



# Establishment of Triggers

## Executive Summary

### Second Montlake Bridge Workgroup

June 2012



# EXECUTIVE SUMMARY – THE CONDITIONS AND TRIGGERS

## Brief Summary Conditions and the Triggers

Each trigger is addressed in far greater depth in an individual section in the report. The purpose of this section is to briefly introduce the issue and the trigger. Each issue was explored as an independent issue. The collection of research, background, and analysis is presented as a “white paper” dealing with the topic. Each of the white papers has been included in this document as discussed and accepted by the Second Montlake Bridge workgroup.

## Bicycle and Pedestrian Mobility

**Conditions:** The Montlake Bridge is a critical connection between the University of Washington and all of northeast Seattle with SR 520 and points east of Seattle, Interstate 5, and the neighborhoods of Montlake and Capitol Hill. For bicyclists, it is a key connection between the Lake Washington Loop and the Burke-Gilman trail. These two routes are among the most highly used bicycle routes in the region. Due to the multitude of activity centers and major vehicle and transit corridors converging at this point, the bridge is a highly used facility.

The bridge sidewalks are the main pathway for pedestrians and cyclists and are a bottleneck due to the narrowness of the facility and the volume of people crossing. The sidewalks for pedestrians and bicycles are operating at a level of service that is “very poor” and occasionally “failing” on average, during peak times. For example, volumes of pedestrians and bicycles observed and recorded during the 2011 Bicycle and Pedestrian count found that the west sidewalk of the bridge was operating at a “failed” level of service in the afternoon peak hour. These conditions marginally meet, and occasionally fail to meet, the policy standards set by the Seattle Comprehensive Plan and as delineated in the Seattle Bicycle Master Plan and the Pedestrian Master Plan.

Mobility improvement projects now funded and under construction, U-Link/Husky Stadium Station, SR 520 Bicycle and Pedestrian path over Lake Washington, and improvements to the Burke/Gilman Trail connections at the Montlake Triangle (as part of the University of Washington’s Rainier Vista project) will improve access for growing numbers of pedestrians and cyclists in the area.

**Trigger:** If the calculated Shared Use Path Level of Service (SUPLOS), reaches level of service “F,” or failed conditions, consistently during at least one peak period, for more than three months of a single year the trigger has been met. While any “failed” SUPLOS condition is incompatible with established City of Seattle policy, the condition must exist to the degree that addressing the condition provides significant benefits.

**Future Conditions:** The future events of U-Link and the SR 520 regional shared use path indicate that bicycle and pedestrian traffic on the Montlake Bridge are very likely to increase. The precise amount of increase is predicted, but unknown. There are many assumptions made about

the daily and seasonal variation in pedestrian and bicycle traffic on the Montlake Bridge, yet little is actually known other than four annual one day counts each conducted in early fall. The annual monitoring program appears insufficient to determine on-going non-motorized level of service conditions on the bridge. A quarterly Montlake Bridge pedestrian and bicycle volume monitoring program should be developed and results should be reported annually to ascertain the current level of service being provided on the bridge. However, it must be recognized that the resources to conduct such a monitoring and reporting effort have not been identified.

## Transit Speed and Reliability

**Conditions:** The Montlake Bridge is an important linkage in the local and regional transit network. Metro and Sound Transit operate 10 routes across the Montlake Bridge with seven routes coming from SR 520 and three operating locally through the Montlake corridor. There are over 600 transit trips with nearly 11,000 transit passengers that cross the Montlake Bridge daily. Of these 600 daily transit trips 55% of those trips make local connections between the University District and the Rainer Valley, First Hill, Central Seattle, and Capitol Hill. The slight minority of trips make regional connections between the University District and Eastside locations, such as Bellevue and Redmond.

The City of Seattle, King County Metro, and Sound Transit have made it clear through their policies that improvements in transit travel time and reliability in this corridor are important. Given the dynamic nature of pre-toll and post-toll traffic on the Montlake Boulevard corridor, 2011 performance data was selected as a baseline for comparison of transit travel time, speed, and passenger delay. In 2011 local transit routes serving the Montlake corridor failed to meet King County Metro service guidelines for reliability in some time periods while in other time periods they appear to be close to thresholds that indicate further action to ensure on-time performance.

A correlation between adopted transit performance standards and measures, current transit performance, and the traffic conditions directly related to the Montlake drawbridge could not be specifically established. However, because King County Metro schedule reliability thresholds have been reached or exceeded in some areas and time periods, the Second Montlake Bridge workgroup developed a transit trigger that provided for future flexibility. This trigger requires continued monitoring of the corridor and consideration of transit improvements that are consistent with adopted policies and plans.

### Trigger:

**Step 1** -- If future conditions degrade beyond 2011 baseline conditions by any measure, speed or passenger delay, and for any time period, AM peak, midday, PM peak, a process to identify transit operating enhancements is triggered. The amount of change beyond 2011 baseline conditions will determine the level of transit enhancements indicated for the corridor. Metro, City of Seattle, and WSDOT will work to identify potential projects to bring transit travel times and passenger delay back to 2011 levels, or better.

**Step 2** -- If transit enhancement measures employed in **Step 1** are exhausted and are not able to improve transit operations to 2011 conditions based on a minimum of six months measurement following implementation of all transit enhancements, the trigger would then be



met to consider the potential benefits to transit of constructing a second Montlake bridge. It is anticipated that additional analysis will be required if the second step trigger is met to determine the benefit to transit of a second bridge so that there is assurance that construction of a second bridge will actually resolve the speed and delay issues experienced by transit and improve conditions to the 2011 baseline, or better.

**Future Conditions:** Future conditions in the Montlake Corridor with respect to transit speed and total passenger delay will depend on several factors including but not limited to the following:

1. Traffic volume
2. Light rail implementation
3. Draw bridge opening frequency
4. Changes in transit ridership
5. Levels of boarding and alighting at transit stops
6. Traffic signal operations
7. Transit priority improvements

These conditions and projects in addition to general growth in the Greater Puget Sound area could have an effect on how people choose to travel in the area. In addition to meeting local policies to improve transit, these and potential other projects and policies illustrate the need for continued monitoring of transit conditions into the future. King County Metro currently collects the data necessary to monitor conditions in the corridor but the resources necessary to analyze the data and report the results of the analysis have not been identified.

## SR 520 Mainline Operations

**Conditions:** The Montlake ramps play a significant role in traffic delay and congestion on SR 520. Ramps that particularly influence mainline traffic flow are the eastbound off-ramp and the eastbound on-ramp. While the westbound on and off ramps also have an influence, it is far less of a “normal” condition than those produced by the eastbound ramps. The presence of the Montlake bridge plays no role in the on-ramps’ impact on mainline operations. Therefore, the focus of existing conditions is on the eastbound off-ramp.

The bridge impacts this location in two ways, one as a capacity restriction and secondly due to marine operations which close the span to through traffic, particularly in midday, weekday operations. The first of these conditions was found to have minimal, if any, influence on SR 520 mainline operations. Other capacity restrictions in the corridor exert far more influence. Bridge operations do, however, impact mainline operations, particularly in the eastbound direction. Anecdotal information suggests that tolling has not influenced this particular aspect of mainline operations. In fact, there is evidence that suggests traffic volumes on the eastbound off ramp and westbound on ramp have increased in the post-tolling conditions. Nevertheless, due to the availability of data, the baseline conditions and analysis were conducted using pre-toll traffic conditions and data.

While a second bridge has no influence over the frequency of bridge lift activity, the presence of a second bridge does influence how quickly the traffic queues from bridge opening dissipate and traffic conditions return to “normal” following a bridge lift event. Traffic modeling for the second bridge predicts up to a 5% improvement in traffic flow recovery following a bridge lift event. Therefore, the trigger has been framed to focus on that influence.

**Trigger:** If SR 520 mainline congestion that occurs as a result of Montlake bridge openings exceeds an average of 100 minutes per day for any six month period, the trigger is met. If met, roadway improvements would be considered to reduce congestion. Those roadway improvements could include a second Montlake Bascule Bridge.

Congestion is defined as mainline average speed of 20 MPH, or less, in the right, or outside, lane. The threshold of 100 minutes is established in combination with the projected 5% reduction in recovery time from the ESSB 6392 traffic models to obtain a daily reduction in mainline congestion of five minutes. This is the minimum level at which a second bridge could provide meaningful traffic flow recovery benefit.

**Future Conditions:** Planned modifications with the SR 520 project include a reconstructed Montlake interchange that will include expanded storage for vehicles waiting to enter Montlake Boulevard as well as improved signal operations. The characteristics of traffic flow in the entire Montlake area have changed as a result of tolling. Over time, traffic volumes will likely continue to adjust to tolling in the corridor and in the region. Traffic volumes will also change as Sound Transit’s various Link projects are implemented, roadway infrastructure improvements are constructed, and improved cross-lake regional transit services are implemented. Continued monitoring and reporting of traffic congestion will help decision makers understand how people respond to the future projects and determine what improvements might be necessary to maintain mobility in the region.