

Transit Signal Priority (TSP) Update

Regional Traffic Operations Committee
(RTOC) Meeting

March 2023

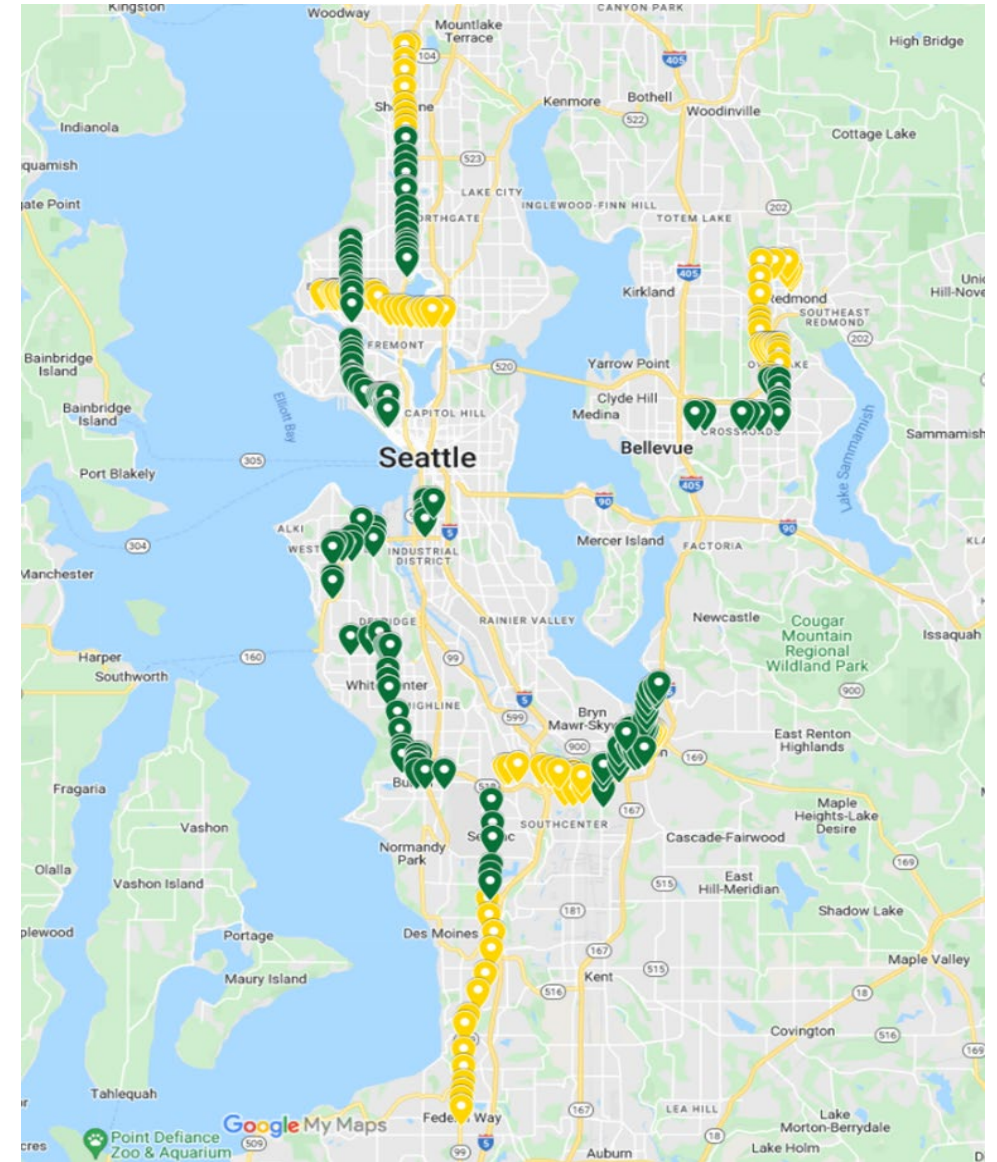


Outline

- Current TSP system
- Measured benefits
- Update on next-gen TSP
- Next-gen TSP integration plan
- Upcoming TSP corridors
- Discussion

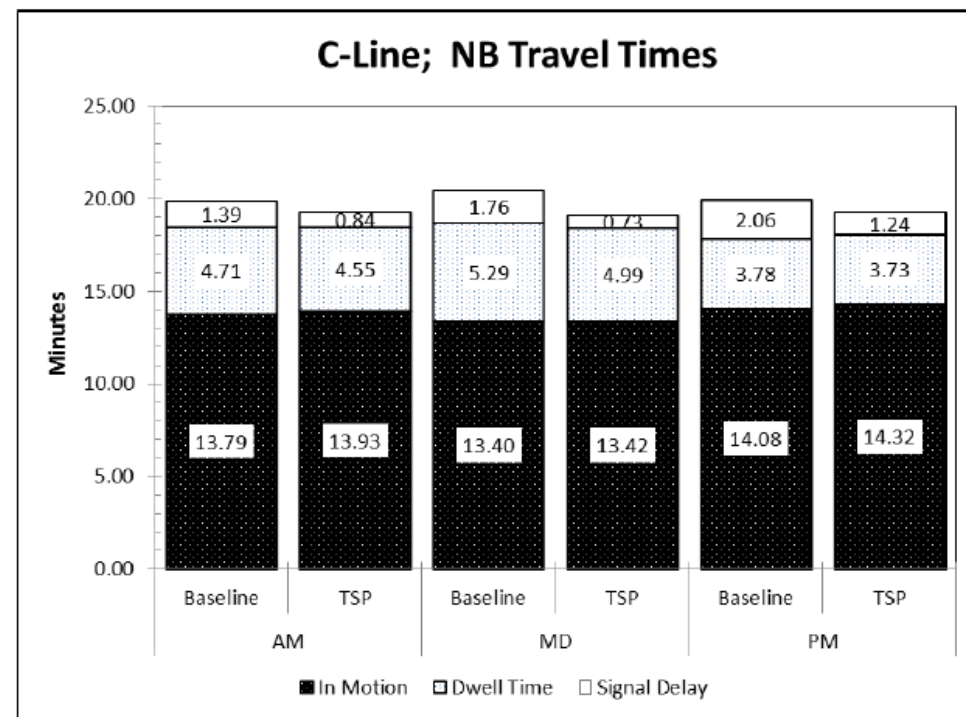
King County Metro TSP Today

- Operating at 200+ intersections
 - RapidRide corridors (A, B, C, D, E, F)
 - Other high-ridership corridors (44, 101, 120)
- Based on RapidRide ITS TSP system
- Hardware implemented at the intersection

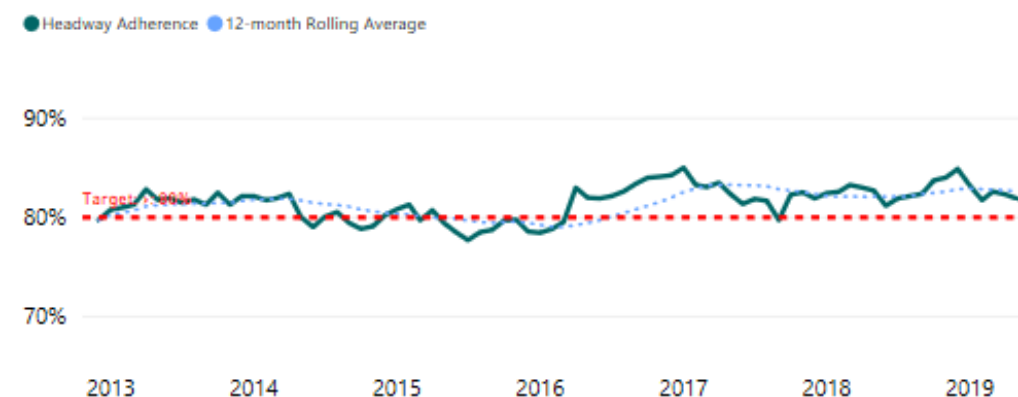


TSP Benefits Measured

- Delay Reduced
 - Signal delay reduced up to 14% [E-Line, 2014]
- Average Travel Times Reduced
 - 5% in peak periods [E-Line, 2014]
 - 5% in peak periods [A-Line, 2015]
 - 6% mid-day [A-Line, 2015]
 - 3% in peak periods [B-Line, 2016]
- Reliability Improvements
 - 6% fewer buses missing headway target all day [C & D Line, 2018]
 - 30% fewer buses missing headway target on PM outbound trips [C Line, 2018]



Trend

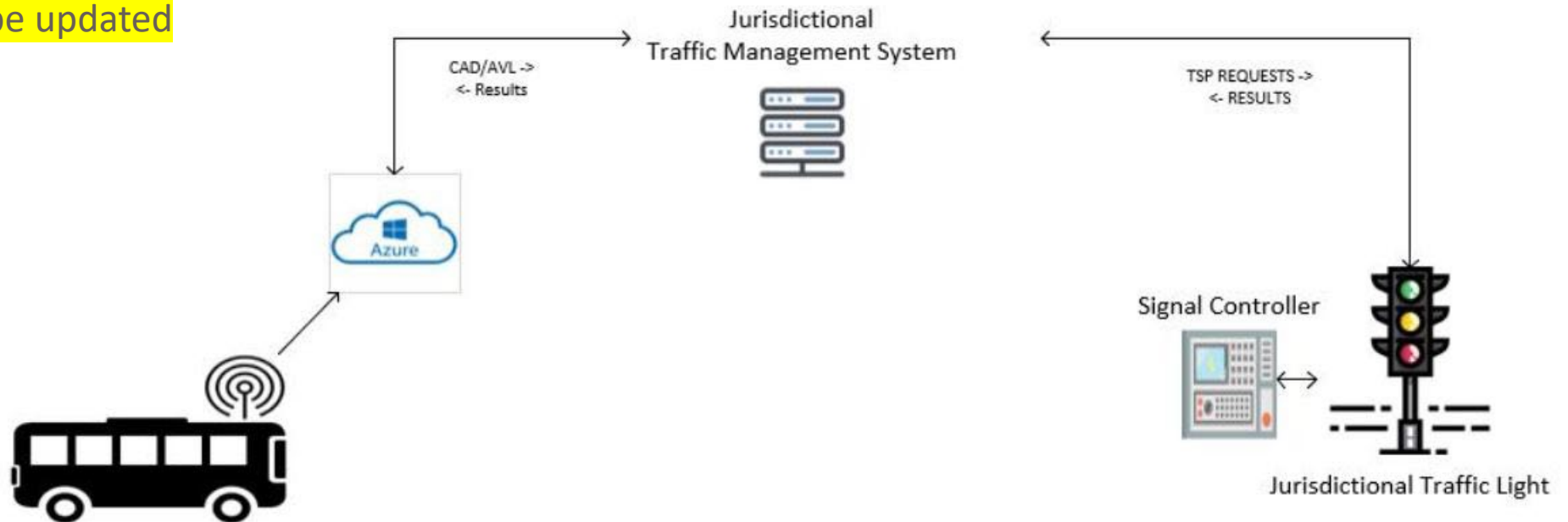


RapidRide C-Line Headway Adherence Trend

Next-Gen TSP

- Features:
 - Fully centralized, software-based system; no roadside hardware
 - Leverage city-owned communication to signal cabinets
 - Reduced cost per intersection to deploy

Graphic to be updated



Next-Gen TSP Requirements

- Jurisdiction-operated Priority Request Server (PRS) *OR* use Metro's PRS functionality that will be available soon
- Each Traffic signal controller must be connected to the jurisdiction's traffic network (fiber or other medium)
- Each traffic signal controller and software version must support centralized TSP (NTCIP 1211 compliant)
- Each intersection must have a signal controller and software version compatible with the centralized TSP system (specifics vary by vendor)
- Operating MOU with each jurisdiction is anticipated

Next-Gen TSP Current Status

- February 2023
 - All coaches set to transmit TSP messages at 1-second rate
 - KC-central server established (Azure Cloud Services)
 - Sending data and testing at initial test locations
 - Seattle (SEPAC)
 - Bellevue (SCATS)
 - Ongoing discussions with other local cities & King County Road Services
 - Contract in progress for 3rd Party solutions to provide PRG functionality to controllers (listed in the next slide) – Goal to onboard vendor is end of March 2023

Next-Gen TSP Integration Plan

- Siemens Tactics/SEPAC
 - **Seattle - 2023**
 - Renton
 - Kirkland
 - Shoreline
 - Tukwila
- Econolite Centracs/Cobalt EOS
 - **KC Roads - 2023**
 - **Burien - 2023**
 - **SeaTac - 2023**
 - Kent
 - Auburn
 - Federal Way
 - Redmond
- SCATS (Adaptive)
 - **Bellevue - 2023**
- SCOOT (Adaptive)
 - Seattle
 - Renton
 - Federal Way
- Intelight MAXTIME/MAXVIEW
 - WSDOT
 - Des Moines
 - Redmond

Upcoming TSP corridors

Corridor	Year	Jurisdictions	Scope
RapidRide D-Line	2022	Seattle	Testing, Replacement
RapidRide B-Line	2022	Bellevue, Redmond	Testing, Replacement
RapidRide H-Line	2023	Seattle, KC Roads, Burien	Optimization, Replacement
Route 44	2023	Seattle	Optimization, Replacement
RapidRide G-Line	2024	Seattle	New TSP Corridor
Route 48	2024	Seattle	New TSP Corridor
Route 124/131/132	2025	Seattle, KC Roads, Tukwila, Burien	New TSP Corridor (grant funded)
RapidRide J-Line	2027	Seattle	New TSP Corridor
RapidRide A-Line	TBD	SeaTac, Des Moines, Kent, Federal Way	Replacement
Route 40	TBD	Seattle	New TSP Corridor
RapidRide C-Line	TBD	Seattle	Replacement
RapidRide E-Line	TBD	Seattle	Replacement, Optimization?
RapidRide F-Line	TBD	Renton, Tukwila, Burien	Replacement, Optimization?
N/NE 145th St	TBD	Seattle, Shoreline	New TSP Corridor
Route 165/181	TBD	Kent, Auburn, Des Moines	New TSP Corridor

Discussion