

600,000 Service Hour Reduction Process

The following discussion provides an illustrative scenario that reduces 600,000 annual service hours using the priorities for reduction in the middle of page SG-15 of the Guidelines document. For this exercise, all estimates of annual hours saved are planning level approximations. The actual savings could differ significantly, especially for routes that are restructured. In order to create this scenario in advance of the availability of final fall 2010 (October 2010 to February 2011) ridership and service data, fall 2009 ridership and service data is used. In any actual major service reduction or restructure proposal, the most recent data available for each route would be used and would be available for review.

The four priorities for reduction shown on page SG-15 are:

1. Reduce low-productivity services
2. Restructure service to improve efficiency
3. Reduce higher-productivity services
4. Reduce low-productivity services in areas identified as under-served

The service hour reduction scenario derives much of the reduction from restructures that change how service is provided along a corridor or within an area to improve the efficiency and effectiveness of service provided. The restructures presented as part of this scenario would significantly alter how people in these areas would use public transportation to meet their travel needs. As with all major changes, Metro would be required to engage the public in the restructure planning process. This engagement may result in changes to what is originally proposed.

Priority 1: Reduce Low Productivity Services

Low productivity services are routes that score in the bottom 25 percent of rides per platform hour or passenger miles per platform mile within one of the two categories of service (Seattle Core or Non-Seattle Core) and at least one of the three time periods (Peak, Off-Peak, and Night). About 22 percent or 755,000 service hours fall below the 25 percent productivity threshold. This scenario reduces approximately 220,000 hours under the four categories listed in Priority 1 of the guidelines:

Table 1: Priority 1 Low Productivity Services

Categories	Routes subject to this cut	Action(s) to Routes	Hours of service reduced
1) All-day routes that do not provide service on all-day corridors	14N, 22, 38, 42, 51, 53, 81, 82, 84, 99, 134, 139, 200, 203, 280, 912, 913, 919, 927	Delete Route	85,000
2) Peak routes that meet none or only one of the criteria for peak service	34, 45, 46, 79, 110, 116, 118 EX, 119 EX, 129, 161, 162, 175, 196, 201, 210, 211, 217, 250, 260, 265, 268, 277	Delete Route	84,000
3) All-day routes that operate on over-served corridors	23, 118, 119, 236, 238, 251, 935	Reduce frequency, eliminate night service.	31,000
4) All-day routes that operate on appropriately-served corridors	23, 25, 27, 118, 119, 149, 150, 209, 224, 251, 269, 930, 935	Reduce frequency	20,000
TOTAL			220,000 annual Service hours

Examples of the process used to determine these reductions are attached as Exhibit 1 to this document.

As stated in the next-to-last paragraph on page SG-15 of the guidelines, Metro serves some urbanized areas of south and east King County where connections need to be preserved. For this reason, 177,000 annual hours of the low productivity service was retained to maintain the all-day network connections to activity centers throughout the county, and peak service where a reasonable alternative was not available or service provided needed capacity. For example:

- Low performing all-day service that serves urbanized areas of east and south King County that are adjacent or surrounded by rural land, including routes 149, 209, 224, and 251.
- Low performing all-day service that is under-served, including routes 25, 27, 33, 132, 908, 909. Note that some of these routes are restructured later in order to improve their efficiency.
- Peak-only service that have a travel time advantage and did not have an easily accessible alternative service for customers to use, including routes 35, 37, 114, 154, and 157.
- Peak-only service that prevents overcrowding on the remaining network of service, including routes 214, 215, and 216.

Priority 2: Restructure Service

The remaining 358,000 low-productivity service hours become candidates for restructures designed to improve the efficiency of the system. They include routes 2, 8, 12, 14, 17, 21, 24, 28, 30, 31, 39, 48, 55, 56, 60, 66, 70, 152, 159, 179, 190, 192, 202, 204, 205, 255, 257, 271, and 311. Service restructures are changes to multiple routes along a corridor or within an area. Restructures may be prompted for a variety of reasons but in general are made to improve the efficiency and effectiveness of transit service. Service Restructure guidelines (page SG-10) identify reasons that could trigger restructures:

- Sound Transit or Metro service investments
- Corridors above or below All-Day and Peak Network frequency
- Services compete for the same riders
- Mismatch between service and ridership
- Major transportation network changes
- Major development or land use changes

Restructures are usually performed on several corridors in an area due to the significant interplay between routes. Restructures affect all routes within an area, not just low performing routes. Metro has a series of service design guidelines beginning on page SG-11 of the Guidelines document that would be used during this process to ensure that service is highly productive, easy to operate and relevant to the needs of the community.

On the follow page, Table 2 identifies potential restructure as part of this scenario.

In this scenario, Metro saved approximately **256,000** annual service hours through restructuring. The savings would be achieved by reducing services that are duplicative (or overlap) with each other, reducing service where ridership is low, and consolidating services into a smaller number of more efficient route designs.

Table 2: Possible Areas for Restructure

Restructure	Low Productivity Routes incorporated in restructure	ST/ Metro Investments	Corridor Above/ Below Network Freq	Service Duplication (competes for riders)	Mismatch between service and ridership	Major Transportation Network Changes	Major Development/ Land Use Changes	Potential Savings (Hours)
Queen Anne	2 EX	X		X	X			6,000
Ballard/ Fremont/ Magnolia	17, 24, 28, 30, 31, 33, 48	X	X	X	X		X	20,000
Central Seattle	12, 14, 27			X	X			88,000
U. District/ NE Seattle	25, 66, 70			X	X			56,000
West Seattle	21, 35, 55, 56	X		X	X	X		15,000
Rainier Valley/ Duwamish/ Burien	7 EX, 23, 34 EX, 39, 123, 131, 132	X	X	X	X			24,000
Renton Highlands	908, 909			X				4,000
Kent/ Kent East Hill/ Star Lake	152, 159	X		X				6,000
Federal Way	179, 187, 192			X	X			16,000
Auburn	152, 190			X				3,000
Bellevue- Eastgate- Issaquah	222, 271	X			X	X		5,000
Kirkland/ Totem Lake	236, 238, 255, 257, 311	X	X		X	X		3,000
Newcastle	114, 925			X				4,000
Mercer Island	202, 203, 205	X		X				5,000
Total Potential Savings								256,000

Priority 3: Reduce higher productivity services

Other corridors would experience cuts despite their higher productivity scores in order to preserve the All Day and Peak Network. Although the Guidelines document identified two categories used to determine Priority 3 reductions, in fact three categories are used.

- all-day routes not on the All-Day Network
- peak routes that meet both peak route criteria or are above the 25% threshold,
- routes on All-Day corridors with appropriate service levels.

The Guidelines document combined the second and third categories and needs to be corrected to separate all-day and peak since no peak route is considered part of an All-Day Network corridor. Cuts in these categories resulted in approximately 124,000 hours, the remaining hours needed to reach the 600,000 hours target:

Categories	Hours of service cut
All-day routes not on the all-day network	19,000
Peak routes that meet both peak route criteria or are above the 25% threshold	38,000
All-day corridors with appropriate service levels	67,000
TOTALS	124,000

All-day routes not on the all-day network

All-day routes that were eliminated or reduced because they duplicate others include routes 51, 53, 139, 213, 280, 914, 916, and 919. In most cases, these routes were performing only slightly above the low productivity threshold.

Peak routes that meet both peak route criteria or are above the 25% threshold

Peak routes that were eliminated or reduced and performed above the low productivity threshold or were poorly performing but meeting both criteria include routes 2 EX, 7 EX, 111, 123, 133, 157, 167, 173, 177, 214, 232, 242, 308, and 312, and 918. Similar to the all-day routes, most of these routes just exceed the low performance threshold. In addition, some of the routes duplicate other Metro or Sound Transit routes and capacity exists to shift riders on to those services. For example, Route 312, which has very good productivity, can be shortened slightly while the riders on the eliminated segment could ride Sound Transit Route 522.

All-day corridors with appropriate service levels

Some all-day service was reduced on corridors that have appropriate service levels according to the process outlined in the Service Guidelines, creating new under served corridors. In most cases frequency was reduced when ridership is lower, especially on weekends and at night, instead of trimming span or eliminating weekend service. This was done to ensure that a basic level of mobility would be maintained on the corridors at times when the routes currently operate. Routes that experienced these types of reductions included: Route 7, 101, 105, 107, 118, 148, 150, 155, 166, 169, 180, 181, 186, 187, 221, 222, 233, 240, 245, 246, 248, 249, 251, 331, 345, 346, 347, 348, 903, and 909.

Summary of Process

By following the three step process outlined above, 600,000 annual hours of service were identified for elimination. The hours saved by each step can be summarized as follows:

Step	Hours of service cut (% of 600,000 hours cut)
Low Productivity	220,000 (37%)
Restructures	256,000 (43%)
Above low productivity	124,000 (21%)
TOTAL	600,000 (100%)

While all parts of the County would experience a significant reduction in service hours, no one area was disproportionately impacted.

	Hours of service cut (% of 600,000 hours cut)
East	134,000 (22%)
South	140,000 (23%)
West	326,000 (55%)
TOTAL	600,000 (100%)

After the reductions of 600,000 hours of service are completed, the remaining system is distributed as follows:

	Hours of service (% of total hours)
East	462,000 (16%)
South	620,000 (21%)
West	1,813,000 (63%)
TOTAL	2,895,000 (100%)

Exhibit 1: Example Low Productivity Routes

Priority 1: Reduce Low Productivity Services

- 1) All-day routes that do not provide service on all-day corridors of the All-Day and Peak Network

Route 913

Productivity	Peak	Peak	Off Peak	Off Peak
<i>Routes that do not serve the Seattle core</i>	Rides/ Plat Hr	Pass Mi / Plat Mi	Rides / Plat Hr	Pass Mi / Plat Mi
25% Threshold	11.11	2.62	11.30	3.00
Route 913	3.12	0.76	3.18	0.79

To be provided:
Map of 913

Route 913 is suggested for complete elimination at all time periods because the route performs below the 25% productivity thresholds in all times periods and is not the primary route in the corridor on the All-Day and Peak Network.

**Suggested Service Change:
Deletion**

Priority 1: Reduce Low Productivity Services

2) Peak routes that meet none or only one of the criteria for peak service of the All-Day and Peak Network

Route 79

Productivity	Peak	Peak
<i>Routes that serve the Seattle core</i>	Rides/ Plat Hr	Pass Mi / Plat Mi
25% Threshold	17.95	8.88
Route 79	12.93	4.92

Map of 79
to be provided

Route 79 fails both the travel time advantage of 20% over the next fastest alternative and does not meet the 90% ridership threshold. Route 79 performs poorly compared with other routes serving the Seattle core during the peak period.

Suggested Service
Change:
Deletion

Priority 1: Reduce Low Productivity Services

3) All-day routes that operate on over-served corridors

Route 236

Productivity	Peak	Peak	Off Peak	Off Peak	Night	Night
<i>Routes that do not serve the Seattle core</i>	Rides/ Plat Hr	Pass Mi / Plat Mi	Rides / Plat Hr	Pass Mi / Plat Mi	Rides / Plat Hr	Pass Mi/ Plat Mi
25% Threshold	11.11	2.62	11.30	3.00	11.37	3.75
Route 236	8.91	2.65	8.20	3.19	3.43	1.24

Map of 236
to be provided

Route 236 is the primary route serving a corridor connecting Totem Lake and Kirkland. The recommended reductions can be made without causing the corridor to become under served.

Guidelines Suggested service levels			
	Peak	Off-Peak	Night
Totem Lake to Kirkland	≥ 60	≥ 60	--
Route 236 current	30	30	≥ 60

Suggested Service Change:

- Reduce peak and off-peak service to 60 minutes
- Eliminate night service.

Priority 1: Reduce Low Productivity Services

4) All-day routes that operate on appropriately served corridors

Route 251

Productivity	Off Peak	Off Peak
<i>Routes that do not serve the Seattle core</i>	Rides / Plat Hr	Pass Mi / Plat Mi
25% Threshold	11.30	3.00
Route 251	5.17	2.08

Map of 251
to be provided

Route 251 falls below the 25% productivity threshold during the off peak time period. However Route 251 provides a primary connection for the corridor between Woodinville and Redmond via Cottage Lake. This route is not subject to deletion as it serves urban areas adjacent to rural lands.

Guidelines suggested service	Off-Peak
Woodinville to Redmond recommended service level	≥ 60
Route 251 current	60

Suggested Service Change:
Route 251 can be reduced to every 2 hours and still maintain the appropriate guidelines-suggested service levels.