to wait a whole cycle or merge back across heavy northbound traffic, resulting in transit delay.

IMPROVEMENTS MADE

Queue Jump & Traffic Signals

Utilizing Regional Mobility Grant (RMG) funds provided by WSDOT, Metro and SDOT partnered to replace the existing 2-section display with a 3-section white bar-style display. A middle white triangle indication was added to accommodate a clearance interval. This allows the signal timing to accommodate a longer queue jump phase, allowing more than one bus to use the queue jump per phase.



PROJECT

SEATTLE

METRO ROUTES IMPACTED: C LINE, #40

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Laura Wojcicki (SDOT)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

3 sec

Northbound Delay Reduced in the Weekday Midday Period

The queue jump also provides reliability benefits during congested periods.

ROUTE BENEFIT

20 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

24,500 RIDERS

16 2ND AVENUE EXTENSION S & S JACKSON STREET

LEVEL OF COMPLEXITY 2

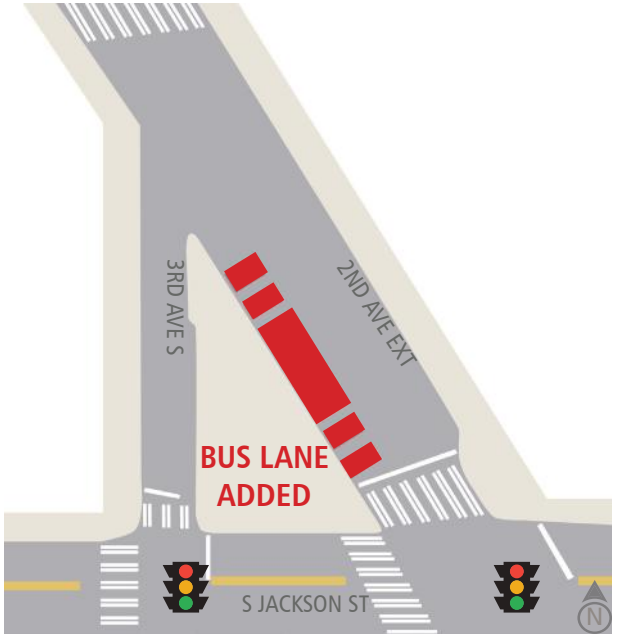
ISSUE

General purpose traffic was illegally using the existing bus lane on 2nd Avenue Ext Street approaching S Jackson Street. The bus lane was clearly marked with "bus only" legends and signage, but non-transit vehicles would still use the lane, especially during peak periods and prior to sporting events at the nearby stadiums. This delayed buses and made it difficult for multiple buses to serve the stop at S Jackson Street simultaneously. General purpose vehicles can block bus movement, cause delays to bus riders, and render the bus lane ineffective. Furthermore, enforcement of bus-only lanes is challenging due to limited police resources and the logistical difficulties of issuing citations without causing further blockages of the bus lane.

IMPROVEMENTS MADE

Bus Lanes

SDOT added red bus lane pavement markings along 2nd Avenue Ext S between S Main Street/3rd Avenue S and S Jackson Street. This helps clearly indicate that the curb lane is for buses only, all day, every day. The only general purpose traffic allowed in the lane is traffic immediately turning right. Red paint has been proven to reduce the number of vehicles violating the bus-only restrictions.



PROJECT

METRO ROUTES IMPACTED: #1, #2, #3, #4, #7, #10, #11, #13, #14, #21, #36, #43, #47, #49, #70, #74, #101, #102, #111, #116, #118, #119, #124, #131, #132, #150, #162, #212, #218, #301, #522, #550, #554, D LINE, E LINE

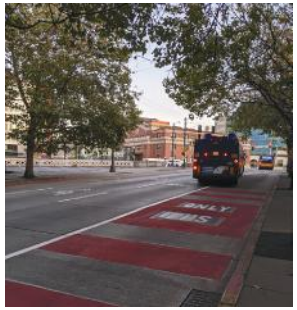
ACKNOWLEDGEMENTS
Jonathan Dong (SDOT)

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

SEATTLE



TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

6 sec

Southbound Delay Reduced in the PM Peak Period for Most-Delayed through Trips Between S Main Street and Jackson Street

ROUTE BENEFIT

159 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

36,630 RIDERS

LEVEL OF COMPLEXITY

2

8TH AVENUE & SENECA STREET 17

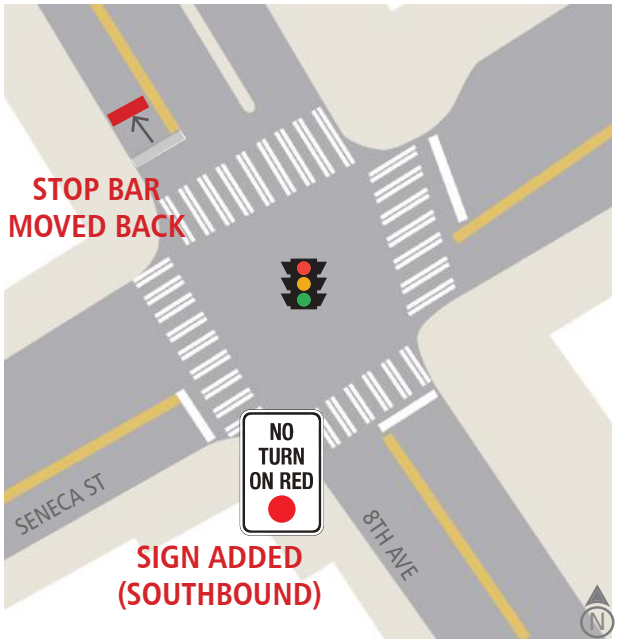
ISSUE

Westbound buses were experiencing difficulty turning right onto 8th Avenue when southbound vehicles were stopped at the stop bar. The stop bar and centerline was previously adjusted to better accommodate westbound right turns, but buses were still having to either cross the centerline on 8th Avenue or wait for southbound traffic to clear before turning due to the tight curb radius.

IMPROVEMENTS MADE

Bus Operations & Channelization

SDOT shifted the southbound stop bar back, providing more room for buses to safely make the westbound right turn. The stop bar shift was accompanied with a "no turn on red" sign to keep right-turning vehicles from pulling ahead of the new stop bar location.



PROJECT

SEATTLE

METRO ROUTES IMPACTED: #64, 309

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Kobashigawa (SDOT)

TRANSIT BENEFITS

SAFETY

Westbound right turns are now easier for buses to make, enhancing the safety of buses, transit riders, and other drivers by reducing the chances of collisions between buses and southbound vehicles

ROUTE BENEFIT

4 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

700 RIDERS

18 OLIVE WAY & BOREN AVENUE

LEVEL OF COMPLEXITY

1

ISSUE

Eastbound buses were experiencing delay when traffic queues on Boren Avenue – particularly northbound approaching Howell Street – extended through the Olive Way intersection, blocking eastbound traffic when northbound and southbound signals were red.

IMPROVEMENTS MADE

Signage

Metro worked with SDOT to install a "do not block intersection" sign for northbound traffic at the intersection, reducing the chances of eastbound buses being blocked.

PROJECT

METRO ROUTES IMPACTED: #41, #257, #311, #522, #545

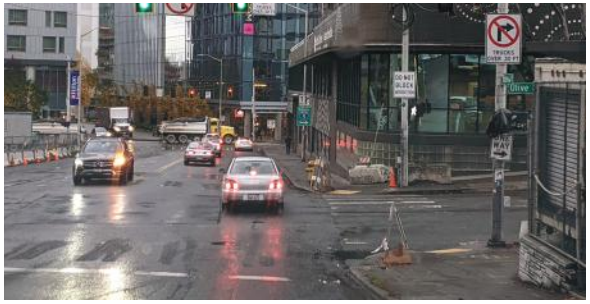
PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong (SDOT)



SEATTLE

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

4 sec Eastbound Delay Reduced in AM

Fewer intersection blockages also provides benefits to eastbound general purpose traffic.

ROUTE BENEFIT

22 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

10,850 RIDERS

LEVEL OF COMPLEXITY

2

8TH AVENUE S & S KENYON STREET 19

ISSUE

Northbound buses turning left were experiencing difficulty making the turn due to parked cars westbound on the northwest corner of the intersection.

IMPROVEMENTS MADE

Bus Operations & Parking

Metro worked with SDOT to restrict about two (2) parking spots westbound on S Kenyon Street. Buses now have more space to safely make the northbound left turn.

PROJECT

SEATTLE

METRO ROUTES IMPACTED: #132

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Hall (SDOT)

TRANSIT BENEFITS

SAFETY

Restricting parking along S Kenyon Street improves safety for buses and passengers riding along the turn and improves the speed and reliability of buses making the turn.

ROUTE BENEFIT

2 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

1,460 RIDERS

20 MERCER STREET & 1ST AVENUE N

LEVEL OF COMPLEXITY 3

ISSUE

Northbound buses turning left were experiencing difficulty making the turn due to parked cars westbound on the northwest corner of the intersection and westbound queues from Queen Anne Avenue N. Parking along Mercer Steet is only allowed during peak periods, and westbound, only between 1st Avenue N and the bus stop to the west.

IMPROVEMENTS MADE

Bus operations – parking

Metro worked with SDOT to restrict about three (3) parking spots westbound on Mercer Street. Buses can now make the northbound left turn into the righthand westbound lane at all times of day.

PROJECT

METRO ROUTES IMPACTED: #1, #8, #32, D LINE

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Laura Wojcicki, Kelly Hall (SDOT)

SEATTLE

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

8 sec Northbound Left Turn Delay Reduced

ROUTE BENEFIT

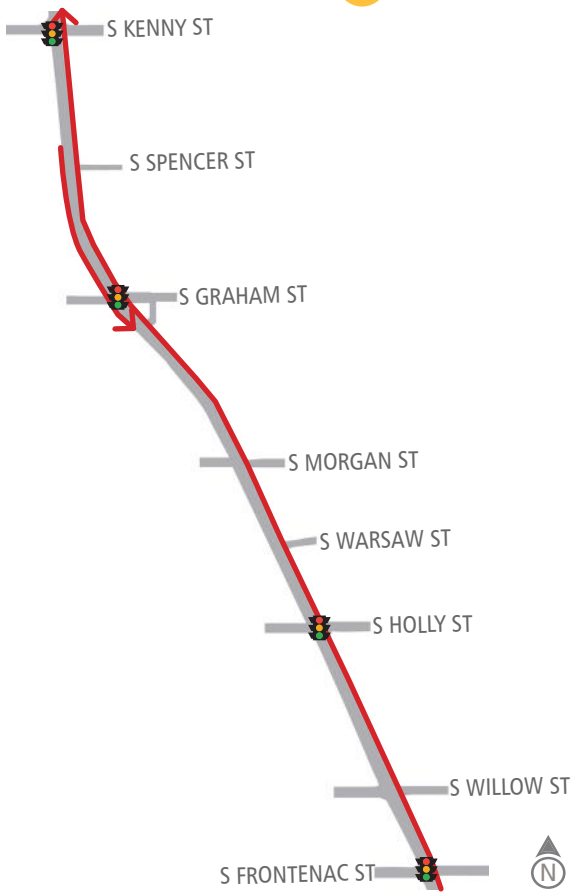
24 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

14,060 RIDERS

RAINIER AVENUE S (S KENNY STREET TO S FRONTENAC STREET) 21

LEVEL OF COMPLEXITY 5



ISSUE

Rainier Avenue S is a congested traffic and transit corridor and has a history of frequent traffic collisions. The City would like to reduce the number of traffic lanes on Rainier Avenue to reduce speeding and improve the overall safety of the corridor; however, this could lead to additional transit delays and unreliable operation if transit speed & reliability improvements are not installed along with any reductions in the number of traffic lanes. In 2019, SDOT converted general-purpose travel lanes to Business Access and Transit (BAT) lanes at selected locations in the Rainier Beach neighborhood.

IMPROVEMENTS MADE

Bus Lanes

In 2020, SDOT extended the existing BAT lanes. Northbound on Rainier Avenue, 0.8 miles of BAT lanes were added between S Frontenac St and S Kenny Street. Southbound on Rainier Avenue, 550 feet of BAT lanes were added between S Spencer Street and S Graham Street. These BAT lanes were painted red.

PROJECT

SEATTLE

METRO ROUTES IMPACTED: #7

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong (SDOT)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

17 sec Northbound Delay Reduced per trip

9 sec Southbound Delay Reduced per trip

ROUTE BENEFIT

57 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

11,160 RIDERS

22 9TH AVENUE & SENECA STREET

LEVEL OF COMPLEXITY 2

ISSUE

Northbound buses were experiencing difficulty turning right onto Seneca Street when westbound left-turning vehicles were stopped at the stop bar. The stop bar was not set back from the intersection, tightening the turn radius for buses. Parked cars along 9th Avenue further complicated the turn, and buses were having to either cross the centerline on 9th Avenue or wait for the westbound left turn pocket to clear before turning.

IMPROVEMENTS MADE

Bus Operations & Channelization
SDOT shifted the westbound left turn stop bar back, providing more room for buses to safely make the northbound right turn.

PROJECT

METRO ROUTES IMPACTED: #303

PROJECT PARTNERS

SDOT Seattle Department of Transportation

King County METRO

ACKNOWLEDGEMENTS

Jonathan Dong, Kelly Kobashigawa (SDOT)

SEATTLE

TRANSIT BENEFITS

SAFETY

Northbound right turns are now easier for buses to make, enhancing the safety of buses, transit riders, and other drivers by reducing the chances of collisions between buses and westbound vehicles.

ROUTE BENEFIT

5 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

600 RIDERS

LEVEL OF COMPLEXITY

3

CARLYLE HALL ROAD N & GREENWOOD AVENUE N 23

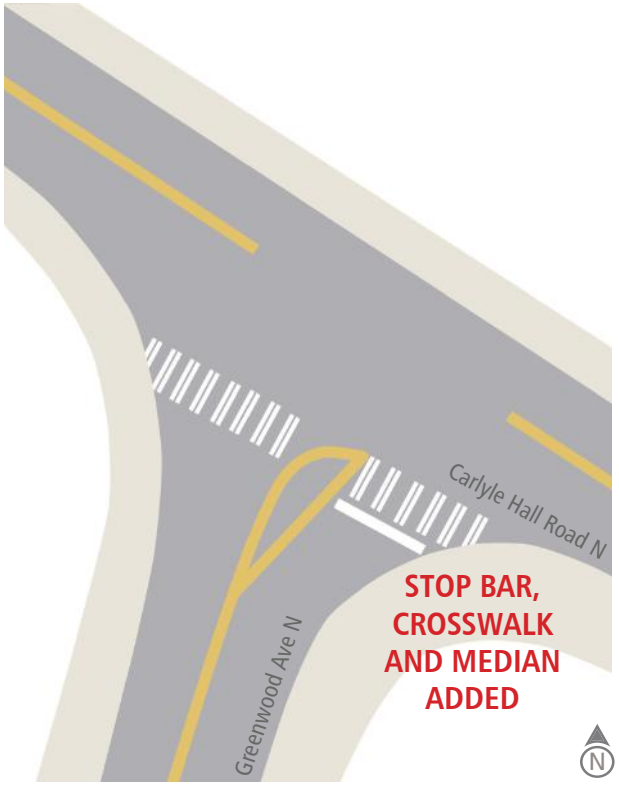
ISSUE

Westbound buses were experiencing difficulty turning left onto Greenwood Ave N when northbound vehicles were stopped at the stop bar. Northbound vehicles were pulling into the intersection for better visibility when turning, tightening the turn radius for westbound left-turning buses.

IMPROVEMENTS MADE

Bus Operations & Channelization

Shoreline shifted the northbound stop bar forward, shifted the centerline east, and added a striped median to keep cars closer to the curb and out of the path of westbound left-turning traffic. By clarifying the appropriate stop position for northbound traffic, the new channelization provides more room for buses to safely make the westbound left turn.



PROJECT

SHORELINE

METRO ROUTES IMPACTED: #331

PROJECT PARTNERS

City of Shoreline

King County METRO

ACKNOWLEDGEMENTS

Kendra Dedinsky (Shoreline)

TRANSIT BENEFITS

BUS DELAY IMPROVEMENTS

Northbound right turns are now easier for buses to make, enhancing the safety of buses, transit riders, and other drivers by reducing the chances of collisions between buses and westbound vehicles.

ROUTE BENEFIT

4 BUSES/HR

DAILY PASSENGER BENEFIT (=1000 PERSONS)

230 RIDERS