

The background image shows a residential street scene. In the foreground, a speed limit sign with the text 'SPEED LIMIT 25' is visible. A red car is blurred, indicating motion. The street is lined with houses and trees. The sky is overcast.

Martin Luther King Jr. Way S Signal Reprioritization Pilot

Seattle Transit Advisory Board
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Our Vision, Mission, Values, & Goals

Seattle is a thriving equitable community powered by dependable transportation. We're on a mission to deliver a transportation system that provides safe and affordable access to places and opportunities.

Core Values & Goals:

Equity, Safety, Mobility, Sustainability, Livability, and Excellence.



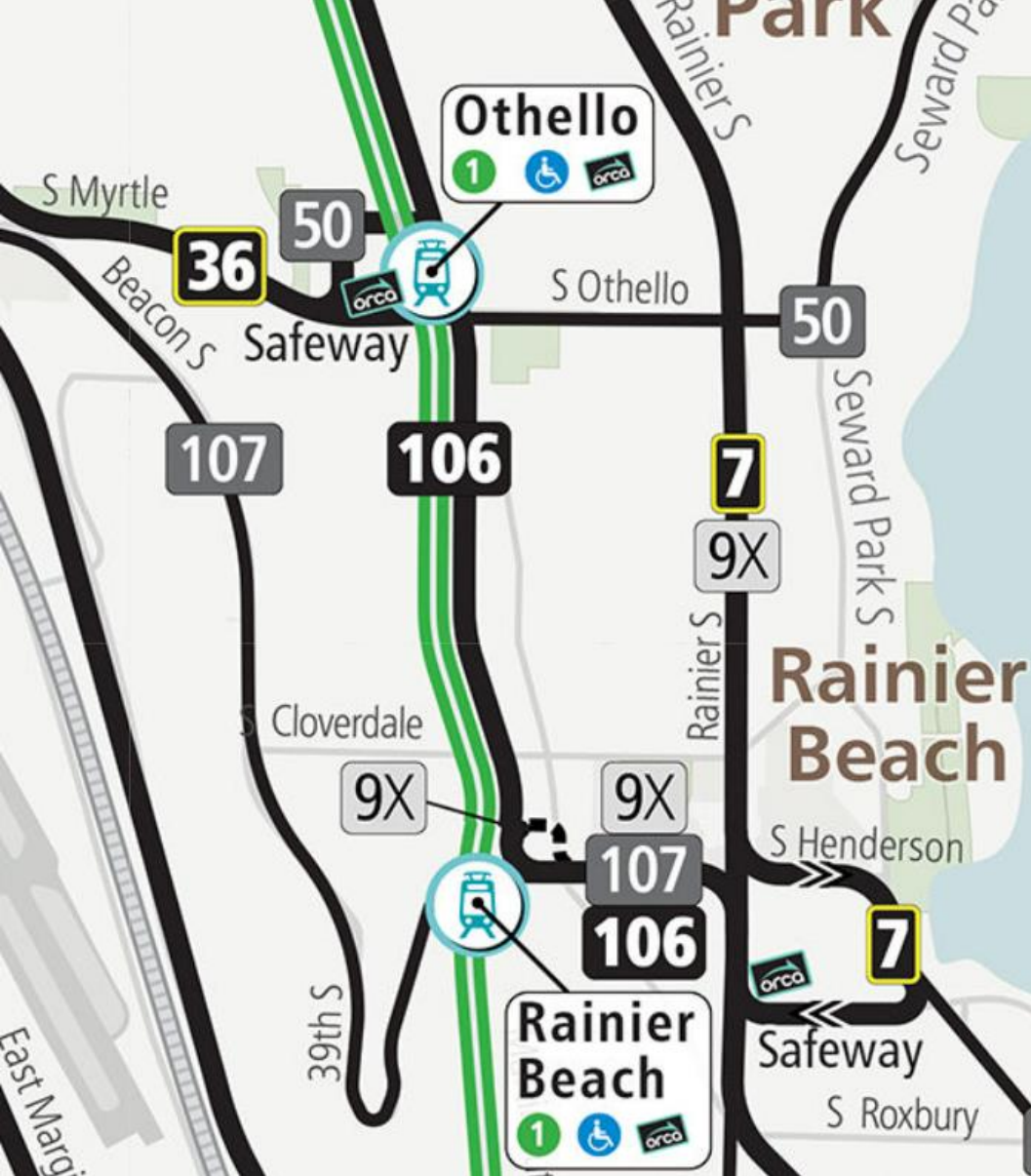
Overview

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Background

- The 1 Line in Rainier Valley runs at street level along MLK Jr. Way S corridor.
- There are over 25 at-grade intersections and 3 stations.
- Pedestrians and left-turning vehicles sometimes face long wait times at intersections.
- The signal system is designed to prioritize light rail vehicle (LRV) movement for consistent travel times.
- Current implementation often results in skipped phases for pedestrians and vehicles crossing MLK.





Pilot Signal Reprioritization

- Testing a signal light synchronization method that cycles through all phases without skipping, while still prioritizing light rail vehicles (LRV).
- New signal timing sequence implemented between Rainier Beach and Othello stations.

Objectives

- Maintain LRV travel times and maintain / reduce train stops.
- Shorten average wait times for pedestrians and left-turning vehicles.
- Gain community and operator support through feedback.
- Decrease signal violations by driver and pedestrian.
- Reduce collisions involving light rail and general traffic.





Pilot Approach

Signal timing changes were implemented in three phases, with SDOT and ST staff on-site and in the Traffic Management Center.

Three Phases:

- **Phase 1: Non-service** LRV hours on Sunday, March 3, 2024
- **Phase 2: Weekend service** on Sunday, March 24, 2024
- **Phase 3: Weekday service** on Monday, June 17, 2024

Evaluation Between Phases

- Defined evaluation points between phases for data-driven adjustments, coordination, and clear decision-making.
- **5-week interval between phases:**
 - 3 weeks for data analysis and collaboration between subject matter experts (SME)
 - 1 week for SME briefings and recommendations
 - 1 week for leadership decision-making
- ST's Chief Safety Office and SDOT's Senior Deputy Director served as decision-makers during the evaluation.

Community Engagement

Before the pilot:

- SDOT communicated with all modal boards.

Other activities before the pilot:

- Both agencies emailed elected officials.
- Drafted newsletter and sent internal agency notifications.
- Created a factsheet and posted it online.
- Emailed community organizations and advisory boards.
- Promoted via social media.

CORRIDOR UPDATE: Martin Luther King Jr. Way S

The Martin Luther King (MLK) Jr. Way S Corridor in Seattle is a busy route used by many people, including individuals and communities who have often struggled with safe and fair transportation. Right now, traffic lights in the corridor are mainly timed to help the light rail trains run on schedule. But this often means longer waits for people trying to cross the street or make left turns, which at times have led to unsafe crossings.

A New Pilot Study

Seattle Department of Transportation (SDOT) and Sound Transit (ST) are conducting a pilot study to test a method of signal light synchronization that if successful will increase efficiency and safety for all travelers on the corridor while keeping light rail trains running on time. We anticipate a three-phased study to evaluate varying conditions during non-passenger hours, the weekend, and weekdays.

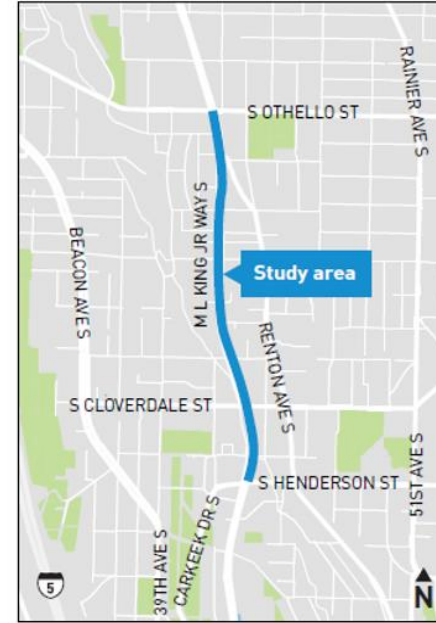
Data Collection & Future Adjustments

SDOT and ST will collect data pre- and post-implementation to assess the pilot's impact. The teams aim to enhance efficiency and safety in the corridor, reducing unsafe crossings and signal malfunctions.

What to Expect & When

The pilot area stretches from S Othello to S Henderson streets. The first study will begin on Sunday, March 3, 2024, between 1-4 AM. SDOT and ST workers will be visible along the corridor, and we anticipate minimal noise and disruption to personal travel. Thank you for your understanding during this time to study improvement possibilities.

Our teams hope to make crossing the MLK corridor more efficient and safer, effectively reducing instances of unsafe crossings, signal malfunctioning reports, and ensuring reliability for all travelers.



PROJECT INFORMATION & CONTACT
Call: 206-684-ROAD (7623)
Visit: What's Happening in Southeast Seattle
Email: SESeattleTransportation@seattle.gov



Pre-Identified Success Measures

- ✓ Maintain LRV travel times.
- ✓ Maintain or reduce the number of train stops along the corridor.
- ✓ Reduce average wait times for pedestrians.
- ✓ Collect feedback from community and operators.
- ✓ Reduce or prevent collisions and near misses involving LRV and general traffic.
- ✓ Decrease vehicle and pedestrian signal violations.



Conditions to Reverse Pilot Changes

As this is an in-field test, established clear thresholds to reverse timing if:

- Increase in safety incidents (collisions, near misses, incursions).
- New safety risks emerge, or existing risk worsen in severity or frequency.
- Travel time between stations increase by one minute.
- Two or more additional train stops occur between stations.
- Operators miss contractual minimum break times.
- Consistent and significant rider or operator complaints.



Field Testing

Phase 1 (Non-Service Hour):

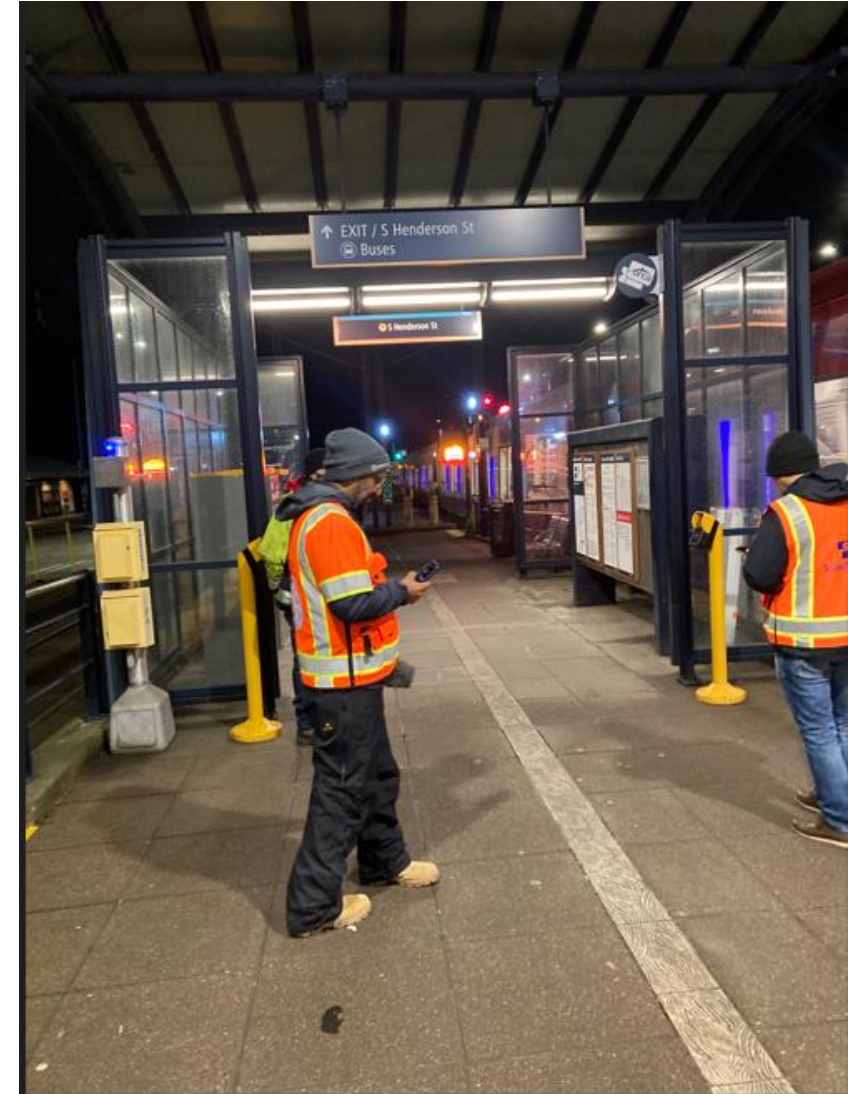
- ✓ Conducted on Sunday, March 3, 2024, from 1:30 to 4:30 AM.
- ✓ 8 staff members from SDOT, King County Metro, and Sound Transit participated.
- ✓ Out-of-service trains were scheduled to run.
- ✓ Staff monitored and observed from key locations and on trains.

Phase 2 (In-Service Weekend Hours):

- ✓ Conducted on Sunday, March 24, 2024, from Noon and 3 PM.
- ✓ Signal timing refined based on Phase 1 observations.
- ✓ Trains operated at a 10-minute frequency and staff observing from key locations.
- ✓ A total of 17 trains were observed in each direction.

Phase 3 (In-Service Weekday Hours):

- ✓ Conducted on Monday, June 17, 2024, started at 6 AM
- ✓ The pilot was halted after 2.5 hours, and original timing was restored.



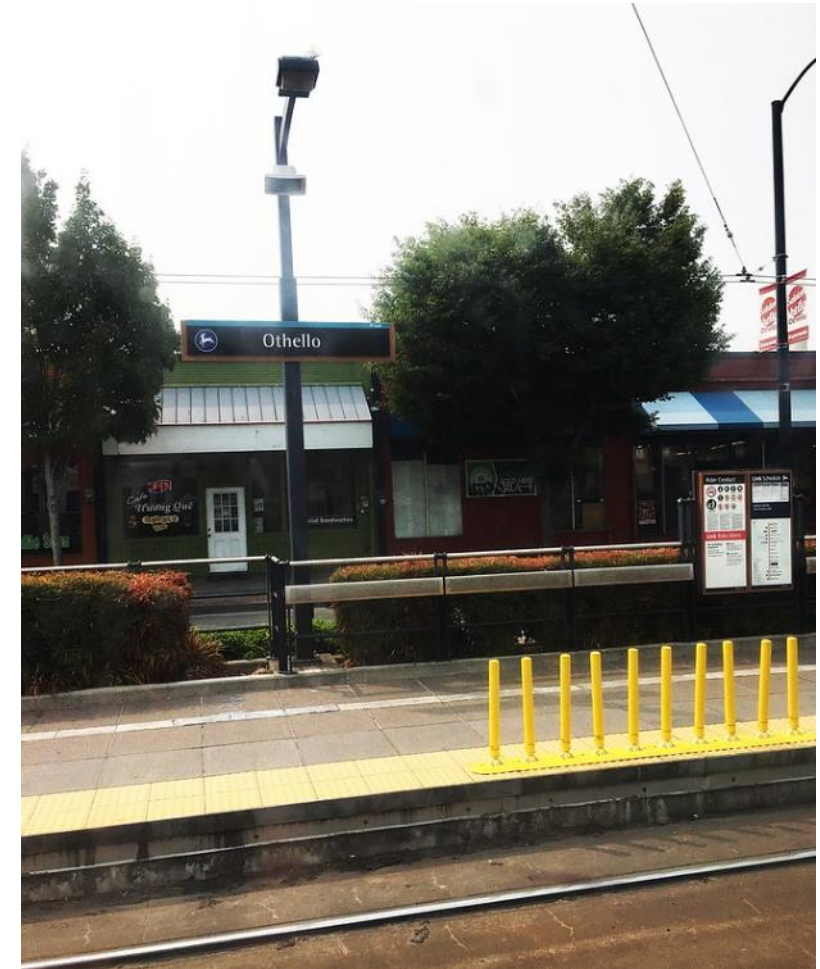
Adjustments between phases

- Coordinated mode in signal controller.
- How signals recover after an emergency vehicle preemption.
- Signal controller settings to extend the "proceed" indication time for trains.
- Partial priority settings in the controllers at both Othello St. and Henderson.
- Changed timing program setting for when trains leave the stations.



Key Observations and Findings

- In Phases 1 and 2, majority of trains travelled between stations without stopping
- Signal system occasionally forced full priority, leading to skipped pedestrian/vehicle phases and long wait times.
- Observed long dwell times at Henderson for departing trains.
- Trains did not consistently receive the signal to proceed, even when north/south MLK was green.
- Multiple "ghost trains" were observed in phases 2 and 3.
- In Phase 3, LRT travel times increased in both the NB and SB directions by roughly 30-45 seconds or a 20% to 30% increase.



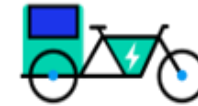
SMART Grant

Strengthening Mobility and Revolutionizing Transportation (SMART:) Established to conduct demonstration projects focused on advanced smart community technologies and systems to improve transportation efficiency and safety.

- Phase 1: Planning and Prototyping Grants
- Phase 2: Implementation Grants
- Sound Transit & SDOT were awarded a \$2 million Phase 1 - SMART Grant by the US DOT
- Funding will go towards planning, implementing and evaluating new technologies to enhance safety



CONNECTED
VEHICLES



DELIVERY/
LOGISTICS



SENSORS



SYSTEMS
INTEGRATION



COORDINATED
AUTOMATION



INNOVATIVE
AVIATION



SMART
GRID



TRAFFIC
SIGNALS



Next Steps

- Test a new signal system and controller firmware.
- Initial bench testing of several controller options has been completed.
- Use the SMART Grant Phase 1 to test these systems at select locations.
- Expand the new signal system if SMART Grant Phase 2 application is successful.
- In the meantime, make minor adjustments to the existing signal timing.



From the entire SDOT/ST Teams
Thank you!