

Transit Speed & Reliability

Spot Improvement Bi-Annual Report

December 2006

Transit Speed and Reliability (S&R) continues its efforts to improve traffic operations problems that affect the daily operation of Metro buses. Spot improvements are relatively low-cost, single location solutions that can be implemented to benefit transit with a minimum of impacts to other roadway users. Once reported and identified, spot improvements can take anywhere from a month to over two years to implement, depending on the nature of the problem, the solution, and agency staff resources. This bi-annual report highlights the spot improvements that have been completed within the past six months.

4th Avenue & S Jackson Street



Problem Reported

Many transit coaches make a westbound right-turn at this intersection, and there is a busy bus stop near-side of the intersection. Transit operators complained that other drivers were making an improper turn from the adjacent through-only lane, and cutting them off.

Assessment

S&R staff closely observed traffic operations at this location during peak and off-peak conditions. Staff concluded that the right-turn-only lane was adequately signed and marked, but that the markings were often obstructed by buses. S&R staff sent a request to the Seattle Department of Transportation (SDOT) to install additional markings in the through-only lane.

The Fix

SDOT installed additional lane markings in the through-only lane, consisting of an arrow and "ONLY" symbols placed on the pavement. The new markings clearly communicate the proper and legal usage of this lane.

Resolution

Vehicles making a westbound right-turn at this intersection now have a clear indication that they need to be in the curb lane to make this movement. The new markings should encourage vehicles to merge behind other vehicles, including buses that may already be waiting to make this turn.

Agency Staff Contacts

Eric Widstrand, SDOT
Owen Kehoe, KC Metro

14th Avenue & E Union Street



Problem Reported

Route 2 coaches traveling westbound through this intersection were having difficulty passing around a vehicle waiting to turn left, when the curb lane was occupied by parked cars. Operators requested parking restrictions near the intersection.

Assessment

S&R staff observed operations, took measurements at the intersection, and worked with SDOT to develop a solution. It was determined that two full-width travel lanes could be provided for westbound traffic by simply shifting the center line a few feet to the south. This would achieve the desired effect without the need to eliminate any on-street parking.

The Fix

The centerline was shifted and additional lane striping was added to the eastbound and westbound approaches, to provide two full-width travel lanes on both intersection approaches.

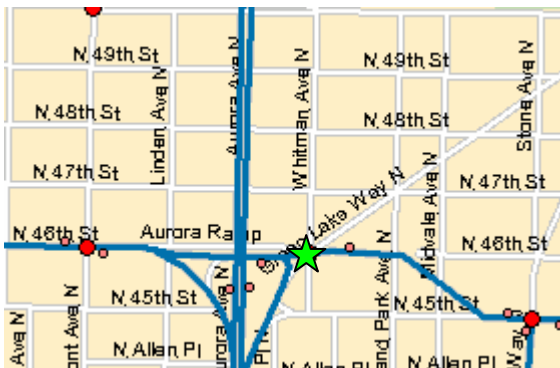
Resolution

Coaches are now able to easily move around other vehicles, if there are any waiting to turn left. In addition, buses can use the additional lane to bypass other queued vehicles and move easily into the far-side bus zone.

Agency Staff Contacts

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N 46th Street / Green Lake Way N / Aurora NB Off-ramp



Problem Reported

Route 44 operators reported excessive delay while traveling eastbound and westbound through the intersection. Coaches would idle at the red light for long periods while little traffic was served in the opposing directions.

Assessment

S&R Staff obtained signal timing information, traffic counts, and made several field visits. It was determined that the signal used the same timing plan throughout the day and was not effectively detecting traffic to adjust the timing.

The Fix

SDOT installed a new video-detection system and revised the signal phase order. The video detection allows the traffic signal to adjust to changing traffic conditions.

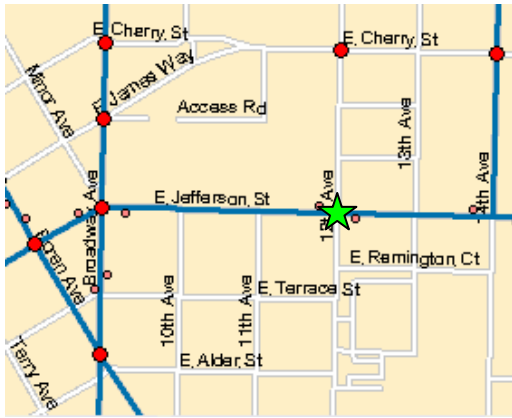
Resolution

The signal is now more responsive to the immediate traffic demands, which reduces delay to east-west traffic, particularly during mid-day periods.

Agency Staff Contacts

Nuru Tuku, SDOT
Owen Kehoe, KC Metro

12th Avenue & E Jefferson Street



Problem Reported

During a recent effort to improve on-time performance along important transit routes, this signal was flagged as a major source of delay to Metro routes 3 and 4.

Assessment

Based on feedback received from the on-time performance evaluation, S&R staff investigated the signal timing at this location. After making field observations, collecting traffic data, and evaluating alternatives in a traffic model, it was found that some green time could be shifted to East-West traffic with few impacts to North-South traffic.

The Fix

New signal timing plans were developed for the AM, mid-day, and PM periods. The proposed timing plans were reviewed, approved, and installed by SDOT staff.

Resolution

The new timing provides an additional 8 to 18 seconds of green time for east-west traffic, which reduces delay to the bus routes 3 & 4, plus others.

Agency Staff Contacts

Ralph Carroll, SDOT Adiam Emery, SDOT
Owen Kehoe, KC Metro

East Marginal Way S & S Ellis Ave



Problem Reported

During a recent effort to improve on-time performance along important transit routes, this signal was flagged as a major source of delay to Metro routes 131/134 and 60.

Assessment

S&R staff investigated the signal timing at this location, then evaluated and proposed several alternate signal timing strategies for SDOT's consideration.

The Fix

The cycle lengths of this signal and other nearby signals were reduced by 10 seconds.

Resolution

The reduction in cycle length effectively reduces the amount of time that traffic approaching on Ellis Ave. has to wait for a green signal.

Agency Staff Contacts

Joe Couples, SDOT Adiam Emery, SDOT
Owen Kehoe, KC Metro

24th Avenue W & W Galer Street



Problem Reported

Operators reported that it was difficult and time-consuming to turn left from this stop-controlled intersection. An all-way stop was requested.

Assessment

S&R staff investigated the intersection and collected traffic counts. The traffic volumes did not meet national guidelines for installation of an all-way stop control. However, some overgrown foliage was discovered encroaching into the public right-of-way, which was obstructing sight lines.

The Fix

Transit Route Facilities staff made a request to have the foliage trimmed by the property owner. The offending shrubbery was subsequently eliminated.

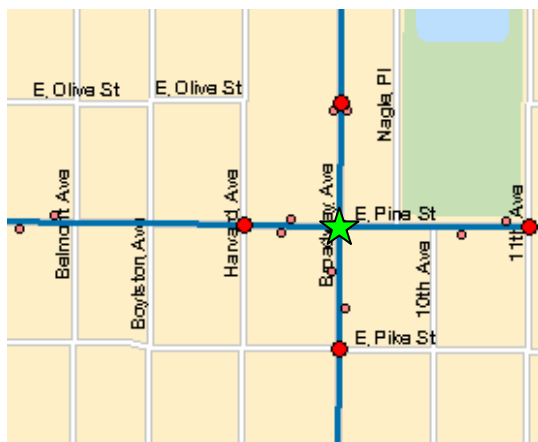
Resolution

The improved sight lines make it easier for southbound traffic, including Metro routes 19, 24, and 33, to see when it is safe to proceed through the intersection.

Agency Staff Contacts

Owen Kehoe, KC Metro Mary Bemowski, KC Metro

Broadway Avenue & E Pine Street



Problem Reported

Route 49 coaches had a difficult time making the eastbound left-turn due to a heavy flow of oncoming traffic and pedestrians.

Assessment

S&R staff collected traffic counts, transit coach delays, and submitted requests to SDOT to install left-turn phasing for buses making this movement.

The Fix

New protective-permissive left turn signals were installed for the eastbound and westbound left turns.

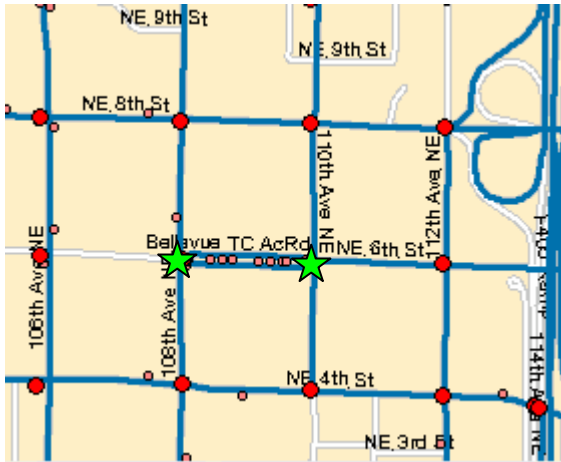
Resolution

Route 49 coaches can now complete the eastbound left turn more easily and with less delay.

Agency Staff Contacts

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Bellevue Transit Center



Problem Reported

City of Bellevue engineering staff contacted S&R about a problem with coaches parking on their traffic signal loop detectors at both ends of the BTC while loading passengers or while on layover. Parking on the loops caused the traffic signals to needlessly hold a green light for the Transit Center roadway, which caused delays to traffic approaching from other directions, including other buses. Also, some transit operators reported not knowing exactly where some of the loop detectors were located to activate the traffic signal for their direction.

Assessment

S&R staff worked with the City of Bellevue and Metro Safety and Training Officers to develop a solution. Designations were needed to tell transit operators where to stop their coach while serving the bus zone, and where to stop in order to be detected by the traffic signal.

The Fix

A distinctive pavement marking was installed at the front of the bus zones and over the loop detectors, to clearly communicate to operators the location of the loop detector. A special blue light illuminates when the detectors are triggered.

Resolution

These measures have resulted in near-uniform compliance in keeping parked or loading coaches off of the loops, allowing the signal to operate efficiently. A similar treatment was installed at the South Bellevue Park & Ride, where loop detectors are used to activate transit signal priority timing.

Agency Staff Contacts

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1st Avenue & Denny Way



Problem Reported

Both transit and general purpose traffic were observed waiting for more than one signal cycle to clear this intersection during the PM peak hour. The traffic queue was observed to back up past the 1st Avenue & Broad Street intersection during the PM peak hour.

Assessment

S&R staff worked with SDOT to develop solutions to improve general traffic flow, and also to allow buses to bypass the traffic queues.

The Fix

On-street parking along the east curb was restricted and a PM peak period transit lane was installed between Broad Street and Denny Way. Previously, some signal timing adjustments were made to improve traffic flow northbound on 1st Avenue.

Resolution

Routes 1, 2, 13, 15L and 18L coaches now have a dedicated lane to use on 1st Avenue approaching Denny Way, greatly improving travel time and schedule reliability.

Agency Staff Contacts

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