

Follow Up Analysis and Questions from Technical Workshops

Metro Staff has developed analysis and responses for several questions that came from the Technical Workshops and subsequent discussions. Below is a synopsis of each of these follow-ups, broken out by those related to changes to the target service level analysis and other follow ups. An additional service type has also been analyzed, but will be discussed in a different forum. Staff can provide more detailed technical information for those who are interested.

Potential changes to Target Service Level Analysis

1. **Social Equity Gradation:** During the technical workshops, Task Force members commented that the scaling of Social Equity points might reduce the impact of Social Equity when evaluating corridors. In addition, there were concerns that more emphasis was given to Geographic Value than Social Equity due to the difference in the ways that they were scaled. Given these differences, Metro has made a revision to the Social Equity gradation to bring it more in line with the way that Geographic Value is scaled. This change is described below:
 - **Current Social Equity Scoring:**

Points	Description
0	Below average boardings in low income or minority census tracts
5	Average or above boardings in low income or minority census tracts
 - **Technical Workshop Social Equity Gradation:**

Points	Description
0	Lowest average boardings in low income or minority census tracts
1	Below average boardings in low income or minority census tracts
2	Below average boardings in low income or minority census tracts
3	Average boardings in low income or minority census tracts
4	Above average boardings in low income or minority census tracts
5	Highest above average boardings in low income or minority census tracts
 - **Revised Social Equity Scoring:**

Points	Description
0	Below average boardings in low income or minority census tracts
3	One-half standard deviation below average boardings in low income or minority census tracts
5	Average or above boardings in low income or minority census tracts

This change to the social equity scoring increases the need on corridors by about 63,000 hours. This is reflected in the revised investment need in number 3 below.

2. **Park and Ride Scoring:** During the technical workshops, questions were raised as to why park-and-ride lots below 150 stalls in size were not included in the analysis. In response, Metro revised the park-and-ride scoring to include all park-and-ride lots along corridors in Metro's system (instead of the 150 stall threshold that was described in the Technical Workshops). Doing this increases the target service level need by 24,900 hours for a total of 53,300 hours of need increase for the park-and-ride analysis. This is reflected in the revised investment need in number 3 below.
3. **Revised investment need:** Given the changes to the analysis described above, the investment need that was provided in the Technical Workshops has increased, as shown in the columns in the right in the table below. In our original changes to the analysis that were presented at the technical workshops, the investment need increased over the current need by 148,100 hours. In the further revisions described above (changes to social

equity gradation and including all park-and-rides in the analysis), plus the correction of a mistake found with the original analysis, the revised need would increase over the current need by 275,800 hours. It was also requested that these numbers be provided some context as they related to our current system, so that was also added. As can be seen in the results below, the East historical subarea would grow by about 24 percent over the current service level, the South historical subarea would grow by about 36 percent over the current service level, and the West historical subarea would grow by about 17 percent over the current service level if we had the funding available.

		Investment Need in three different options							
Historical Subarea	Current system makeup (hours)	Current Methodology		Workshop Corridor Analysis			Revised Corridor Analysis		
		Hours of need	% of need	Hours of need	% of need	% growth over current	Hours of need	% of need	% growth over current
EAST	520,483	61,700	13%	106,250	17%	20%	125,150	16%	24%
SOUTH	733,409	170,400	35%	202,700	32%	28%	265,150	35%	36%
WEST	2,143,514	252,100	52%	323,350	51%	15%	369,700	49%	17%
Total	3,397,406	484,200	100%	632,300	100%	19%	760,000	100%	22%

Other Follow up Items

- Impact of Geographic Value Gradation on Access to Low Wage Jobs:** In the target service level analysis, by increasing the definition of low income from 100 percent of the federal poverty level to 200 percent of the federal poverty level, we would be providing more access to destinations for more low income populations that are between 100 and 200 percent of the poverty level. **This change to the target service level analysis would allow Metro to serve people who are likely to be employed in low wage jobs better, but would not link these people to more low-wage jobs, as we would not be changing the footprint of the transit system.** Metro is seeking to address access to low-wage jobs more effectively through an expansion of our alternative services program. In the future, and through our long range plan effort, we would be able to measure the change in the number of destinations people could access more easily. Metro will be able to look more closely at how changes to our transit network impact people’s ability to get around.
- Cost comparison of Alternative Services:** Metro has developed a cost comparison of the three Alternative Services projects that were implemented to mitigate the reductions that occurred in September 2014: Snoqualmie Shuttle, Mercer Island Shuttle, and Burien Shuttle. Because the Snoqualmie and Mercer Island Shuttles replaced the connectivity provided by two routes, Metro estimated the cost based on the portion of the original routes served.

Snoqualmie Shuttle	
Route	Total Cost
209*	\$142,000
215*	\$119,000
Alt Svc 628	\$251,000**

Mercer Island Shuttle	
Route	Total Cost
202*	\$228,000
Alt Svc 630	\$152,000

Burien Shuttle	
Route	Total Cost
139	\$416,000
Alt Svc 631	\$123,000

* Cost is calculated based on the proportion of the previous route that is covered by Alternative Services

** The number of trips on Route 628 increased significantly over both of the previous fixed route services, which accounts for the higher cost.

***The numbers above do not account for partner contribution.

A detailed cost comparison of the Snoqualmie Valley Shuttle, implemented in September 2014, is available in the 2014 Service Guidelines Report.

6. **Impact of bus base location:** Metro analyzed the impact that the location of bus bases has on route performance. Metro provides service out of seven bus bases located across King County. While the location of the bus bases does impact route performance, it has a much smaller impact than the characteristics of the service (one-way, peak-only routes or two-way, all-day routes). **The time spent driving one-way without passengers has a greater impact on performance than the location of the bases.**

Metro routes travel, on average, 7.5 miles from the base to the start of the route each day. Additional information about the distance routes travel from the base to the start of the route is below:

- Routes leaving from Bellevue, East, and South Bases tend to travel greater distances to start the route.
- Peak-Only Routes also tend to travel a greater distance to start their routes than All-Day Routes.
- Peak-Only routes at Bellevue, East, and North Bases travel a greater distance to the start of the route than the All-Day routes from those bases.

The table below shows the miles traveled by All-Day and Peak-Only Routes from the base to start the route.

Average Miles Traveled From Each Base to the Start of Routes			
Location (area of county)	Name of Base	Average Miles Traveled by All-Day Routes	Average Miles Traveled by Peak-Only Routes
Central (Seattle – SODO)	Atlantic	3.1	--
	Central	4.8	4.8
	Ryerson	6.5	6.2
East (Bellevue)	Bellevue	8.2	10.8
	East	8.9	10.3
North (Shoreline)	North	5.7	6.0
South (Tukwila)	South	11.5	11.4

The biggest indicator of route performance is the **amount of time a route spends operating without passengers onboard the bus**. All-Day Routes operate in revenue service (with passengers) approximately 73% of the time, compared with Peak-Only Routes, which operate in revenue service approximately 57% of the time. The table below breaks down the hours on routes at each base into two categories: percent of hours traveling with passengers (in revenue service) and the percent of hours not traveling with passengers (driving to start or end a route, layover, etc). The larger amount of time that Peak-Only Routes drive without picking up passengers is the strongest indicator of route performance.

Breakdown of Peak-Only Routes Service Hours			
Location (area of county)	Name of Base	Percent of Hours Traveling with Passengers	Percent of Hours Not Traveling with Passengers
Central (Seattle – SODO)	Atlantic	--*	--*
	Central	56%	44%
	Ryerson	60%	40%
East (Bellevue)	Bellevue	64%	36%
	East	53%	47%
North (Shoreline)	North	60%	40%
South (Tukwila)	South	56%	44%

*No Peak-Only Routes come from Atlantic Base

Summary finding: While base location does have a modest impact on route performance, the greatest indicator (for all routes at all bases) is whether routes are one-way, peak-only routes or two-way, all-day routes. The Task Force is considering changes to service types as a way to address this impact.