

Working Draft for Regional Transit Task Force 7/15/10

R-1 Reduction Network Design – Application of Criteria

Using the key factors affecting the design and allocation of transit services and pursuing direction as heard to date, the following examples of service design criteria, design parameters, criteria checklist, and measures emerge. *NOTE: items in blue below update the tables on pages 4-5 of the white paper “A Scenario for Service Reduction” provided to the task force on July 1. The order of Criteria has been changed, but they retain the number corresponding with the white paper.*

STEP ONE

Objective: Eliminate all service which fails to meet a minimum productivity standard of 15 rides per platform hour.

Key Factors Affected: Financial Sustainability and Productivity/Efficiency

Criteria	R-1 System Design Parameters	R-1 Criteria Checklist	Measures
7. Control costs and provide a stable baseline service level of transit services and programs.	Eliminate, reduce or redesign routes that fall below a productivity threshold of 10 rides per platform hour or 50 passenger miles per platform hour.	<p>Eliminate routes that fail to generate 15 rides per platform hour or 50 passenger miles per platform hour.</p> <p>Reduce span of service of routes during time periods¹ that generate less than 15 rides per platform hour or 50 passenger miles per platform hour.</p>	<p>Rides per platform hour</p> <p>Passenger miles per platform hour</p>

STEP TWO

Objective: Restore network continuity and ensure primary policy objectives are met.

Key Factors Affected: Land Use, Economic Development, Social Equity and Geographic Balance

Criteria	R-1 System Design Parameters	R-1 Criteria Checklist	Measures
2. Provide transit services with a priority on employment centers where the most people, jobs and job growth are present and in corridors with high park-and-ride demand and available capacity.	<p>Create a network that places a priority on:</p> <ul style="list-style-type: none"> Routes connecting high density neighborhoods with primary employment centers and nearby secondary employment centers.² Routes connecting high demand park and rides with primary employment centers Routes connecting primary and secondary employment centers 	<p>All higher density³ neighborhoods will have one route that connects to the primary employment center either directly or with a transfer to a fast service, such as Metro Rapid Ride, ST Sounder, Link or Express Bus.</p> <p>All high demand⁴ park and rides will have a direct route to at least one primary employment center</p>	<p>Areas within ½ mile of bus stop or 1 ½ miles from P&R where ST bus or rail services exist</p> <p>All day Frequent service: percent of Frequent Arterial trips serving areas > 3 households per acre</p> <p>All day Frequent service: percent of frequent Arterial trips serving designated urban and manufacturing centers</p>

¹ Time periods used correspond to those used in Route Performance Report and include Peak, Off Peak and Night.

² Primary employment centers are areas such as downtown Seattle and downtown Bellevue; Secondary employment centers are such as South Lake Union and Tukwila

³ Higher density equals more than 3 households per acre.

⁴ High demand equals more than 250 daily boardings.

Criteria	R-1 System Design Parameters	R-1 Criteria Checklist	Measures
		All adjacent employment centers will be connected to the network by at least one route.	<p>Higher density neighborhoods and high demand park and rides to employment centers: For each higher density neighborhood and park and ride, calculate the percent of employment centers with a reasonable⁵ connection.</p> <p>Higher density neighborhoods and high demand park and rides to employment centers: For each employment center, calculate the percent of high density neighborhoods and high demand park and rides with reasonable connections.</p> <p>Employment center connectivity: Calculate the percentage of adjacent employment centers that are connected by at least one route.</p>
5. Deliver transit service throughout Metro's service area and match the right type of service with the market served.	<p>Create or maintain <i>Local</i> routes that will complement the <i>Frequent Arterial</i> and Sound Transit's regional bus and rail network in locations when demand warrants and resources are available.</p> <p>Maintain geographic coverage and service to people whose primary transportation is transit with <i>Local</i> or <i>Hourly</i> routes or other Metro services providing basic mobility.</p>	<p>In areas with 3 or more households per acre:</p> <ul style="list-style-type: none"> provide at least one Frequent route if the area has more than 10,000 residents provide at least one Local route if the area has more than 3,000 residents provide at least one Peak Commuter route if the area has less than 3,000 residents <p>In areas with fewer than 3 households per acre:</p> <ul style="list-style-type: none"> provide at least one Peak Commuter or Hourly route if the area has more than 5,000 residents <p>Provide at least one Hourly route to all suburban and rural centers⁶ that have a minimum of 1,500 residents</p>	<p>Geographic Balance: percent of areas with densities of 3 or more households per acre and more than 10,000 residents that have at least one Frequent route.</p> <p>Geographic Balance: percent of areas with densities of 3 or more households per acre and more than 3,000 residents that have at least one Local route.</p> <p>Geographic Balance: percent of areas with densities of 3 or more households per acre and less than 3,000 residents that have at least one Peak Commuter route.</p> <p>Geographic Balance: percent of areas with densities of fewer than 3 households per acre and more than 5,000 residents that have at least one Peak Commuter route.</p> <p>Geographic Balance: percent of suburban and rural centers of 1,500 residents with at least one Local route.</p>
1. Provide transit services to serve the mobility needs of students, people in low wage jobs and people dependent on transit for basic mobility in places where the highest numbers of such people live and work.	Maintain and improve the design of the current network of <i>Frequent Arterial</i> all-day routes connecting centers and serving the places where the most people live and work.	Geographic coverage and frequency of service in areas with greater proportion of minority and/or low-income residents should be equal or better to areas with lower than the countywide average of minority or low-income residents	<p>Within low-income and minority census tracts: Access: percent within ¼ mile of bus stop or 1 ½ miles of P&R</p> <p>All day Frequent service: percent within ¼ mile of bus stop with frequent arterial service</p> <p>All day Local service: percent within ¼ mile of bus stop with local service</p>

⁵ A reasonable connection is defined as being a travel time by transit being no more than twice the approximate travel time by car.

⁶ Examples of suburban and rural centers include Black Diamond, Carnation and Fall City.

STEP THREE

Objective: Reach reduction target by improving efficiency of network.

Key Factors Affected: Financial Sustainability and Productivity/Efficiency

Criteria	R-1 System Design Parameters	R-1 Criteria Checklist	Measures
<p>4. Provide transit services that are designed to maximize productivity and cost effective use of resources.</p>	<p>Consolidate multiple routes into fewer or one <i>Frequent Arterial</i> route in corridors with more than one route, except in locations close to urban and activity centers where routes converge.</p> <p>Reconfigure and/or eliminate <i>Peak Commuter</i> service where Sound Transit Regional Express Bus, Sounder and Link or Metro Rapid Ride provides adequate alternative travel option. Redirect some <i>Local</i> routes to feed Regional Express Bus, Link, Sounder and <i>Frequent Arterial</i> services. In doing so, maximize Sound Transit’s regional bus and rail network by providing bus service from communities directed at making convenient connections with, or “feeding” ST services, rather than directed at the same regional destinations.</p>	<p>Route density/duplication: no more than one <i>Frequent Arterial</i> routes serving the same origins/destinations should operate per direction per one mile grid where walk access up to ½ mile is likely⁷</p> <p>Route density/duplication: eliminate routes where ST services are serving the same origins/destinations</p>	<p>Spacing of <i>Frequent Arterial</i> routes are ½ mile or greater for at least 50% of the total route miles, not including corridors where routes converge to access or leave urban and activity centers</p> <p>Outside of an urban center, no arterial corridor should have more than one bus route going to the same destination.</p>
<p>6. Prioritize services to the most productive corridors that serve the most people, while matching the frequency, hours of operation and type of transit services to the market.</p>	<p>Discontinue nonproductive neighborhood segments of <i>Peak Commuter</i> routes, requiring riders to drive to a park-and-ride even as some low use park and rides would be closed and underperforming routes’ resources are re-allocated to more productive services.</p>	<p>For <i>Peak Commuter</i> or <i>Frequent Arterial</i> service, revenue hours time spent picking up or dropping off the first or last 10% of riders should be no greater than 10% of total running time, not including terminal routing or layover time.</p> <p>Park and rides with utilization below 50% may have service eliminated if another park and ride with enough capacity is a reasonable alternative⁸.</p>	<p>Percent of running time for segment of route where first/last 10% of riders are picked up or dropped off</p> <p><i>Peak Commuter</i> service efficiency: Provide service to park and rides with utilization of 50% or more.</p>
<p>3. Match the frequency and hours of operation of transit services to the market.</p>	<p>Restructure routes to improve the productivity and efficiency of the Metro system, which may include shortening or creating more direct routing for some routes (within all families of service) and that may eliminate some geographic coverage.</p>	<p><i>Peak Commuter</i> services are sized (number of trips and total seats) to the demand on each corridor.</p> <p>Areas that are currently “over-served”⁹ will have service reduced or eliminated.</p> <p>Areas that are currently “under-served”¹⁰ will have service increased if resources allow.</p>	<p><i>Peak Commuter</i> service efficiency: average .7 or higher passenger load factor for the a.m. peak period</p> <p>Ensuring Appropriate Service Levels: percent of “over-served” and “under-served” areas.</p>

⁷ Customers are expected to walk up to ½ mile only under ideal walking conditions. Hills, lakes, poor or no sidewalks will reduce walking distances and may require a higher density network of routes to overcome difficulties in accessing transit.

⁸ A reasonable alternative is defined as a either a park and ride within fifteen minutes driving time in the direction of travel or a park and ride within seven minutes driving time in the opposite direction of travel.

⁹ An “over-served” area is defined as an area that generates less than 10 rides per platform hour.

¹⁰ An “under-served” area is defined as an area that generates more than 60 rides per platform hour.