# TRANSIT SPEED & RELIABILITY

s 3rd Pl

EXCEPT

# SPOT IMPROVEMENTS ANNUAL REPORT 2024



PUBLISHED FEBRUARY 2025

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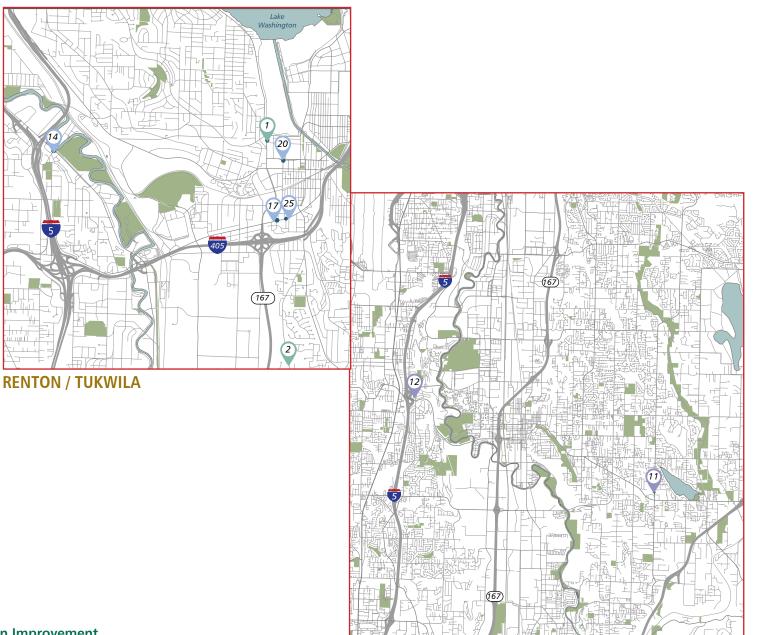
Street and Intersection Design Improvement

- Bus Stops and Routing Improvement
- Traffic Regulations Improvement
- Signals Improvement



**1** RAINIER AVE BAT LANES

- 2 TALBOT RD SAFETY IMP
- 3 NE MAIN ST / 148TH AVE NE
- 5 148TH AVE NE / NE 29TH PL
- 10 MILITARY RD S / KENT-DES MOINES P&R
- 132ND AVE SE / LAKE MERIDIAN P&R
- 14 INTERURBAN AVE SE / SE 52ND ST
- 17 S GRADY WAY / LAKE AVE S
- 20 LOGAN AVE S / S 2ND ST
- 25 SHATTUCK ST / S GRADY WAY
- Street and Intersection Design Improvement
- Bus Stops and Routing Improvement
- Traffic Regulations Improvement
- Signals Improvement



KENT

# INTRODUCTION

This annual report describes the spot improvements implemented in 2024 by local jurisdictions on behalf of King County Metro's Speed & Reliability group. Spot improvements are low-cost capital investments aimed at improving traffic problems and operational issues that affect bus travel times and reliability. Spot improvement projects are pursued to improve existing transit service or to support planned service restructures. Spot improvements can range in complexity from less complex projects, such as traffic signal timing adjustments, to more-complicated projects requiring design and public outreach, such as new bus-only lanes. Some projects support the safer operation of buses on city-owned streets by minimizing potential conflict with other roadway users; this results in safer and more-reliable transit operation, and reduced operator stress. All benefits from spot improvements help Metro deliver higher-quality service at lower cost and will increase attraction to public transit as a travel mode of choice.

The Spot Improvement Program supports King County Metro Mobility Framework policy recommendations to implement investments that increase speed, reliability, and safety. Spot improvement projects utilize a set of transit supportive strategies identified in <u>Metro's 2021 Transit Speed & Reliability Guidelines and Strategies</u>. Examples of these transit supportive strategies are shown in the Speed and Reliability Toolbox Table on the following page, and the improvements featured in this report are grouped by strategy type.

In 2024, Metro's Speed & Reliability group's focus was on the planning for capital project investments to support the upcoming East, Lynnwood, Federal Way Link Connections and G Line Madison Service Area restructures. This work required close and frequent coordination with the cities of Seattle, Shoreline, Montlake Terrace, Bellevue, Redmond, and Federal Way. This planning work involved conducting coach tests, developing concept-level designs, gaining jurisdiction approval for the concepts, and identifying and implementation strategies.

Throughout 2024 Speed & Reliability has continued to maintain a regular presence at Metro's seven bus bases, regularly attending base visits and Safety Committee meetings throughout the year. This direct interaction with Transit Operators, Base Chiefs, Service Quality, and Safety is our best source of identification of problem areas and generation of Spot Improvement ideas. An ongoing challenge has been the availability of city staff and crews to implement all the Spot Improvements requested by Metro.

The success of each implementation was made possible with the support of cities and their willingness to make operational changes to roadway infrastructure and traffic signal systems to benefit transit riders; many improvements provide benefits to other roadway users as well. For additional information regarding this program, please contact Owen Kehoe at 206-477-5811 or via email at owen.kehoe@kingcounty. gov.

Spot Improvement program 2024 expenditures: \$309,000 for investments to existing transit routes, and \$439,600 for improvements on modified transit routes to support service restructures in anticipation for the opening of new RapidRide Lines as well as Sound Transit LINK feeder routes. The total cost of improvements is \$748,600 to cover Metro staff time and reimbursed city costs to develop conceptual designs, develop final designs (when needed), construct improvements, as well as administer the spot improvement program as a whole.

The **21** Spot improvement projects highlighted in this report benefited:

- » 82,000 Weekday Riders
- » 28 Bus Routes

Resulting in:

- » Approximately \$290,000 in avoided additional operating cost annually; operating dollars that would otherwise need to be spent maintaining schedule reliability each year.
- » Improved operational safety at 9 locations in 2024.

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.



# SPEED AND RELIABILITY TOOLBOX TABLE

CH/	ALLEN	IGES													
INTERSECTION	ROADWAY	FREEWAY ON-RAMP	SIGNAL	RIGHT TURN	LEFT TURN	OTHER, TRAFFIC RELATED	INEFFICIENT ROUTE DESIGN	LEAVING BUS STOP	DWELL TIME	<b>BUS ZONE CAPACITY</b>	PEDESTRIANS	CYCLISTS	MOTORISTS	\$: UNDER \$50,000 \$\$: \$50,000-\$100,0 \$\$\$: \$100,000-\$250 \$\$\$\$: OVER \$250,0	0,000 00
CC	NGESTIC	DN		DE	LAY			OPERA	ATIONS			SAFETY		COST	COORDINATION

### STRATEGY

# A. Street and Intersection Design

Dedicated Bus Lane	<b>***</b>	<b>**</b>		• • •	<b>***</b>	<b>* * *</b>		••	••	<b>**</b>	<b>* *</b>		•	••	\$ - \$\$\$\$	High
Queue Bypass (Short Bus Lane)	<b>***</b>	••	<b>* *</b>		••	<b>* *</b>	••	••	••			•	•		\$ - \$\$\$\$	High
Roadway Channelization	•			•	••	<b>*</b> *		•	•			•	•	•	\$	Low/Medium
Turn Radius Improvements		•			••	<b>*</b> *									\$\$\$	Medium
Speed Hump Modifications							••								\$ - \$\$	Low

# **B.Bus Stops and Routing**

Bus Stop Location	•		•		•	**	•	•	••	••	\$\$ - \$\$\$	Medium
Route Design	•	•	•		***	•	•	•			\$\$	High
Bus Stop Lengthening						•	••	***			\$\$	High
Bus Bulbs						•	••	••			\$\$ - \$\$\$	High
Boarding Islands						•	••	••		••	\$\$ - \$\$\$	High

# C. Traffic Regulations

Turn Restrictions/Exemptions	•		•	••	••	•	•	•		•	•	•	\$ Low
Parking Removal/ Alterations		••						••					\$ Low

# **D. Signals**

Passive Traffic Signal Retiming	••	•		••	•	•		••			•	•	•	\$ - \$\$	Low
Transit Signal Priority (Active)	<b>***</b>			<b>***</b>	•••	•••	•••	<b>***</b>						\$ - \$\$	Low
Signal Phase Modification	••	•		•	•		<b>* *</b>				•			\$ - \$\$\$	Low-Medium
New Signal Installation	••	•		•	•		<b>* *</b>				•			\$ - \$\$\$\$	Low-Medium
Queue Jumps	<b>***</b>	••	••		<b>* *</b>	<b>**</b>		••	••		•	•		\$ - \$\$\$	Medium
				В	enefits:	◆ LOW	+ + MEDI		+ + + HIGH						

# **2024 SPOT IMPROVEMENTS IN KING COUNTY**



RAINIER AVE S / S 3RD PL, RENTON



15TH AVENUE NW / NW MARKET ST, SEATTLE



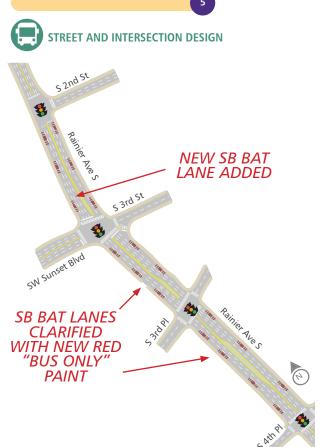
5TH AVE NE / NE 155TH ST, SHORELINE



WALLINGFORD AVENUE N, SEATTLE

# RAINIER AVE S BUSINESS ACCESS AND TRANSIT LANES

1

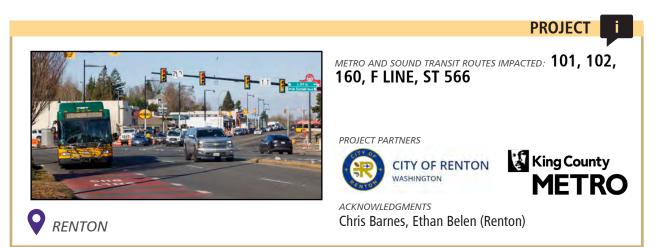


# **PROBLEM STATEMENT**

Business Access and Transit (BAT) Lanes existed along Rainier Ave S between S 3rd St (Sunset Blvd) and S 7th St in the City of Renton. However, they were not well marked and violations were frequent. Additionally, the BAT lanes did not exist in the southbound direction of Rainier Ave S between S 2nd St and S 3rd St, causing high delay for F Line buses in the southbound direction as they approached S 3rd St.

# **IMPROVEMENTS MADE**

Metro worked with the City of Renton to design signage improvements and new red BUS ONLY paint to ensure the BAT lanes were more obvious and visible. The southbound BAT lane was extended one block north to S 2nd St to help F Line trips move through the area with ease. The City installed the new signs and had their contractor install the new red paint, with Metro providing a funding contribution to support this work.



### **OPERATIONAL IMPROVEMENTS**



DELAY REDUCED PER TRIP DURING THE PM PEAK PERIOD BETWEEN MAY 2023 AND AUGUST 2023 **ROUTE BENEFIT** 



 TRANSIT BENEFITS

 DAILY PASSENGER BENEFIT ( 1 = 1000 PERSONS)



16 BUSES/HR

8,758 RIDERS

# **2** TALBOT RD S SAFETY IMPROVEMENT

LEVEL OF COMPLEXITY

Talbot

STREET AND INTERSECTION DESIGN

2

FLEX POSTS WITH

HIGH VISIBILITY

MARKERS ADDED

### **PROBLEM STATEMENT**

Operators of the Route 160 reported near-miss incidents when serving the southbound stop at Talbot Rd outside of the Valley Medical Center facility. As buses were stopped to board and alight passengers, general purpose traffic was using the two-way left turn lane to pass the bus, sometimes at high rates of speed. Video provided at a South Base Safety Committee meeting showed a vehicle narrowly miss a pedestrian crossing in front of the bus at the sidewalk.

### **IMPROVEMENTS MADE**

This location will see traffic calming improvements as part of the future RapidRide I Line project. However, City of Renton staff agreed that temporary safety improvements were needed to address the urgent safety concern. The City of Renton installed hardened median posts with striped metal delineators to prevent vehicles from using the left turn lane to pass while the bus is stopped in the travel lane.



# TRANSIT BENEFITS





NEW HARDENED **C-CURB INSTALLED** 

(Z)



# **PROBLEM STATEMENT**

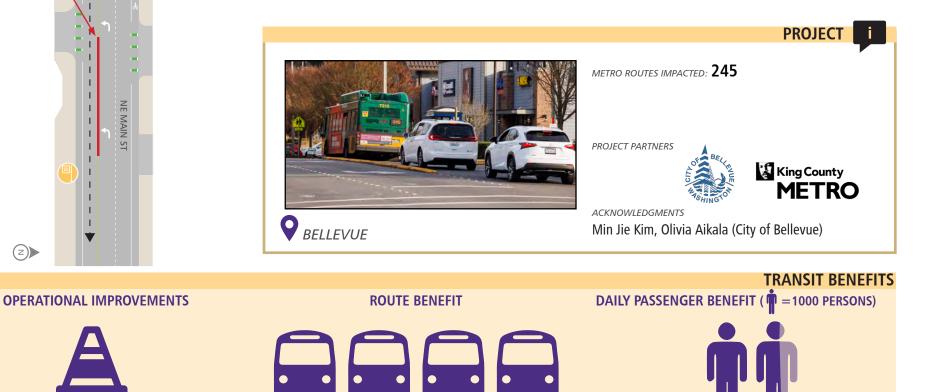
Operators reported traffic issues when serving the eastbound stop on NE Main St after 148th Ave NE. When serving Stop #70835, general purpose traffic was using the oncoming left turn lane to pass the bus, leading to several near-miss incidents that could have caused injury to passengers, operators, or general purpose traffic.

3 BUSES/HR

# **IMPROVEMENTS MADE**

The City of Bellevue installed a raised c-curb to prevent eastbound traffic from using the left turn lane intended for westbound traffic. The new hardened barrier prevents vehicles behind the bus from crossing into oncoming traffic without crossing a hardened barrier.

1.680 RIDERS





THE IMPROVEMENT PROVIDES ENHANCED SAFETY FOR BUS

OPERATORS AND PASSENGERS.

NE MAIN ST

N 85TH ST & WALLINGFORD AVE N

# **PROBLEM STATEMENT**

4

PROJECT

The new Route 61 required a new turning movement from Wallingford Ave N to N 85th St that did not accommodate Metro buses well under the conditions. Coaches making the southbound right turn from Wallingford Ave N to N 85th risked encroaching on eastbound traffic, causing a safety hazard and potential delays to transit.

### **IMPROVEMENTS MADE**

The stop bar for the eastbound left turn lane and the corresponding loop detector were shifted west to allow more space for buses making the southbound right turn and reducing the risk of collision.

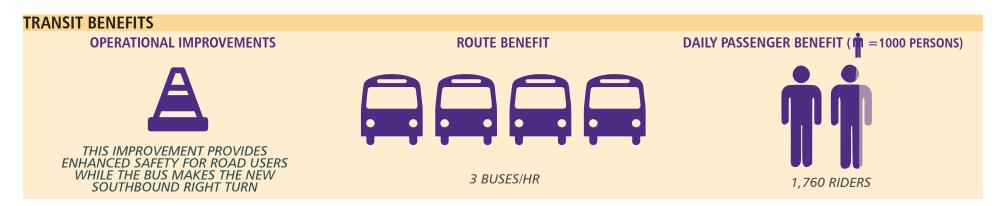


PROJECT PARTNERS Seattle 😵 King County Department of **METRO** Transportation ACKNOWLEDGMENTS

METRO ROUTES IMPACTED: 61

Jonathan Dong, Tom Le (SDOT)





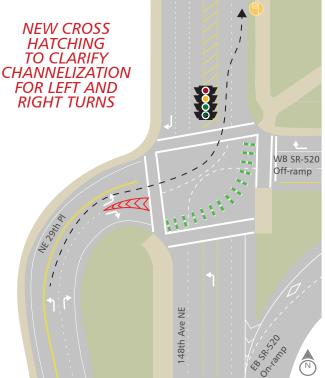
LEVEL OF COMPLEXITY

Ave

3

STREET AND INTERSECTION DESIGN





# 148TH AVE NE & NE 29TH PL

# **PROBLEM STATEMENT**

The eastbound approach to 148th Ave NE from NE 29th Pl was recently restriped to turn the right lane of NE 29th Pl from a left/right turn lane into a right turn only lane configuration. The new striping configuration along with the installation of a new bike lane did not require a change in signal heads, which caused confusion for drivers who thought that the two left turn arrows meant they could still turn left from both lanes. Bus operators were encountering near-misses from drivers turning left from the right lane, making the left turn difficult and potentially unsafe.

# **IMPROVEMENTS MADE**

To make the turning movements more clear and safe, Metro recommended cross-hatching be added to the lane to clarify the movements. The City of Bellevue installed new cross-hatching striped on the roadway to ensure drivers understand the right lane is right turn only.



**TRANSIT BENEFITS** DAILY PASSENGER BENEFIT ( = 1000 PERSONS) **OPERATIONAL IMPROVEMENTS ROUTE BENEFIT** DELAY REDUCED PER TRIP IN THE AM PEAK 6 SEC **BETWEEN OCTOBER 2024** AND DECEMBER 2024 THE IMPROVEMENT ALSO PROVIDES ENHANCED SAFETY FOR BUS OPERATORS AND ELIMINATES POTENTIAL DAMAGE FROM BUSES 650 RIDERS 2 BUSES/HR REROUTING ON 28TH AVE NE.

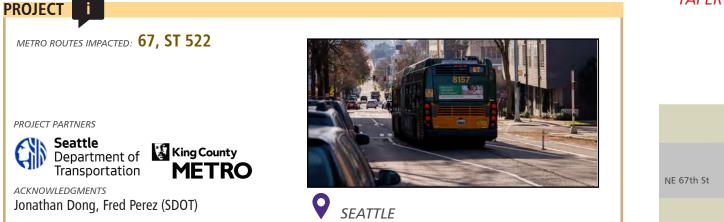
# 6 ROOSEVELT WAY NE & NE 67TH ST

### **PROBLEM STATEMENT**

A bus stop island was installed on Roosevelt Way at NE 67th St, providing a convenient transfer between southbound buses and the Roosevelt Link Station. Traffic on Roosevelt Way was shifted around the island using a painted taper, and parking was restricted near the island and taper to provide needed space. However, operators were encountering issues with vehicles not staying in lane and it was difficult for operators to negotiate the taper at operating speeds.

# **IMPROVEMENTS MADE**

Metro worked with SDOT to re-design the taper so that it would be longer and more gradual. An additional parking space was restricted to provide the additional length needed. After conducting outreach to the property adjacent to the parking space, the old taper was ground out and a new longer taper was installed by SDOT crews.



		3
	STREET AND INTERSEC	TION DESIGN
LANE TAPER ADJUSTED FOR MORE GRADUAL TAPER	Roosevelt Way NE	PARKING SPACE REMOVED
NE 67th St	\$	

LEVEL OF COMPLEXITY

# **TRANSIT BENEFITS**

### **OPERATIONAL IMPROVEMENTS**



DELAY REDUCED BY 1 SECOND PER TRIP FOR ALL TRIPS THROUGHOUT THE DAY BETWEEN MARCH 2024 AND OCTOBER 2024 **ROUTE BENEFIT** 



7 BUSES/HR

DAILY PASSENGER BENEFIT ( = 1000 PERSONS)





# NE 155TH ST & 5TH AVE NE



# **PROBLEM STATEMENT**

As part of the Lynnwood Link Connections service restructure, new route pathways were proposed that would result in buses making new left and right turns at the intersection of NE 155th & 5th Ave NE. A coach test was conducted and found that the turns could not be made without encroaching significantly into the opposing lanes. It was determined that intersection adjustments would be needed to accommodate the new route pathways.

# **IMPROVEMENTS MADE**

Metro worked with the City of Shoreline on a design to push the stop bars back on some of the left turn lanes, to make space for the new bus movements. Moving the stop bar meant that the existing signal loop detectors for the left turn lanes were no longer in the correct location; to mitigate this issue, Metro purchased an advanced video detection system. King County Roads installed the stop bar modifications under an established interlocal agreement with the City of Shoreline. PROJECT



Kendra Dedinsky, Alec Bumgarner, (City of Shoreline) Mark Parrett (King County Roads)

# DAILY PASSENGER BENEFIT ( = 1000 PERSONS)



**TRANSIT BENEFITS** 



NF 155th St NB LEFT TURN LANE **STOP BAR ADJUSTED** 

LEVEL OF COMPLEXITY

2

STREET AND INTERSECTION DESIGN

**OPERATIONAL IMPROVEMENTS** 



THIS IMPROVEMENT PROVIDES ENHANCED SAFETY FOR ROAD USERS WHILE THE BUS MAKES THE NEW TURN MOVEMENTS

5 BUSES/HR

**ROUTE BENEFIT** 

8 N 175TH ST & FREMONT AVE N



As part of the Lynnwood Link Connections service restructure, new route pathways were proposed that would result in buses making new left and right turns at this intersection. A coach test was conducted and found that the turns could not be made without coaches encroaching significantly into the opposing lanes. It was determined that intersection adjustments were required to accommodate the new pathway.

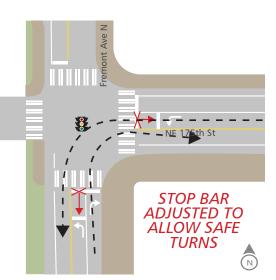
# **IMPROVEMENTS MADE**

SHORELINE

Metro worked with the City of Shoreline on a design to push the stop bars back on some of the left turn lanes, to make space for the new bus movements. Moving the stop bar meant that the existing signal loop detectors for the left turn lanes were no longer in the correct location; to mitigate this issue, Metro purchased an advanced video detection system. King County Roads installed the stop bar modifications under an established interlocal agreement with the City of Shoreline.



LEVEL OF COMPLEXITY





METRO ROUTES IMPACTED · 333

King County

ACKNOWLEDGMENTS

PROJECT

Kendra Dedinsky, Alec Bumgarner, (City of Shoreline) Mark Parrett (King County Roads)

# TRANSIT BENEFITS





# 15TH AVE NE & NE 180TH ST

LYNNWOOD LINK SERVICE RESTRUCTURE



9

# **IMPROVEMENTS MADE**

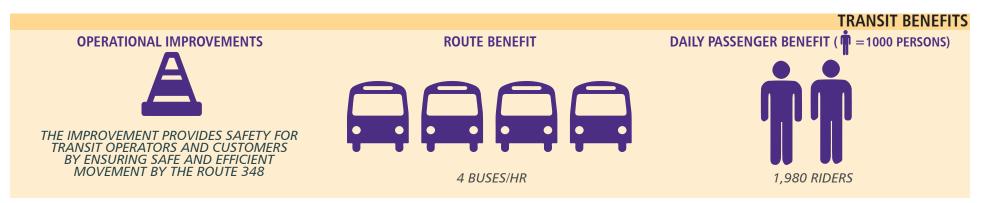
Metro worked with the City of Shoreline to restrict parking along the south side of NE 180th St. The City of Shoreline determined that the adjacent apartment building had ample off-street parking, and the adjacent fire station was also having issues maneuvering fire trucks in the area. Therefore, the parking was restricted along the entire length of NE 180th St between 15th and 12th Ave NE. The restrictions were implemented several months prior to the service change.



# **PROBLEM STATEMENT**

As part of the Lynnwood Link Connections service restructure, a new route pathway was proposed that would result in buses operating on a section of NE 180th St that previously had no transit service, and making new turns on and off of 15th Ave NE. Due to on-street parking allowed on the south side of 180th, the travel lanes were too narrow and turns were constrained at 15th Ave NE.





# **10 MILITARY RD S & KENT-DES MOINES PARK AND RIDE**

TRAFFIC REGULATIONS

# **PROBLEM STATEMENT**

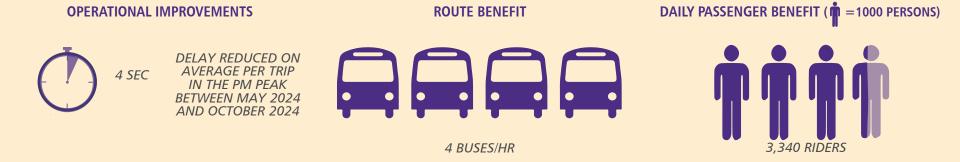
The Route 165 enters the Kent-Des Moines Park and Ride loop in both directions of travel. Operators reported that both the entrance and exit to the park and ride were often blocked due to general purpose traffic queuing at the intersection of Military Rd S and Kent-Des Moines Dr, a major intersection to access I-5. Operators report high delays in the PM peak period when traffic congestion to access I-5 is at its highest.

# **IMPROVEMENTS MADE**

The City of Kent installed "Do Not Block" signage at both the entrance and exit of the Kent-Des Moines Park and Ride loop. Speed & Reliability staff are continuing to monitor the improvement for potential future improvements.



### **TRANSIT BENEFITS**



# **132ND AVE SE & LAKE MERIDIAN PARK AND RIDE**



TRAFFIC REGULATIONS



# **PROBLEM STATEMENT**

The Routes 165 and 180 enter the Lake Meridian Park and Ride loop in both directions of travel. Operators reported that the exit to the park and ride was often blocked due to general purpose traffic queuing at the intersection of 132nd Ave SE and SE Kent-Kangley Rd. Operators reported experiencing high delays in the PM peak period when traffic congestion was the worst.

# **IMPROVEMENTS MADE**

The City of Kent installed "Do Not Block" signage at both the entrance and exit of the Lake Meridian Park and Ride loop. Speed & Reliability staff are continuing to monitor the improvement for potential future improvements.



# OPERATIONAL IMPROVEMENTS ROUTE BENEFIT DAILY PASSENGER BENEFIT (\* = 1000 PERSONS) Image: transformation of the second second

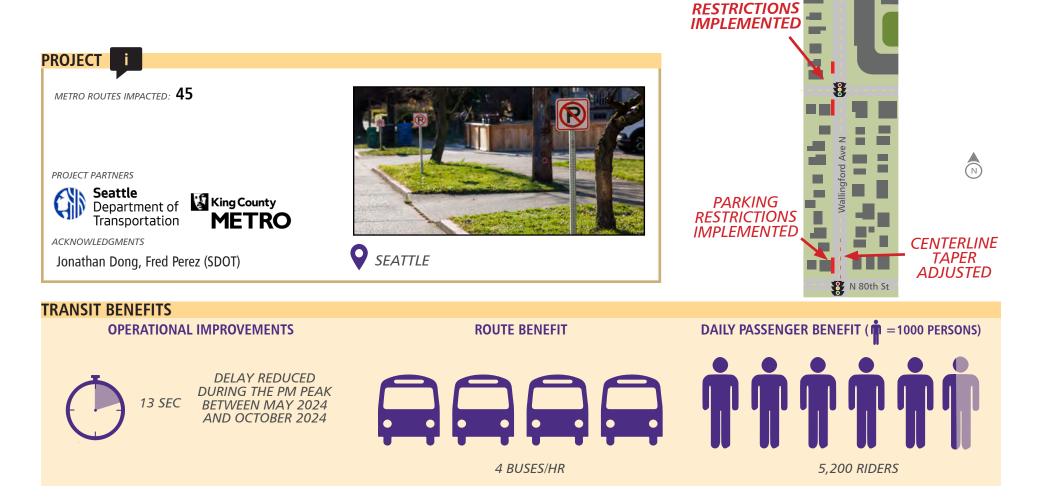
# **12 WALLINGFORD AVE N (N 80TH ST TO N 85TH ST)**

# **PROBLEM STATEMENT**

Wallingford Ave N has travel lanes that are narrow, resulting in a history of sideswipe and mirror collisions, potential for collision, and increased delays as buses had to wait for gaps in oncoming traffic to travel on Wallingford Ave N between N 80th St and N 85th St.

# **IMPROVEMENTS MADE**

Parking restrictions were implemented at select locations to make more space for buses and safer intersection operations with better sight lines. These improvements increase transit reliability and reduces operator stress.



LEVEL OF COMPLEXITY

CENTERLINE

**TAPER** 

**ADJUSTED** 

TRAFFIC REGULATIONS

N-85th St

PARKING

LEVEL OF COMPLEXITY

RESTRICTIONS

RESTRICTIO

TRAFFIC REGULATIONS

# KIRKWOOD PL N (N 56TH ST TO WOODLAWN AVE N)

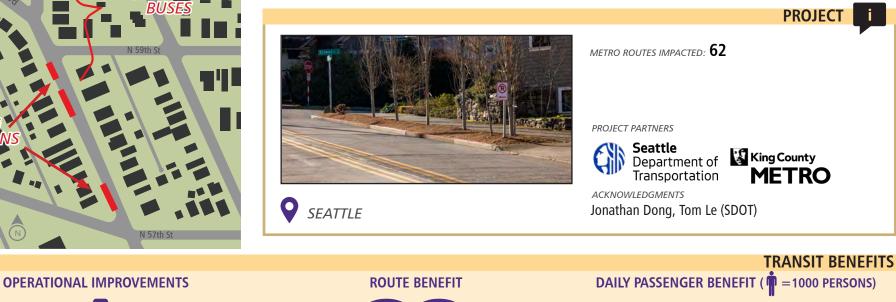
# 13

# **PROBLEM STATEMENT**

Meridian Ave N and Kirkwood Blvd have narrow travel lanes that the Route 62 must operate on. The narrow lanes had a history of sidewipe and mirror collisions and increased delays as buses had to wait for gaps in oncoming traffic.

# **IMPROVEMENTS MADE**

Parking was restricted in select locations and the centerline was adjusted east to provide more space for the Route 62 operators to move through the neighborhood. The parking restrictions were key to provide additional space for moving the centerline. To ensure safe operations, King County Metro Bus Ops has emphasized the existing 20 MPH slow order for this corridor with Route 62 operators, which has reduced the average speed of vehicles in the neighborhood.





THIS IMPROVEMENT PROVIDES ENHANCED SAFETY FOR ROAD USERS WHILE THE BUS TRAVELS THROUGH THE NEIGHBORHOOD 5 BUSES/HR

# AILY PASSENGER BENEFIT (T = 1000 PERSONS)

6,950 RIDERS

**14 INTERURBAN AVE SE & SE 52ND ST** 



## **PROBLEM STATEMENT**

Operators reported being stuck at a red light after serving the southbound stop at the Tukwila Park and Ride near the intersection of Interurban Ave S and 52nd Ave S. Transit vehicles are supposed to receive a queue jump signal phase after serving the stop, when pulling up to the forewardmost detection loop. The queue jump signal was being called when operators were still at the stop, causing them to miss an entire light cycle.

### **IMPROVEMENTS MADE**

The City of Tukwila Public Works Department took swift action to adjust the signal detection issue that was calling the queue jump phase before the intended time. The improved detection requires operators to pull the bus forward to the loop closest to the intersection. This allows operators the ability to serve the transit stop before continuing to travel in an expedient manner.



### TRANSIT BENEFITS





<u>د</u>

N 103rd St

SIGNAL TIMINGS

ADJUSTED



# N 103RD ST & NORTHGATE LAYOVER FACILITY



### **PROBLEM STATEMENT**

Operators departing the layover position at Northgate Layover Facility reported long wait times at the traffic signal to turn onto N 103rd St. This delay caused operators to begin their routes after the scheduled start time, which lead to unreliable transit operations.

### **IMPROVEMENTS MADE**

SDOT made adjustments to the intersection signal timing, which resulted in operators getting more green time for the exiting movement. SDOT provided additional green time for the northbound and southbound phases allowing transit vehicles to leave the layover facility, and park and ride users the chance to leave the park and ride.



**TRANSIT BENEFITS** DAILY PASSENGER BENEFIT ( = 1000 PERSONS) **OPERATIONAL IMPROVEMENTS ROUTE BENEFIT** ESTIMATED DELAY **REDUCED FOR** 15 SEC DEADHEAD TRIPS **BETWEEN MARCH 2024** AND JUNE 2024 THIS IMPROVEMENT IMPROVES RELIABILITY FOR TRANSIT RIDERS BY ENSURING THE BUS ARRIVES TO THE 478 DAILY DEADHEAD TRIPS DEADHEAD TRIPS FIRST SCHEDULED STOP ON TIME

Northgate Layc Facility 16 W MERCER ST & 3RD AVE W

# **PROBLEM STATEMENT**

Operators stated the eastbound queue jump signal on W Mercer St at 3rd Ave W was not turning green in time for them to move into position as they moved through the intersection. The receiving lanes require operators to merge into the left lane due to on street parking on the far side of the intersection.

# **IMPROVEMENTS MADE**

SDOT adjusted the queue jump timing to provide additional green time for operators prior to the eastbound green phase for general purpose traffic. This adjustments allows operators to safely move into the receiving lane and establish themselves in position without fear of collisions.

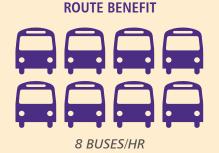


## **TRANSIT BENEFITS**

### **OPERATIONAL IMPROVEMENTS**



DELAY REDUCED FOR TRIPS THROUGHOUT THE DAY BETWEEN APRIL 2024 AND JUNE 2024



DAILY PASSENGER BENEFIT ( = 1000 PERSONS)

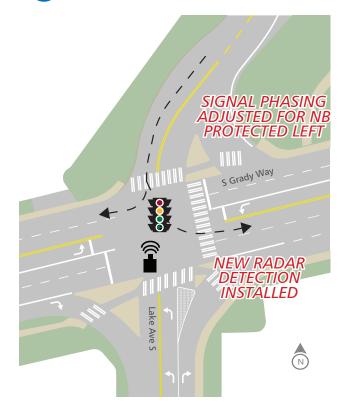
**TRAFFIC SIGNALS** 

### LEVEL OF COMPLEXITY

# **S GRADY WAY AND LAKE AVE S**



TRAFFIC SIGNALS



# **PROBLEM STATEMENT**

Buses departing the South Renton Transit Center and traveling southbound on Lake Ave S were encountering issues when making the left or right from Lake Ave S to S Grady Way. Operators making the left turn reported that the signal would often turn red when approaching and they would encounter delay. Additionally, traffic heading northbound on Lake Ave S and turning left onto S Grady Way would often not properly yield to right turning buses, this caused safety concerns and added transit delay.

# **IMPROVEMENTS MADE**

The City of Renton adjusted the signal phasing to allow northbound vehicles to make a protected left turn from Lake Ave S to S Grady Way. This allowed general purpose traffic the opportunity to make the turning movement and clear the northbound queue before giving buses the opportunity to safely make the southbound right turn. To address concerns with left turning buses, the City of Renton installed a new radar detection system to provide advanced detection for buses leaving the South Renton Transit Center.

 Image: Project partners

 Project partners

 Project partners

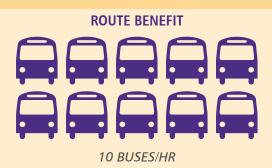
 Image: Project partners

 <td

**OPERATIONAL IMPROVEMENTS** 



DELAY REDUCED PER TRIP BETWEEN SEPTEMBER 2023 AND NOVEMBER 2023



**TRANSIT BENEFITS** 

DAILY PASSENGER BENEFIT ( = 1000 PERSONS)



7,220 RIDERS

# **18 WESTLAKE AVE N & N HARRISON ST**

PROBLEM STATEMENT

Operators reported that the northbound queue jump signal on Westlake Ave N at N Harrison St was not activating and buses were unable to move through the intersection before general purpose traffic. The queue jump signal is required to provide operators with time to move into the travel lane before general purpose traffic begins to queue in the lane.

# **IMPROVEMENTS MADE**

SDOT added more green time to the queue jump phase prior to the general purpose green phase. This portion of Westlake Ave N carries both the Route 40 and the C Line, and with the additional green time for transit, more than one bus can utilize this transit priority investment.



# **TRANSIT BENEFITS**

# **OPERATIONAL IMPROVEMENTS**



DELAY REDUCED BY 9 SECONDS PER TRIP IN THE PM PEAK PERIOD BETWEEN APRIL 2024 AND OCTOBER 2024





DAILY PASSENGER BENEFIT (m = 1000 PERSONS)



N

**TRAFFIC SIGNALS** 

estlake

Ave



TRAFFIC SIGNALS

# **BOREN AVE S & E YESLER WAY**

# **PROBLEM STATEMENT**

Metro staff reported a new occurrence of long delays at the intersection of Boren Ave S and E Yesler Way where the Route 60 makes a northbound left turn at a protected-only left turn signal. Speed & Reliability staff reviewed detailed data and confirmed the observations, determining that the new delay was occurring at all times of the day (traffic signals often run different timing plans at different times of day).

# **IMPROVEMENTS MADE**

After reporting these findings to SDOT, the traffic signal was adjusted so that the northbound left phase comes up at the end of the northbound through signal phase. This provides a better point in the signal cycle for northbound Route 60 buses to make the left turn, while having no impact to the First Hill Streetcar operating east-west on E Yesler Way.



# OPERATIONAL IMPROVEMENTS ROUTE BENEFIT DAILY PASSENGER BENEFIT () = 1000 PERSONS) Image: descent and de

E Yesler Way

# 20 LOGAN AVE S & S 2ND ST

# **PROBLEM STATEMENT**

Routes departing Renton Transit Center headed west have been experiencing delay in the early afternoons. Operators reported they did not have enough time to make the permissive left turn from Logan Ave S to S 2nd St due to pedestrians crossing the during the entirety of the green cycle. After investigating, it was determined that this issue was most prevalent during the hour immediately after the nearby Renton High School was dismissed.

# **IMPROVEMENTS MADE**

The City of Renton added green time for the northbound phase on Logan Ave S following the pedestrian cycle. Since the additional green time was added after the pedestrian phase had ended, operators are able to make the left turn after high school students have had the opportunity to safety cross S 2nd St to access the Renton Transit Center.



# TRANSIT BENEFITS

# **OPERATIONAL IMPROVEMENTS**



*DELAY REDUCED PER TRIP IN THE PM PEAK BETWEEN APRIL 2024 AND JANUARY 2025* 



**ROUTE BENEFIT** 



S 2nd St

TRAFFIC SIGNALS

LEVEL OF COMPLEXITY

2,460 RIDERS

DAILY PASSENGER BENEFIT ( = 1000 PERSONS)

### LEVEL OF COMPLEXITY

TRAFFIC SIGNALS

# **15TH AVE NW & NW MARKET ST**

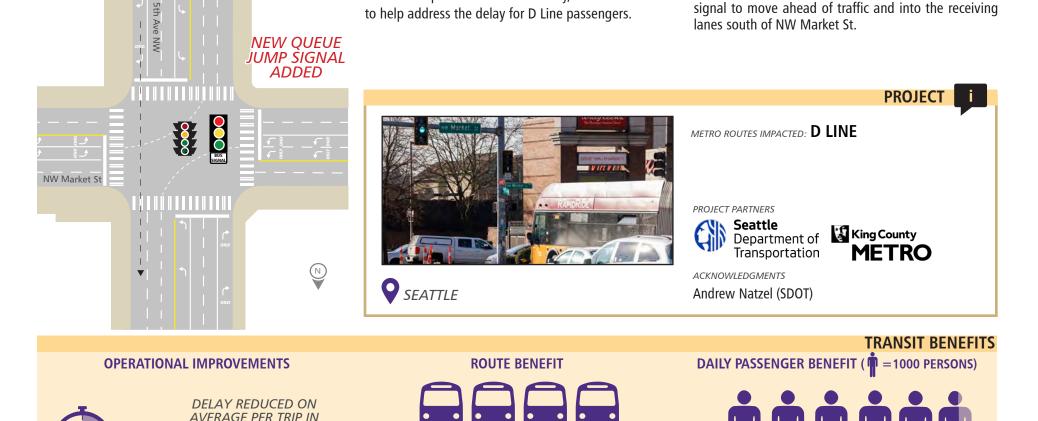
# **PROBLEM STATEMENT**

D Line passengers heading southbound through the intersection of 15th Ave NW and NW Market St were experiencing high levels of delay waiting at the intersection. SDOT started work on a paving project in the area to provide enhanced safety, and had a desire to help address the delay for D Line passengers.

# **IMPROVEMENTS MADE**

To mitigate potential travel time increases due to the new safety improvements, SDOT installed a new a queue jump signal at this location. The queue jump allows transit vehicles to move to the front of the queue in the right turn only lane and use the new queue jump signal to move ahead of traffic and into the receiving lanes south of NW Market St.

5,695 RIDERS



8 BUSES/HR

17 SEC

THE AM AND PM PEAK

BETWEEN SEPTEMBER 2023 AND NOVEMBER 2023

# **MINOR SPOT IMPROVEMENTS ACROSS KING COUNTY**

Speed and Reliability staff frequently receive requests from operators, transit supervisors, customer feedback, and city partners on transit issues encountered in the field. Below are a few of the ad hoc spot improvements that Speed & Reliability was able to address with our partner agencies. These improvements are typically safety related and completed in a quick manner to ensure continued safe transit operations across the region.

# 10TH AVE NE AND NE 180TH ST (SHORELINE):

A stop sign needed to be adjusted to ensure operators did not strike the stop sign with their side mirror when making a turn.

# E JEFFERSON ST AND BOREN AVE (SEATTLE):

Operators reported illegal parking near the intersection. SDOT's Curbspace Management Team swiftly responded by adding red paint to the curb and new signage indicating no parking was allowed within 10 feet of the intersection.

# MARTIN LUTHER KING JR. WAY S AT OTHELLO STATION (SEATTLE):

Operators reported a traffic sign was leaning over the railing by Othello Station and into the travel lane. This sign risked striking the side mirrors of buses as they passed, requiring operators to move into the adjacent lane to avoid striking the sign. SDOT Curbspace Management crews fixed the sign within 48 hours of notification.

# SHATTUCK AVE S AND S GRADY WAY (RENTON):

Operators reported shortened green times for southbound traffic at the intersection of Shattuck Ave S and S Grady Way. The City of Renton adjusted signal timings to allow more green time for operators departing South Renton Transit Center. The fast turnaround on the issue meant that there was not enough data to determine time savings from this improvement.

# **BELLEVUE AVE E AND E PINE ST (SEATTLE):**

Following major safety improvements completed along the Pike/Pine Corridor, operators reported concerns about long wait times for buses making turns from Bellevue Ave E to E Pine St. SDOT Traffic Operations quickly responded and provided additional green time to allow buses to make the turning movement after pedestrians clear the intersection.



NEW SIGNAGE AND CURB PAINT AT E JEFFERSON ST AND BOREN AVE



LEFT TURN AT SHATTUCK AVE S AND S GRADY WAY FOR TRAFFIC DEPARTING SOUTH RENTON TRANSIT CENTER



THE ROUTE 10 MAKING A NORTHBOUND RIGHT TURN FROM BELLEVUE AVE E TO E PINE ST

# ACKNOWLEDGMENTS

This program and annual report would not be possible without the help and support from our partner agencies throughout King County. While specific agencies and staff members have been listed next to each spot improvement, it is worth noting that there may be some staff who contributed that were not acknowledged.

Special appreciation to:

# **KING COUNTY METRO:**

Transit Operators Service Quality Staff Transit Supervisors Vehicle Maintenance Atlantic, Bellevue, Central, East, North, Ryerson And South Base Safety Committees

You all are the eyes and ears that provide a unique look at the transit system, seeing the impacts of planning decisions day in and day out. Your dedication to ensuring an equitable, safe, reliable and expedient transit service are appreciated by all who get to ride the system and work alongside you.

Additional thanks to Thomas Hawthorne, the King County Metro Photographer, for capturing the completed spot improvements in such great detail.