

Service Guidelines Task Force

4. Service Guidelines

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Introduction

This section contains the service guidelines, which are part of Metro’s strategic plan. This document is the core subject of the task force, which will recommend revisions to the guidelines. This section also provides materials that explain how Metro uses the guidelines in planning additions, reductions, and restructures to service.

Links to Information

1. 2014 Service Guidelines Report: http://bit.ly/sgtf4_1
2. 2013 Service Guidelines Report: http://bit.ly/sgtf4_2
3. 2012 Service Guidelines Report: http://bit.ly/sgtf4_3
4. 2011 Service Guidelines Report: http://bit.ly/sgtf4_4
5. Service Guidelines Task Force Website: <http://www.kingcounty.gov/sgtaskforce>

Metro Service Guidelines

Introduction

Metro has developed service guidelines that it will use to design and modify transit services in an ever-changing environment. The guidelines will help Metro make sure that its decision-making is objective, transparent, and aligned with the regional goals for the public transportation system. These guidelines enable Metro to fulfill Strategy 6.1.1 in its *Strategic Plan for Public Transportation 2011-2021*, which calls for Metro to “Manage the transit system through service guidelines and performance measures.”

Metro will use the guidelines to make decisions about expanding, reducing and managing service, to evaluate service productivity, and to determine if service revisions are needed because of changes in rider demand or route performance. Guidelines are also intended to help Metro respond to changing financial conditions and to integrate its services with the regional transportation system.

The guidelines are designed to address productivity, social equity and geographic value. These factors are applied within the guidelines in a multi-step process to identify the level and type of service, along with additional guidelines to measure service quality, define service design objectives and to compare the performance of individual routes within the Metro service network to guide modifications to service following identified priorities. The guidelines work as a system to emphasize productivity, ensure social equity and provide geographic value in a balanced manner through the identification of measurable indicators associated with each factor and the definition of performance thresholds that vary by market served, service frequency and locations served. They are also intended to help Metro respond to changing financial conditions and to integrate its services with the regional transportation system.

A central piece of the service guidelines is the All-Day and Peak Network, which establishes target service levels for transit corridors throughout King County. Productivity, social equity and geographic value are prioritized in this three-step process:

- **Step one** establishes initial service levels for corridors based on how well they meet measurable indicators reflecting productivity, social equity, and geographic value. Indicators of high productivity (using measurable land use indicators closely correlated with transit productivity) make up 50 percent of the total score, while geographic value and social equity indicators each comprise 25 percent of the total score in this step.
 - **Productivity** indicators demonstrate market potential of corridors using land use factors of housing and employment density.
 - **Social Equity** indicators provide an evaluation of how well corridors serve concentrations of minority and low-income populations by comparing boardings in these areas along each corridor against the systemwide average of all corridor boardings within minority and low-income census tracts.
 - **Geographic Value** indicators establish how well corridors preserve connections and service throughout King County.

The cumulative score from this step indicates the initial appropriate frequency for service in the corridor.

- **Step two** makes adjustments to the assigned step-one service family based on current ridership, productivity, and night network completeness. Adjustments are only made to assign corridors to a higher service level; service frequencies are not adjusted downward in this step.

- **Step three** defines the peak overlay for the All-Day and Peak Network. This step evaluates whether or not peak service provides a significant ridership or travel time advantage over the local service.

The All-Day and Peak Network will be analyzed annually concurrent with Metro's reports on the application of the service guidelines. Using this network as a baseline and as resources allow, Metro will work to adjust service levels to better meet the public transportation needs of King County.

Other guidelines are grouped into the following categories:

- **Performance management**
These guidelines establish standards for productivity, passenger loads, and schedule reliability. Metro will use these guidelines to evaluate individual routes and recommend changes to achieve efficient and effective delivery of transit service as part of ongoing system management and in planning for growth or reduction.
- **Service restructures**
These guidelines define the circumstances that will prompt Metro to restructure multiple routes along a corridor or within an area.
- **Service Design**
These are qualitative and quantitative guidelines for designing specific transit routes and the overall transit network.
- **Use and implementation**
This section describes how Metro will use all guidelines, how they will be prioritized to make recommendations about adding, reducing or adjusting service, and how the performance of individual bus routes and the Metro system as a whole will be reported.

The service guidelines provide Metro with tools to ensure that decisions about Metro's service network are transparent, consistent, and clear. These guidelines will be reported on and reviewed annually to ensure that they are consistent with Metro's strategic plan and other policy goals.

All-day and peak network

Metro strives to provide high-quality transit service to a wide variety of travel markets and a diverse group of riders. Metro designs its services to meet a number of objectives:

- Support regional growth plans
- Respond to existing ridership demand
- Provide productive and efficient service
- Ensure social equity
- Provide geographic value through a network of connections and services throughout King County.

Metro is building a network of services to accomplish these objectives. The foundation of the All-Day and Peak Network is a set of two-way routes that operate all day and connect designated regional growth centers, manufacturing/industrial centers, and other areas of concentrated activity. All-day service is designed to meet a variety of travel needs and trip purposes throughout the day. Whether riders are traveling to work, appointments, shopping, or recreational activities, the availability of service throughout the day gives them the ability to travel when they need to. The All-Day and Peak Network also includes peak service that provides faster travel times, accommodates very high demand for travel to and from major employment centers, and serves park-and-ride lots in areas of lower population density.

A key step in developing the All-Day and Peak Network is to determine the service levels that meet the needs of King County’s diverse communities. Metro determines these service levels through a three-step process:

First, service levels are set by scoring all corridors using six measures addressing land use, social equity, and geographic value. Corridors with higher scores are assigned higher levels of service. Second, service levels are adjusted based on existing ridership. Corridor service levels are increased when the service level suggested in step-one would not be adequate to accommodate existing riders, would be inconsistent with service levels set for RapidRide services, or would leave primary connections without night service. Third, peak service that enhances the all-day network is determined using travel time and ridership information.

These steps provide broad guidance for establishing a balance of all-day service levels and peak services and may change as conditions do. The target service levels may also be revised as areas of King County grow and change. Metro does not have sufficient resources to fully achieve the All-Day and Peak Network today. The service-level guidelines, used in combination with the guidelines established for managing the system, will help Metro make progress toward the All-Day and Peak Network.

Service levels are defined by corridor rather than by route to reflect the fact that there may be multiple ways to design routes to serve a given corridor, including serving a single corridor with more than one route. The desired service levels can be achieved through service by a single route or by multiple routes.

Metro evaluated 113 corridors where it provides all-day service today and 94 peak services provided today. The services in these corridors include those linking regional growth centers, manufacturing/industrial centers, and transit activity centers; services to park-and-rides and major transit facilities; and services that are geographically distributed throughout King County. The same evaluation process could be used to set service levels for corridors that Metro does not currently serve.

All-day and peak network assessment process

STEP-ONE: SET SERVICE LEVELS	
Factor	Purpose
Land Use	Support areas of higher employment and household density
Social Equity and Geographic Value	Serve historically disadvantaged communities
	Provide appropriate service levels throughout King County

STEP-TWO: ADJUST SERVICE LEVELS	
Factor	Purpose
Loads	Provide sufficient capacity for existing transit demand
Use	Improve effectiveness and financial stability of transit service
Service Span	Provide adequate levels of service throughout the day

STEP-THREE: IDENTIFY PEAK OVERLAY	
Factor	Purpose
Travel Time	Ensure that peak service provides a travel time advantage compared to other service alternatives
Ridership	Ensure that peak service is highly used

OUTCOME: ALL-DAY AND PEAK NETWORK

Step-One: Set service levels

Service levels are determined by the number of households and jobs in areas with access to a corridor, by the proportion of historically disadvantaged populations near the corridor, and by the geographic distribution of regional growth, manufacturing/industrial, and transit activity centers in King County. These factors give Metro a way to take into account the elements that make transit successful as well as the populations and areas that must be served to support social equity and deliver geographic value. Each corridor is scored on six factors, and the total score is used to set service levels in a corridor. Each corridor is intended to have the identified frequency during some or all of the time period listed.

Land use factors

The success of a transit service is directly related to how many people have access to the service and choose to use it. Areas where many people live and work close to bus stops have higher potential transit use than areas where few people live and work close by. Areas that have interconnected streets have a higher potential for transit use than areas that have fewer streets or have barriers to movement, such as hills or lakes. The land-use factors Metro uses to determine service levels are the number of households and jobs located within a quarter-mile walking access of stops. The quarter-mile calculation considers street connectivity; only those areas that have an actual path to a bus stop are considered to have access to transit. This is an important distinction in areas that have a limited street grid or barriers to direct access, such as lakes or freeways. The use of land-use factors is consistent with Metro's *Strategic Plan for Public Transportation 2011-2021* because it addresses the need for transit to serve a growing population (Strategy 3.2.1) and encourages land uses that transit can serve efficiently and effectively (Strategy 3.3.1)

Social equity and geographic value factors

As it strives to develop an effective transit network that ensures social equity and provides geographic value, Metro considers how the network will serve historically disadvantaged populations, transit activity centers, regional growth centers, and manufacturing/industrial centers. As a way to achieve social equity, Metro identifies areas where low-income and minority populations are concentrated as warranting higher levels of service. Metro also identifies primary connections between centers as warranting a higher level of service, to achieve both social equity and geographic value. Primary connections are defined as the predominant transit connection between centers, based on a combination of ridership and travel time.

Centers represent activity nodes throughout King County that form the basis for a countywide transit network. The term "centers," as defined in the strategic plan, refers collectively to regional growth centers, manufacturing/industrial centers, and transit activity centers. Regional growth centers and manufacturing/industrial centers are designated in the region's *Vision 2040* plan. Metro identified transit activity centers beyond the Puget Sound Regional Council (PSRC)-designated centers to support geographic value in the distribution of its transit network throughout King County. Transit activity centers include major destinations and transit attractions such as large employment sites, significant healthcare institutions and major social service agencies. Transit activity centers represent activity nodes throughout King County that form the basis for an interconnected transit network throughout the urban growth area of King County.

Each transit activity center identified in Appendix I meets one or more of the following criteria:

- Is located in an area of mixed-use development that includes concentrated housing, employment, and commercial activity
- Includes a major regional hospital, medical center or institution of higher education located outside of a designated regional growth centers
- Is located outside other designated regional growth centers at a transit hub served by three or more all-day routes.

The size of these transit activity centers varies, but all transit activity centers represent concentrations of activity in comparison to the surrounding area.

The use of factors related to social equity and geographic value is consistent with the *Strategic Plan for Public Transportation 2011-2021*. The use of social equity factors guides transit service to provide travel opportunities for historically disadvantaged populations (Strategy 2.1.2). Factors concerning transit activity centers and geographic value guide service to areas of concentrated activity (Strategy 3.4.1) and ensure that services provide value in all areas of King County. Regional growth centers, manufacturing/industrial centers, and transit activity centers are listed in Appendix 1.

Revisions to Appendix 1 Centers in King County

The list of centers associated with the All-Day and Peak Network is adopted by the King County Council as part of Metro's service guidelines. However, the region's growth and travel needs are anticipated to change in the future. The following defines centers and guides additions to this list.

Regional Growth and Manufacturing/Industrial Centers

Additions to and deletions from the regional growth and manufacturing/industrial Centers lists should be based on changes approved by the PSRC and defined in *Vision 2040*, or subsequent regional plans.

Transit Activity Centers

Additional transit activity centers may be designated in future updates of the service guidelines. Additions to the list of transit activity centers will be nominated by the local jurisdictions and must meet one or more of the above criteria, plus the following additional criteria:

- Pathways through the transit activity center must be located on arterial roadways that are appropriately constructed for transit use.
- Identification of a transit activity center must result in a new primary connection between two or more regional or transit activity centers in the transit network, either on an existing corridor on the All-Day and Peak Network or as an expansion to the network to address an area of projected all-day transit demand. An expansion to the network indicates the existence of a new corridor for analysis.
- Analysis of a new corridor using step-one of the All-Day and Peak Network assessment process must result in an assignment of 30-minute service frequency or better.

Thresholds and points used to set service levels

Factor	Measure	Threshold	Points
Productivity (Land Use)	Households within ¼ mile of stops per corridor mile	>3,000 HH/Corridor Mi	10
		>2,400 HH/Corridor Mi	8
		>1,800 HH/Corridor Mi	6
		>1,200 HH/Corridor Mi	4
		>600 HH/Corridor Mi	2
	Jobs & student enrollment at universities & colleges within ¼ mile of stops per corridor mile	>10,250 Jobs & students/Corridor Mi	10
		>5,500 Jobs & students/Corridor Mi	8
		>3,000 Jobs & students/Corridor Mi	6
		>1,400 Jobs & students/Corridor Mi	4
		>500 Jobs & students/Corridor Mi	2
Social Equity	Percent of boardings in low-income census tracts ¹	Above system average	5
		Below system average	0
	Percent of boardings in minority census tracts ²	Above system average	5
		Below system average	0
Geographic Value	Primary connection between regional growth, manufacturing/industrial centers	Yes	5
		No	0
	Primary connection between transit activity centers	Yes	5
		No	0

Frequency based on total score

Scoring Range	Peak Service Frequency (minutes)	Off-Peak Service Frequency (minutes)	Night Service Frequency (minutes)
25-40	15	15	30
19-24	15	30	30
10-18	30	30	--
0-9	60 or less (≥ 60)	60 or less	--

1 Low-income tracts are those where a greater percentage of the population than the countywide average has low incomes, based on current American Community Survey data.

2 Minority tracts are defined as tracts where a greater percentage of the population than the Countywide average is minority (all groups except White, non-Hispanic), based on current census data.

Step-Two: Adjust service levels

After setting service levels on the basis of the six factors in step-one, Metro adjusts the levels to ensure that the All-Day and Peak Network accommodates current ridership levels. Corridor service levels are increased if providing service at the levels established under step-one would not accommodate existing riders, would be inconsistent with policy-based service levels set for RapidRide services or would result in an incomplete network of night service³.

Thresholds used to adjust service levels

Factor	Measure	Threshold	Adjustment to warranted frequency		
			Service level adjustment	Step 1 frequency (minutes)	Adjusted frequency (minutes)
Cost recovery	Estimated cost recovery by time of day – if existing riders were served by step-one service levels	>100% in any time period	Adjust two levels	15 or 30	<15
				≥ 60	15
		Peak >50%	Adjust one level	15	<15
				30	15
		Off-peak >50%	Add night service	≥ 60	30
		Night >33%		--	30
Night >16%	--	≥ 60			
Load	Estimated load factor ⁴ by time of day – if existing riders were served by step-one service levels	>1.5	Adjust two levels	15 or 30	<15
				≥ 60	15
		>0.75	Adjust one level	15	<15
				30	15
				≥ 60	30
Service span	Connection at night	Primary connection between regional growth centers	Add night service	--	≥ 60
		Frequent peak service	Add night service	--	30

Metro also adjusts service levels on existing and planned RapidRide corridors to ensure that identified service frequencies are consistent with policy-based service frequencies for the RapidRide program: more frequent than 15 minutes during peak periods, 15 minutes during off-peak periods, and 15 minutes at night. Where policy-based service frequencies are more frequent than service frequencies established in step-two, frequencies are improved to the minimum specified by policy.

³ An incomplete network of night service is defined as a network in which night service is not provided on a primary connection between regional growth centers or on a corridor with frequent peak service. Provision of night service on such corridors is important to ensure system integrity and social equity during all times of day.
⁴ Load factor is calculated by dividing the maximum load along a route by the total number of seats on a bus, to get a ratio of riders to seats.

The combined outcome of steps one and two is a set of corridors with all-day service levels that reflect factors concerning land use, social equity, geographic value, and ridership. These corridors are divided into families based on the frequency of service, as described in the Service Families section below. Corridors with the highest frequency would have the longest span of service.

Step-Three: Identify peak overlay

Peak service adds value to the network of all-day service by providing faster travel times and accommodating very high demand for travel to and from major employment centers. Peak service thresholds ensure that peak service is well-used and provides benefits above the network of all-day service. Service levels on peak routes are established separately from the all-day network because they have a specialized function within the transit network.

Thresholds for peak services

Factor	Measure	Threshold
Travel Time	Travel time relative to alternative service	Travel time should be at least 20% faster than the alternative service
Ridership	Rides per Trip	Rides per trip should be 90% or greater compared to alternative service

Metro considers travel time and ridership to determine where peak service is appropriate. Peak service in a corridor that also has all-day service should have higher ridership and faster travel times than the other service to justify its higher cost. If peak service does not meet the load and travel-time thresholds but serves an area that has no other service, Metro would consider preserving service or providing service in a new or different way, such as connecting an area to a different destination or providing alternatives to fixed-route transit service, consistent with Strategy 6.2.3.

Peak service generally has a minimum of eight trips per day on weekdays only. Peak service is provided for a limited span compared to all-day service. The exact span and number of trips are determined by demand on an individual route basis.

Evaluating new service

Metro has defined the current All-Day and Peak Network on the basis of appropriate levels of service for all-day and peak services within King County today. However, the service assessment processes described in the guidelines should also be used when Metro is considering and evaluating potential or proposed new services, including new service corridors. They should also be applied over time to determine appropriate levels of service, including the need for new services and service corridors as areas of King County change.

Service families

All-Day and Peak Network services are broken down by level of service into five families. Service families are primarily defined by the frequency and span of service they provide. The table below shows the typical characteristics of each family. Some services may fall outside the typical frequencies, depending on specific conditions.

Summary of typical service levels by family

Service Family	Frequency ⁵ (minutes)			Days of service	Hours of service ⁶
	Peak ⁷	Off-peak	Night		
Very frequent	15 or more frequent	15 or more frequent	30 or more frequent	7 days	16-20 hours
Frequent	15 or more frequent	30	30	7 days	16-20 hours
Local	30	30 - 60	--*	5-7 days	12-16 hours
Hourly	60 or less frequent	60 or less frequent	--	5 days	8-12 hours
Peak	8 trips/day minimum	--	--	5 days	Peak
Alternative Services	Determined by demand and community collaboration process				

*Night service on local corridors is determined by ridership and connections.

- **Very frequent** services provide the highest levels of all-day service. Very frequent corridors serve very large employment and transit activity centers and high-density residential areas.
- **Frequent** services provide high levels of all-day service. Frequent corridors generally serve major employment and transit activity centers and high-density residential areas.
- **Local** services provide a moderate level of all-day service. Local corridors generally serve regional growth centers and low- to medium-density residential areas.
- **Hourly** services provide all-day service no more frequently than every hour. Corridors generally connect low-density residential areas to regional growth centers.
- **Peak** services provide specialized service in the periods of highest demand for travel. Peak services generally provide service to a major employment center in the morning and away from a major employment center in the afternoon.
- **Alternative** service is any non-fixed route service directly provided or supported by Metro. Alternative services provide access to local destinations and fixed route transit service on corridors that cannot be cost-effectively served by fixed route transit at target service levels. The service type and frequency for Alternative services are determined through collaborative community engagement regarding community travel needs balanced against costs, which shall not exceed the estimated cost to deliver fixed route service at target service levels. Performance for Alternative services shall be determined individually for each service through a cost-effectiveness measure based on cost per rider.

⁵ Frequency is the number of minutes between consecutive trips in the same direction. A trip with four evenly spaced trips per hour would have an average headway of 15 minutes and a frequency of four trips per hour.

⁶ Hours of service, or span, is defined as the time between first trip and last trip leaving the terminal in the predominant direction of travel.

⁷ Time period definitions: Peak 5-9 a.m. and 3-7 p.m. weekdays; Off-peak 9 a.m. to 3 p.m. weekdays; 5 a.m. to 7 p.m. weekends; Night 7 p.m. to 5 a.m. all days.

Target Service Comparison

The service guidelines compare the target service levels identified through the corridor analysis with existing levels of service. A corridor is determined to be either “below”, “at” or “above” its target service level. This process is called the target service comparison.

The target service comparison is a factor in both the investment and reduction priorities, as described in the “Use and Implementation” section of the guidelines.

While the service families are based on frequency, Metro also classifies individual routes by their major destinations when comparing productivity. These classifications are based on the primary market served. Regional growth centers in the core of Seattle and the University District are significantly different from markets served in other areas of King County. Services are evaluated based on these two primary market types to ensure that comparisons reflect the service potential of each type of market.

- **Seattle core** routes are those that serve downtown Seattle, First Hill, Capitol Hill, South Lake Union, the University District, or Uptown. These routes serve regional growth centers with very high employment and residential density.
- **Non-Seattle core** routes are those that operate only in other areas of Seattle and King County. These routes provide all-day connections between regional growth or transit activity centers outside of Seattle or provide service in lower-density areas.

Performance management

Metro uses performance management to improve the efficiency and effectiveness of the transit system. Performance management guidelines are applied to individual routes to identify high and low performance, areas where investment is needed, and areas where resources are not being used efficiently and effectively.

Productivity

Productivity measures identify routes where performance is strong or weak as candidates for addition, reduction, or restructuring. High and low performance thresholds differ for routes that serve the Seattle core areas⁸ and those that do not. Routes serving the Seattle core are expected to perform at a higher level because the potential market is much greater than for routes serving other areas of King County.

The measures for evaluating routes are rides per platform hour⁹ and passenger miles per platform mile¹⁰. Two measures are used to reflect the fact that services provide different values to the system. Routes with high ridership relative to the amount of investment perform well on the rides-per-platform-hour-measure. Routes with full and even loading along the route perform well on the passenger-miles-per-platform-mile measure; an example is a route that fills up at a park-and-ride and is full until reaching its destination.

Low performance is defined as having productivity that ranks in the bottom 25 percent of routes within a category and time period. High performance is defined as having productivity levels in the top 25 percent of routes within a category and time period. Routes in the bottom 25 percent on both productivity measures are identified as the first candidates for potential reduction.

8 Seattle core areas include the regional growth centers in downtown Seattle, First Hill/Capitol Hill, South Lake Union, Uptown, and the University District.

9 Rides per platform hour is a measure of the number of people who board a transit vehicle relative to the total number of hours that a vehicle operates (from leaving the base until it returns).

10 Passenger miles per platform mile is a measure of the total miles riders travel on a route relative to the total miles that a vehicle operates (from leaving the base until it returns).

Thresholds for the top 25 percent and the bottom 25 percent are identified for the following time periods and destinations for each of two performance measures – rides/platform hour and passenger miles/platform mile.

Time period	Route destination
Peak	Seattle core
	Not Seattle core
Off-peak	Seattle core
	Not Seattle core
Night	Seattle core
	Not Seattle core

Passenger loads

Passenger loads are measured to identify crowded services as candidates for increased investment. Overcrowding is a problem because buses may pass up riders waiting at stops, riders may choose not to ride if other transportation options are available, and overcrowded buses often run late because it takes longer for riders to board and get off at stops.

Passenger loads are averaged using observations from a complete period between service changes. Trips must have average loads higher than thresholds for an entire service change period to be identified as candidates for investment. Load factor is calculated by dividing the maximum load along a route by the total number of seats on a bus, to get a ratio of riders to seats.

- When a route operates every 10-minutes or more frequently, or on all RapidRide services, an individual trip should not exceed a load factor of 1.5.
- When a route operates less than every 10-minutes, or is not a RapidRide service, an individual trip should not exceed a load factor of 1.25.
- No trip on a route should have a standing load for 20 minutes or longer.

Other considerations: Vehicle availability

Action alternatives:

- Assign a larger vehicle
- Add or adjust the spacing of trips within a 20-minute period

Schedule reliability

Metro measures schedule reliability to identify routes that are candidates for remedial action due to poor service quality.

Schedule adherence is measured for all Metro services. Service should adhere to published schedules, within reasonable variance based on time of day and travel conditions. When measuring schedule adherence, Metro focuses on routes that are regularly running late. On-time is defined as a departure that is five minutes late or better at a scheduled time point.

Time period	Lateness threshold (Excludes early trips)
Weekday average	> 20%
Weekday PM peak average	> 35%
Weekend average	> 20%

Investment can include route design, schedule, or traffic operations improvements. Routes that operate with a headway less frequent than every 10-minutes that do not meet performance thresholds will be prioritized for schedule adjustment or investment. Routes that operate with a headway of every 10-minutes or more frequent that do not meet performance thresholds will be prioritized for traffic operations (speed and reliability) investments. It may not be possible to improve through-routed routes that do not meet performance thresholds because of the high cost and complication of separating routes.

Other considerations: External factors affecting reliability

Action alternatives:

- Adjust schedules
- Adjust routing
- Invest in speed and reliability improvements.

Service restructures

Service restructures are changes to multiple routes along a corridor or within an area, including serving new corridors, in a manner consistent with service design criteria found in this service guidelines document. Restructures may be prompted for a variety of reasons and in general are made to improve the efficiency and effectiveness of transit service or to reduce net operating costs when Metro’s operating revenue is significantly reduced from historic levels.

- Under all circumstances, whether adding, reducing or maintaining service hours invested, service restructures shall have a goal to focus service frequency on the highest ridership and productivity segments of restructured services, to create convenient opportunities for transfer connections between services and to match service capacity to ridership demand to improve productivity and cost-effectiveness of service.
- In managing the transit system, service restructures shall have a goal of increasing ridership.
- Under service reduction conditions, service restructures shall have an added goal of resulting in an overall net reduction of service hours invested.
- Under service addition conditions, service restructures shall have added goals of increasing service levels and ridership.

When one or more key reasons trigger consideration of restructures, Metro specifically analyzes:

- Impacts on current and future travel patterns served by similarly aligned transit services;
- Passenger capacity of the candidate primary route(s) relative to projected consolidated ridership; and
- The cost of added service in the primary corridor to meet projected ridership demand relative to cost savings from reductions of other services.

Restructures will be designed to reflect the following:

- Service levels should accommodate projected loads at no more than 80 percent of established loading guidelines.
- When transfers are required as a result of restructures, the resulting service will be designed for convenient transfers and travel time penalties for transfers should be minimized.
- A maximum walk distance goal of 1/4 mile in corridors where service is not primarily oriented to freeway or limited-access roadways. Consideration for exceeding this goal may be given where the walking environment is pedestrian-supportive.

Based on these considerations, Metro recommends specific restructures that have compatibility of trips, capacity on the consolidated services to meet anticipated demand and that achieve measurable savings relative to the magnitude of necessary or desired change.

Following the implementation of restructures, Metro will regularly evaluate the resulting transit services and respond to on-time performance and passenger loads that exceed the performance management guidelines as part of the regular ongoing management of Metro's transit system.

Key reasons that will trigger consideration of restructures include:

Sound Transit or Metro service investments

- Extension or service enhancements to Link light rail, Sounder commuter rail, and Regional Express bus services.
- Expansion of Metro's RapidRide network, investment of partner or grant resources, or other significant introductions of new Metro service.

Corridors above or below All-Day and Peak Network frequency

- Locations where the transit network does not reflect current travel patterns and transit demand due to changes in travel patterns, demographics, or other factors.

Services compete for the same riders

- Locations where multiple transit services overlap or provide similar connections.

Mismatch between service and ridership

- Situations where a route serves multiple areas with varying demand characteristics or situations where ridership has increased or decreased significantly even though the underlying service has not changed.
- Opportunities to consolidate or otherwise reorganize service so that higher ridership demand can be served with improved service frequency and fewer route patterns.

Major transportation network changes

- Major projects such as SR 520 construction and tolling and the Alaskan Way Viaduct replacement; the opening of new transit centers, park-and-rides, or transit priority pathways; or the closure of facilities like the South Park Bridge.

Major development or land use changes

- Construction of a large-scale development, new institutions such as colleges or medical centers, or significant changes in the overall development of an area.

Service design

Metro uses service design guidelines to develop transit routes and the overall transit network. Guidelines reflect industry best practices for designing service. The use of service design guidelines can enhance transit operations and improve the rider experience. Some guidelines are qualitative considerations that service development should take into account. Other guidelines have quantitative standards for comparing and measuring specific factors.

1. Network connections

Routes should be designed in the context of the entire transportation system, which includes local and regional bus routes, light-rail lines, commuter rail lines and other modes. Metro strives to make transfers easy as it develops a network of services. Network design should consider locations where transfer opportunities could be provided, and where provision of convenient transfers could improve the efficiency of the transit network. Where many transfers are expected to occur between services of different frequencies, timed transfers should be maintained to reduce customer wait times.

2. Multiple purposes and destinations

Routes are more efficient when designed to serve multiple purposes and destinations rather than specialized travel demands. Routes that serve many rider groups rather than a single group appeal to more potential riders and are more likely to be successful. Specialized service should be considered when there is sizeable and demonstrated demand that cannot be adequately met by more generalized service.

3. Easy to understand, appropriate service

A simple transit network is easier for riders to understand and use than a complex network. Routes should have predictable and direct routings and should provide frequency and span appropriate to the market served. Routes should serve connection points where riders can connect to frequent services, opening up the widest possible range of travel options.

4. Route spacing and duplication

Routes should be designed to avoid competing for the same riders. Studies indicate that people are willing to walk one-quarter mile on average to access transit, so in general routes should be no closer than one-half mile. Services may overlap where urban and physical geography makes it necessary, where services in a common segment serve different destinations, or where routes converge to serve regional growth centers. Where services do overlap, they should be scheduled together, if possible, to provide effective service along the common routing.

Routes are defined as duplicative in the following circumstances:

- Two or more parallel routes operate less than one-half mile apart for at least one mile, excluding operations within a regional growth center or approaching a transit center where pathways are limited.
- A rider can choose between multiple modes or routes connecting the same origin and destination at the same time of day.
- Routes heading to a common destination are not spaced evenly (except for operations within regional growth centers).

5. Route directness

A route that operates directly between two locations is faster and more attractive to riders than one that takes a long, circuitous path. Circulators or looping routes do not have competitive travel times compared to walking or other modes of travel, so they tend to have low ridership and poor performance. Some small loops

may be necessary to turn the bus around at the end of routes and to provide supplemental coverage, but such extensions should not diminish the overall cost-effectiveness of the route. Directness should be considered in relation to the market for the service.

Route deviations are places where a route travels away from its major path to serve a specific destination. For individual route deviations, the delay to riders on board the bus should be considered in relation to the ridership gained on a deviation. New deviations may be considered when the delay is less than 10 passenger-minutes per person boarding or exiting the bus along the deviation.

$$\frac{\text{Riders traveling through} \times \text{Minutes of deviation}}{\text{Boardings and exitings along deviation}} \leq 10 \text{ minutes}$$

6. Bus stop spacing

Bus stops should be spaced to balance the benefit of increased access to a route against the delay that an additional stop would create for all other riders. While close stop-spacing reduces walk time, it may increase total travel time and reduce reliability, since buses must slow down and stop more frequently.

Service	Average stop spacing
RapidRide	½ mile
All other services	¼ mile

Portions of routes that operate in areas where riders cannot access service, such as along freeways or limited-access roads, are excluded when calculating average stop spacing. Additional considerations for bus stop spacing include the pedestrian facilities, the geography of the area around a bus stop, passenger amenities, and major destinations.

7. Route length and neighborhood route segments

A bus route should be long enough to provide useful connections for riders and to be more attractive than other travel modes. A route that is too short will not attract many riders, since the travel time combined with the wait for the bus is not competitive compared to the time it would take to walk. Longer routes offer the opportunity to make more trips without a transfer, resulting in increased ridership and efficiency. However, longer routes may also have poor reliability because travel time can vary significantly from day to day over a long distance. Where many routes converge, such as in regional growth centers, they may be through-routed¹¹ to increase efficiency, reduce the number of buses providing overlapping service, and reduce the need for layover space in congested areas.

In some places, routes extend beyond regional growth centers and transit activity centers to serve lower density residential neighborhoods. Where routes operate beyond centers, ridership should be weighed against the time spent serving neighborhood segments, to ensure that the service level is appropriate to the level of demand. The percent of time spent serving a neighborhood segment should be considered in relation to the percent of riders boarding and exiting on that segment.

$$\frac{\text{Percent of time spent serving neighborhood segment}}{\text{Percent of riders boarding/exiting on neighborhood segment}} \leq 1.2^{12}$$

¹¹ "Through-routing" means continuous routing of vehicles from one route to another such that a rider would not have to transfer from one route to reach a destination on the other.
¹² The value of the service extended into neighborhoods beyond major transit activity centers should be approximately equal to the investment made to warrant the service. A 1:1 ratio was determined to be too strict, thus this ratio was adjusted to 1.2.

8. Operating paths and appropriate vehicles

Buses are large, heavy vehicles and cannot operate safely on all streets. Buses should be routed primarily on arterial streets and freeways, except where routing on local or collector streets is necessary to reach layover areas or needed to ensure that facilities and fleet used in all communities is equivalent in age and quality. Bus routes should also be designed to avoid places where traffic congestion and delay regularly occur, if it is possible to avoid such areas while continuing to meet riders' needs. Bus routes should be routed, where possible, to avoid congested intersections or interchanges unless the alternative would be more time-consuming or would miss an important transfer point or destination. Services should operate with vehicles that are an appropriate size to permit safe operation while accommodating demand. Appropriate vehicles should be assigned to routes throughout the county to avoid concentrating older vehicles in one area, to the extent possible given different fleet sizes, technologies and maintenance requirements. All new vehicles will be equipped with automated stop announcement systems.

9. Route terminals

The location where a bus route ends and the buses wait before starting the next trip must be carefully selected. Priority should be given to maintaining existing layover spaces at route terminals to support continued and future service. People who live or work next to a route end may regard parked buses as undesirable, so new route terminals should be placed where parked buses have the least impact on adjoining properties, if possible. Routes that terminate at a destination can accommodate demand for travel in two directions, resulting in increased ridership and efficiency. Terminals should be located in areas where restroom facilities are available for operators, taking into account the times of day when the service operates and facilities would be needed. Off-street transit centers should be designed to incorporate layover space.

10. Fixed and variable routing

Bus routes should operate as fixed routes in order to provide a predictable and reliable service for a wide range of potential riders. However, in lower-density areas where demand is dispersed, demand-responsive service may be used to provide more effective service over a larger area than could be provided with fixed-route service. Demand-responsive service may be considered where fixed-route service is unlikely to be successful or where unique conditions exist that can be met more effectively through flexible service.

11. Bus stop amenities and bus shelters

Bus stop amenities should be installed based on ridership, in order to benefit the largest number of riders. Bus stop amenities include such things as bus shelters, seating, waste receptacles, lighting, and information signs, maps, and schedules. In addition to ridership, special consideration may be given to areas where:

- high numbers of transfers are expected;
- waiting times for riders may be longer;
- stops are close to facilities such as schools, medical centers, or senior centers; or
- the physical constraints of bus stop sites, preferences of adjacent property owners, and construction costs could require variance from standards.

Major infrastructure such as elevators and escalators will be provided where required by local, state, and federal regulations.

RapidRide Routes

Level of amenity	Boardings
Station	150+
Enhanced stop	50-149
Standard stop	Less than 50

Other Routes

Location	Boardings
City of Seattle	50
Outside Seattle	25

Use and implementation

Metro uses the following guidelines when adding or reducing service as well as in the ongoing development and management of transit service.

Guidelines for adding or reducing service

Guideline	Measures
Productivity	Rides per platform hour Passenger miles per platform mile
Passenger loads	Load factor
Schedule reliability	On-time performance Headway adherence Lateness
All-Day and Peak Network	Current service relative to All-Day and Peak Network

Adding Service

Metro invests in service by using guidelines in the following order:

1. Passenger Loads
2. Schedule Reliability
3. All-Day and Peak Network
4. Productivity

Passenger Loads and Schedule Reliability

Metro first uses the passenger load and schedule reliability guidelines to assess service quality. Routes that do not meet the standards are considered to have low quality service, which has a negative impact on riders and could discourage them from using transit. These routes are the highest priority candidates for investment. Routes that are through-routed but suffer from poor reliability may be candidates for investment, but because of the size and complexity of changes to through-routes, they would not be automatically given top priority.

All-Day and Peak Network

Metro next uses the All-Day and Peak Network guidelines and the target service comparison (as described on p. SG-10) to determine if corridors are below their target levels, meaning a corridor in which the all-day Service Family assignment (see SG-9) is a higher level of service than the corridor currently has. If a corridor is below the target service level it is an investment priority. Investments in corridors below their target service levels are prioritized primarily using the geographic value score. Investments are ordered for implementation on the basis of geographic value score, followed by the land use score, then the social equity score. Other constraints or considerations such as fleet availability or restructuring processes could be used to suggest order of implementation.

When planning improvements to corridors that are below their target service levels or that perform in the bottom 25 percent, Metro will consider the use of alternative services. These alternative services will be used to replace or to supplement the fixed route service in the corridor and cost-effectively maintain or enhance the access to transit for those who live in the corridor.

Also with growing resources, Metro could identify candidate alternative service areas based on feedback from communities about unmet travel needs. Alternative services could respond to travel needs not easily accommodated by fixed-route transit, or could be designed to make the fixed-route service more effective. This could involve adding service in corridors below their target service levels.

As development or transit use increase in corridors with alternative services, Metro will consider converting alternative service into fixed route service. Conversion of alternative service to fixed route service will be guided by alternative service performance thresholds and the cost effectiveness of the alternative service compared to that of fixed route.

Metro will measure the cost per rider for alternative service as one of the measures that can be compared to fixed route service. Other alternative service performance measures and thresholds will be developed as Metro evaluates the demonstrations called for in the five-year plan. Appropriate measures will be used to evaluate each alternative service and will be included as part of the service guidelines report.

Metro is open to forming partnerships with cities and private companies that would fully or partially fund transit service, and will make exceptions to the established priorities to make use of partner funding. Metro's partners are expected to contribute at least one-third of the cost of operating service. Partnerships will be considered according to the following priorities:

1. Service funded fully by Metro's partners would be given top priority over other service investments.
2. On corridors identified as below their target service levels in the All-Day and Peak Network, service that is between one-third and fully funded by Metro's partners would be given top priority among the set of investments identified in corridors below their target service levels. However, this service would not be automatically prioritized above investments to address service quality problems.

Productivity

The final guideline Metro uses to determine if additional service is needed is productivity. Routes with productivity in the top 25 percent perform well in relation to other routes; investment in these services would improve service where it is most efficient.

Reducing service

The service guidelines identify the steps for evaluation when Metro is reducing service. Routes that are in the bottom 25 percent in one or both productivity measures and operate on corridors that are above their target service levels have a higher potential for reduction than routes on corridors that are at or below their target service level. While the guidelines form the basis for identifying services for reduction, Metro also considers other factors such as system efficiencies, simplification, and potential changes to other service in an area. The use of these other factors means that some routes may not be reduced in the priority order stated below.

Metro also considers restructures when making large reductions, to identify areas where restructuring can lead to more efficient service. Reduction of service can range from reduction of a single trip to elimination of an entire route. While no route or area is exempt from change during large-scale system reductions, Metro will seek to maintain service at All-Day and Peak Network levels, and to avoid reducing service on corridors already identified as below their target service levels.

Service restructuring allows Metro to serve trip needs at a reduced cost by consolidating and focusing service in corridors such as those in the All-Day and Peak Network. Restructuring allows Metro to make reductions while minimizing impacts to riders. Metro strives to eliminate duplication and match service to demand during large-scale reductions. As a result of service consolidation some routes may increase in frequency to accommodate projected loads, even while the result of the restructure is a reduction in service hours.

Metro serves some urbanized areas of east and south King County adjacent to or surrounded by rural land. Elimination of all service in these areas would result in significant reduction in the coverage that Metro provides. To ensure that Metro continues to address mobility needs, ensure social equity and provide geographic value to people throughout King County, connections to these areas would be preserved when making service reductions, regardless of productivity.

During service reductions Metro will consider the use of alternative services that can reduce costs on corridors with routes that are in the bottom 25 percent in one or both productivity measures. In this way, alternative services may help maintain public mobility in a cost-effective manner. These alternative services will be evaluated according to the measures and performance thresholds developed through the evaluation of the demonstrations called for in the five-year plan.

Priorities for reduction are listed below. Within all of the priorities, Metro ensures that social equity is a primary consideration in any reduction proposal, complying with all state and federal regulations.

1. Reduce service on routes that are below the 25 percent productivity threshold for a given time period. Routes that are below the 25 percent productivity threshold on both measures are considered for reduction before routes that are below the 25 percent productivity threshold for only one measure in the following order:
 - All-day routes that duplicate or overlap with other routes on corridors on the All-Day and Peak Network.
 - Peak routes failing one or both of the criteria.
 - All-day routes that operate on corridors that are above their target service levels, meaning corridors in which the all-day service family assignment (see SG-9) is a lower level of service than the corridor currently has.
 - All-day routes that operate on corridors which are at their target service levels. This worsens the deficiency between existing service and the All-Day and Peak Network service levels.

2. Restructure service to improve efficiency of service.
3. Reduce service on routes that are above the 25 percent productivity threshold for a given time period. Routes that are between the 25 and 50 percent productivity threshold on both measures are considered for reduction before routes that are above the 50 percent productivity threshold for either measure, in the following order:
 - All-day routes that duplicate or overlap with routes on the All-Day and Peak Network.
 - Peak routes that meet both peak criteria or are above the 25 percent threshold.
 - All-day routes on corridors that are above their target service levels.
 - All-day routes on corridors which are at their target service levels. This worsens the deficiency between existing service and the service levels determined through the All-Day and Peak Network analysis.
4. Reduce services on routes that are below the 25 percent productivity threshold for a given time period on corridors identified as below their target service levels. Routes that are below the 25 percent productivity threshold on both measures are considered for reduction before routes that are below the 25 percent productivity threshold for only one measure. This worsens the deficiency between existing service and the All-Day and Peak Network service levels.

In many areas of the county, and especially in urbanized areas adjacent to or surrounded by rural land, Metro may provide service in different ways in the future, including with alternatives to fixed-route transit service (Strategy 6.2.3). These services could include fixed-route with deviations or other Dial-a-Ride Transit, or other alternative services that offer mobility similar to the fixed-route service provided. Services such as Community Access Transportation also provide alternatives to fixed-route service by allowing Metro to partner with local agencies or jurisdictions to provide service in a way that meets the needs of the community and is more efficient and cost-effective than fixed-route transit. This approach is consistent with the *Strategic Plan for Public Transportation 2011-2021* because it considers a variety of products and services appropriate to the market (Strategy 2.1.1).

Implementation

Metro revises service three times each year—in spring, summer, and fall. The summer service change coordinates with the summer schedule for the University of Washington, because service is adjusted each summer on routes serving the UW. In cases of emergency or time-critical construction projects, Metro may make changes at times other than the three regularly scheduled service changes. However, these situations are rare and are kept to a minimum because of the high level of disruption and difficulty they create. Metro will identify and discuss service changes that address performance-related issues in its annual route performance report.

Any proposed changes to routes are subject to approval by the Metropolitan King County Council except as follows (per King County code 28.94.020):

- Any single change or cumulative changes in a service schedule which affect the established weekly service hours for a route by 25 percent or less.
- Any change in route location which does not move the location of any route stop by more than one-half mile.
- Any changes in route numbers.

Adverse Effect of a Major Service Change

An adverse effect of a major service change is defined as a reduction of 25 percent or more of the transit trips serving a census tract, or 25 percent or more of the service hours on a route.

Disparate Impact Threshold

A disparate impact occurs when a major service change results in adverse effects that are significantly greater for minority populations than for non-minority populations. Metro's threshold for determining whether adverse effects are significantly greater for minority compared with non-minority populations is ten percent. Should Metro find a disparate impact, Metro will consider modifying the proposed changes in order to avoid, minimize or mitigate the disparate impacts of the proposed changes.

Metro will measure disparate impacts by comparing changes in the number of trips serving minority or non-minority census tracts, or by comparing changes in the number of service hours on minority or non-minority routes. Metro defines a minority census tract as one in which the percentage of minority population is greater than that of the county as a whole. For regular fixed route service, Metro defines a minority route as one for which the percentage of inbound weekday boardings in minority census tracts is greater than the average percentage of inbound weekday boardings in minority census tracts for all Metro routes.

Disproportionate Burden Threshold

A disproportionate burden occurs when a major service change results in adverse effects that are significantly greater for low-income populations than for non-low-income populations. Metro's threshold for determining whether adverse effects are significantly greater for low-income compared with non-low-income populations is ten percent. Should Metro find a disproportionate burden, Metro will consider modifying the proposed changes in order to avoid, minimize or mitigate the disproportionate burden of the proposed changes.

Metro will measure disproportionate burden by comparing changes in the number of trips serving low-income or non-low-income census tracts, or by comparing changes in the number of service hours on low-income or non-low-income routes. Metro defines a low-income census tract as one in which the percentage of low-income population is greater than that of the county as a whole. For regular fixed route service, Metro defines a low-income route as one for which the percentage of inbound weekday boardings in low-income census tracts is greater than the average percentage of inbound weekday boardings in low-income census tracts for all Metro routes.

Public outreach

Metro conducts outreach to gather input from the public when considering major changes. Outreach ranges from relatively limited activities, such as posting rider alerts at bus stops, to more extensive outreach including mailed informational pieces and questionnaires, websites, media notices and public open houses.

For service changes that affect multiple routes or large areas, Metro may convene a community-based sounding board. Sounding board members attend public meetings, offer advice about public outreach, and provide feedback about what changes to bus service would be best for the local communities. Metro considers sounding board recommendations as it develops recommendations.

Proposed changes may require County Council approval, as described above. The Council holds a public hearing before making a final decision on changes.

Future guidelines

As the transit system changes over time, Metro may need to change some guidelines as well. Updates to the guidelines will be considered along with updates to Metro's *Strategic Plan for Public Transportation 2011-2021*.

As part of the required 2013 review and re-adoption of the strategic plan and service guidelines, the results of a collaborative process that addresses the factors, methodology and prioritization of adding service consistent with Strategy 6.1.1 will be included. Key goals include:

- A. More closely align factors used to serve and connect centers in the development of the All-Day and Peak Network and resulting service level designations, including consideration of existing public transit services, with jurisdictions' growth decisions, such as zoning, and transit-supportive design requirements, and actions, associated with but not limited to permitting, transit operating enhancements, parking controls and pedestrian facilities; and
- B. Create a category of additional service priority, complementary to existing priorities for adding service contained within the King County Metro Service Guidelines, so that priorities include service enhancements to and from, between and within *Vision 2040* Regionally Designated Centers, and other centers where plans call for transit-supportive densities and jurisdictions have invested in capital facilities, made operational changes that improve the transit operating environment and access to transit and implemented programs that incentivize transit use.

■ APPENDIX 1: Centers in King County

Regional Growth Centers

Auburn
Bellevue Downtown
Burien
Federal Way
First Hill/Capitol Hill
Kent
Northgate
Overlake
Redmond
Renton
SeaTac
Seattle CBD
South Lake Union
Totem Lake
Tukwila
University District
Uptown

Manufacturing/Industrial Centers

Ballard/Interbay
Duwamish
Kent
North Tukwila

Transit Activity Centers

Alaska Junction
Aurora Village Transit Center
Ballard (Ballard Ave NW/NW Market St)
Beacon Hill Station
Black Diamond
Bothell (UW Bothell/Cascadia Community College)
Carnation
Central District (23rd Ave E/E Jefferson St)
Children's Hospital
Columbia City Station
Covington (172nd Ave SE/SE 272nd St)
Crossroads (156th Ave NE/NE 8th St)
Crown Hill (15th Ave NW/NW 85th St)
Des Moines (Marine View Dr/S 223rd St)
Duvall
Eastgate (Bellevue College)
Enumclaw
Factoria (Factoria Blvd SE/SE Eastgate Wy)
Fairwood (140th Ave SE/SE Petrovitsky Rd)
Maple Valley (Four Corners, SR-169/Kent-Kangley Rd)
Fremont (Fremont Ave N/N 34th St)

Georgetown (13th Ave S/S Bailey St)
Green River Community College
Greenwood (Greenwood Ave N/N 85th St)
Harborview Medical Center
Highline Community College
Issaquah Highlands
Issaquah (Issaquah Transit Center)
Juanita (98th Ave NE/NE 116th St)
Kenmore (Kenmore Park and Ride)
Kent East Hill (104th Ave SE/SE 240th St)
Kirkland (Kirkland Transit Center)
Kirkland (South Kirkland Park and Ride)
Lake City
Lake Forest Park
Lake Washington Technical College
Madison Park (42nd Ave E/E Madison St)
Magnolia (34th Ave W/W McGraw St)
Mercer Island
Mount Baker Station
Newcastle
North Bend
North City (15th Ave NE/NE 175th St)
Oaktree (Aurora Ave N/N 105th St)
Othello Station
Rainier Beach Station
Renton Highlands (NE Sunset Blvd/NE 12th St)
Renton Technical College
Roosevelt (12th Ave NE/NE 65th St)
Sammamish (228th Ave NE/NE 8th St)
Sand Point (Sand Point Way/NE 70th St)
Shoreline (Shoreline Community College)
Snoqualmie
SODO (SODO Busway/Lander St)
South Mercer Island
South Park (14th Ave S/S Cloverdale St)
South Seattle Community College
Tukwila International Blvd Station
Twin Lakes (21st Ave SW/SW 336th St)
Valley Medical Center
Vashon
Wallingford (Wallingford Ave N/N 45th St)
Westwood Village
Woodinville (Woodinville Park and Ride)

■ APPENDIX 2: Corridors evaluated for All-Day and Peak network

Connections		
Between	And	Via
Admiral District	Southcenter	California Ave SW, Military Rd, TIBS
Alki	Seattle CBD	Admiral Way
Auburn	Pacific	Algona
Auburn	Burien	Kent, SeaTac
Auburn/GRCC	Federal Way	15th St SW, Lea Hill Rd
Aurora Village	Seattle CBD	Aurora Ave N
Aurora Village	Northgate	Meridian Av N
Avondale	Kirkland	NE 85th St, NE Redmond Wy, Avondale Wy NE
Ballard	Seattle CBD	15th Ave W
Ballard	University District	Green Lake, Greenwood
Ballard	Lake City	Holman Road, Northgate
Ballard	Seattle CBD	W Nickerson, Westlake Av N, 9th Ave
Ballard	University District	Wallingford (N 45th St)
Beacon Hill	Seattle CBD	Beacon Ave
Bellevue	Eastgate	Lake Hills Connector
Bellevue	Redmond	NE 8th St, 156th Ave NE
Bellevue	Renton	Newcastle, Factoria
Burien	Seattle CBD	1st Ave S, South Park, Airport Wy
Burien	Seattle CBD	Delridge, Ambaum
Burien	Seattle CBD	Des Moines Mem Dr, South Park
Capitol Hill	Seattle CBD	15th Ave E
Capitol Hill	Seattle CBD	Madison St
Capitol Hill	White Center	South Park, Georgetown, Beacon Hill, First Hill
Central District	Seattle CBD	E Jefferson St
Colman Park	Seattle CBD	Leschi, Yesler
Cowen Park	Seattle CBD	University Way, I-5
Discovery Park	Seattle CBD	Gilman Ave W, 22nd Ave W, Thorndyke Av W
Eastgate	Bellevue	Newport Wy , S. Bellevue, Beaux Arts
Eastgate	Overlake	Phantom Lake
Eastgate	Bellevue	Somerset, Factoria, Woodridge
Enumclaw	Auburn	Auburn Wy S, SR 164
Fairwood	Renton	S Puget Dr, Royal Hills
Federal Way	Kent	Military Road
Federal Way	SeaTac	SR-99
Fremont	Broadview	8th Av NW, 3rd Av NW

Connections		
Between	And	Via
Fremont	Seattle CBD	Dexter Ave N
Fremont	University District	N 40th St
Green River CC	Kent	132nd Ave SE
Greenwood	Seattle CBD	Greenwood Ave N
High Point	Seattle CBD	35th Ave SW
Issaquah	North Bend	Fall City, Snoqualmie
Issaquah	Eastgate	Newport Way
Issaquah	Overlake	Sammamish, Bear Creek
Kenmore	Totem Lake	Finn Hill, Juanita
Kenmore	Kirkland	Juanita
Kenmore	Shoreline	Lake Forest Park, Aurora Village TC
Kenmore	University District	Lake Forest Park, Lake City
Kennydale	Renton	Edmonds Av NE
Kent	Renton	84th Av S, Lind Av SW
Kent	Renton	Kent East Hill
Kent	Burien	Kent-DM Rd, S. 240th St, 1st Av S
Kent	Maple Valley	Kent-Kangley Road
Kent	Seattle CBD	Tukwila
Kirkland	Factoria	Overlake, Crossroads, Eastgate
Kirkland	Bellevue	South Kirkland
Lake City	University District	35th Ave NE
Lake City	University District	Lake City, Sand Point
Lake City	Seattle CBD	NE 125th St, Northgate, I-5
Laurelhurst	University District	NE 45th St
Madison Park	Seattle CBD	Madison St
Madrona	Seattle CBD	Union St
Magnolia	Seattle CBD	34th Ave W, 28th Ave W
Mercer Island	S Mercer Island	Island Crest Way
Mirror Lake	Federal Way	S 312th St
Mount Baker	Seattle CBD	31st Av S, S Jackson St
Mountlake Terrace	Northgate	15th Ave NE, 5th Ave NE
Mt Baker	University District	23rd Ave E
Northeast Tacoma	Federal Way	SW 356th St, 9th Ave S
Northgate	Seattle CBD	Green Lake, Wallingford
Northgate	University District	Roosevelt
Northgate	University District	Roosevelt Way NE, NE 75th St
Othello Station	Columbia City	Seward Park
Overlake	Bellevue	Bell-Red Road
Overlake	Bellevue	Sammamish Viewpoint, Northup Way

Connections		
Between	And	Via
Queen Anne	Seattle CBD	Queen Anne Ave N
Queen Anne	Seattle CBD	Taylor Ave N
Rainier Beach	Seattle Center	Martin Luther King Jr Wy, E John St, Denny Way
Rainier Beach	Seattle CBD	Rainier Ave
Rainier Beach	Capitol Hill	Rainier Ave
Redmond	Eastgate	148th Ave, Crossroads, Bellevue College
Redmond	Fall City	Duvall, Carnation
Redmond	Totem Lake	Willows Road
Renton	Enumclaw	Maple Valley, Black Diamond
Renton	Seattle CBD	Martin Luther King Jr Wy, I-5
Renton	Renton Highlands	NE 4th St, Union Ave NE
Renton	Burien	S 154th St
Renton	Seattle CBD	Skyway, S. Beacon Hill
Renton	Rainier Beach	West Hill, Rainier View
Renton Highlands	Renton	NE 7th St, Edmonds Av NE
Richmond Beach	Northgate	Richmond Bch Rd, 15th Ave NE
Sand Point	University District	NE 55th St
Shoreline	University District	Jackson Park, 15th Av NE
Shoreline CC	Greenwood	Greenwood Av N
Shoreline CC	Northgate	N 130th St, Meridian Av N
Shoreline CC	Lake City	N 155th St, Jackson Park
Totem Lake	Seattle CBD	Kirkland, SR-520
Tukwila	Des Moines	McMicken Heights, Sea-Tac
Tukwila	Seattle CBD	Pacific Hwy S, 4th Ave S
Tukwila	Fairwood	S 180th St, Carr Road
Twin Lakes	Federal Way	S 320th St
Twin Lakes	Federal Way	SW Campus Dr, 1st Ave S
University District	Seattle CBD	Broadway
University District	Seattle CBD	Eastlake, Fairview
University District	Seattle CBD	Lakeview
University District	Bellevue	SR-520
UW Bothell	Redmond	Woodinville, Cottage Lake
UW Bothell/CCC	Kirkland	132nd Ave NE, Lake Washington Tech
Vashon	Tahlequah	Valley Center
Wedgwood	Cowen Park	View Ridge, NE 65th St
West Seattle	Seattle CBD	Fauntleroy, Alaska Junction
White Center	Seattle CBD	16th Ave SW, SSCC
White Center	Seattle CBD	Highland Park, 4th Ave S
Woodinville	Kirkland	Kingsgate

King County Metro Transit **2014 Service Guidelines Report**

October 2014



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Using the Guidelines to Plan, Assess and Change Service

Where do we provide service?

How much service should we provide?

How is service performing?

What should we do differently?

Our Transit network is comprised of corridors connecting centers

Centers:

- Transit centers and places where many people work, live or go for services or activities
- 85 centers across King County today

Corridors

112 Metro corridors serve centers

All-Day and Peak Network

These 112 corridors create Metro's all-day transit network. Metro provides additional peak only service to meet demand.

Target corridor service levels are set in two steps:

1. What is the preliminary service level?

Productivity
(Jobs & Households)

+

Social Equity
(low-income & minority riders)

+

Geographic Value
(connections to centers)

2. Does preliminary service level provide enough buses?

Preliminary Service level	Current Riders	Target

Service analysis looks at both routes and corridors:

Route Productivity Rides/ Hr. Pass.Mi/ Mi.

Top 25%	Bottom 25%
---------	------------

Service Reliability

< 5 Minutes late

Overcrowding

Avg. load < 125% seats: regular service
Avg. load < 150% seats: 10 min. service
Standing load < 20 min all service

Peak Criteria
Travel time
Ridership

Target Service Comparison

Target	Existing
Above	Below

Investment Priorities

Invest to:

- Reduce overcrowding
- Improve reliability
- Achieve target service levels
- Become more productive

Reduction Priorities

Reduce service to:

- Meet budget constraints
- Re-invest in investment priorities

=

Improvements & Restructures

Make improvements and restructures to:

- Match design guidelines
- Meet investment priorities

Service Change Proposals



EXECUTIVE SUMMARY

Metro Transit uses service guidelines to plan and manage our transit system and to enable the public to see the basis of our proposals to expand, reduce or revise service. We developed the guidelines in response to a recommendation of the 2010 Regional Transit Task Force and included them in the *Strategic Plan for Public Transportation*, which was adopted by the King County Council in 2011 and amended in August 2013. This *2014 Service Guidelines Report* was prepared to comply with Section 5 of King County Ordinance 17143. Responding to King County Motion 13736, this report also includes information about Metro's alternative services. It presents our analysis of the Metro system using the service guidelines. Unless noted otherwise, the data analyzed was from the February 15–June 6, 2014 service period.

The service guidelines strike a balance between productivity, social equity and geographic value. They help us use public tax and fare dollars as effectively as possible to provide high-quality service that gets people where they want to go (productivity). They help us make sure Metro serves areas that have many low-income and minority residents and others who may depend on transit (social equity), and that we respond to public transportation needs throughout the county (geographic value).

This report presents Metro's 2014 All-Day and Peak Network analysis, which sets target service levels for the 112 corridors in the network and identifies where service-hour investments are needed. It also presents our performance analysis of 214 Metro bus routes, assessing their productivity and service quality.

At the time this report was developed, Metro had implemented systemwide service reductions that were necessary because of a funding shortfall. Many routes described in this report were deleted or reduced as part of the changes in fall 2014. Additional reductions will be determined as part of the 2015-2016 budget process in late 2014. Metro recognizes the challenges of planning and managing the system when service is changing rapidly—and in particular when service is being reduced. Despite these challenges, this report will serve as an important tool for comparing Metro's system before and after service reductions.

Investment Needs

The 2014 guidelines analysis found an estimated need of approximately 547,350 annual bus service hours to meet Metro's service quality objectives and target service levels. These needs represent an increase of about 16 percent above the size of the system in spring 2014. This level of investment is necessary to provide reliable services with adequate transit capacity to destinations throughout King County.



The service guidelines define a transparent process using objective data that helps Metro make decisions about adding, reducing and changing transit service to deliver productive, high quality service where it's needed most.

2014 Investment Needs
(Based on Spring 2014 Data)

Priority	Investment Area	Estimated Annual Hours Needed
1	Reduce passenger crowding	22,200
2	Improve schedule reliability	38,650
3	Increase service to meet target service levels in All-Day and Peak Network	486,500
Total investment need		547,350
4	Increase service on high-productivity routes: A substantial portion of the growth needed to meet the <i>Transportation 2040</i> expectation (an additional 2.6 million annual service hours) will be on high-productivity services.	

Investment priorities 1 and 2: Service quality needs. Twenty-seven routes need investment to reduce passenger crowding and 90 routes need investment to improve schedule reliability. These routes need investments that are likely to be relatively minor, such as an added trip at a particular time of day or a few additional minutes of running time per trip. We determined a total investment need of 60,850 annual service hours to correct the service quality problems—an increase from the 2013 level of 43,200 hours.

Investment priority 3: Service to meet target service levels in the All-Day and Peak Network. Fifty-eight corridors need investment to reach target service levels. Meeting target levels typically requires the addition of many trips in a time period or in multiple time periods of the day, or complete revision of the schedules of routes serving an area. We determined a total investment need of approximately 486,500 annual service hours to meet target service levels, compared to 467,500 in 2013.

Investment priority 4: High-productivity routes. Investment in high-productivity services is the fourth investment priority. Eighty-one of the 214 routes evaluated were in the top 25 percent on one or both productivity measures for at least one time period in 2014.

Highly productive routes generally serve areas where there is latent demand for transit. Although we know from our experience that investments in very productive routes result in higher ridership, the guidelines do not attempt to quantify the service hours that would be necessary to satisfy that demand. Some of these high-productivity routes are already identified as needing investments because they are overcrowded, unreliable or on corridors where service is not at the target level.

Investment in high-productivity routes is one way we use resources effectively to serve more people, helping us meet future needs. To meet the long-term expectation in the Puget Sound region’s transportation plan, Metro must double the number of riders and nearly double service levels by 2040. Growth to this level will help Metro maximize mobility as well as the economic and environmental benefits of transit.

The existing need of 547,350 annual service hours represents only part of the growth needed to meet the region’s 2040 targets. We expect a substantial portion of the remaining 2.6 million annual service hours will be on highly productive routes. Although new resources will be required to make the large investments our region needs, we will invest in highly productive routes incrementally as opportunities become available—such as through service restructures or partnerships with local jurisdictions.

Changes in investment needs since 2013

The total investment need of 547,350 annual service hours is an increase from the 510,700-hour need found in the 2013 analysis. The investment needs changed for several reasons:

- Continued ridership growth has resulted in an increased need for investment to reduce passenger crowding.
- More investment is needed to address a decline in schedule reliability that has resulted from more-crowded buses, more roadway construction, and increasing traffic congestion as the economy improves.
- Target service levels changed for some corridors as a result of changes in ridership demand, land use, and distribution of low-income populations in King County. Service now meets the target level on the Aurora Village to downtown Seattle corridor because Metro invested in the RapidRide E Line. Overall, corridor needs increased from the 2013 level.

Metro at a Glance (2013)

Service area	2,134 square miles
Population	2.04 million
Employment	1.24 million
Fixed-route ridership	118.6 million
Vanpool ridership:	3.5 million
Access ridership:	1.2 million
Annual service hours	3.6 million
Active fleet	1,359 buses
Bus stops	over 8,000
Park-and-rides	130





INTRODUCTION

This is the fourth annual service guidelines report. It presents the results of our analysis of spring 2014 data for the Metro system using the service guidelines, and identifies services that are candidates for investment, change, or reduction. It serves as a snapshot of Metro service in one service change—a four-month period—and allows us to compare service in that same period each year to identify trends and areas needing improvement.

When Metro makes service decisions to match budget projections—whether resources are shrinking, stable, or growing—the service guidelines help by identifying reduction and investment priorities. The service guidelines were used in 2013 and 2014 to develop a plan for service reductions to bring the Metro system in line with available revenues. In the future, the service guidelines will help Metro manage the system after reductions have been completed. We will continue looking for ways to improve the system regardless of the future funding situation.

What is in this report?

This report is organized to lead readers through the following questions:

How is my route doing? Section 1 presents the results of our route performance analysis as well as our analysis of corridors, which determines if target service levels are being met. This section also discusses performance of alternative services.

Where are service investments most needed? Section 2 identifies specific investment priorities based on service quality needs, target service levels, and route productivity.

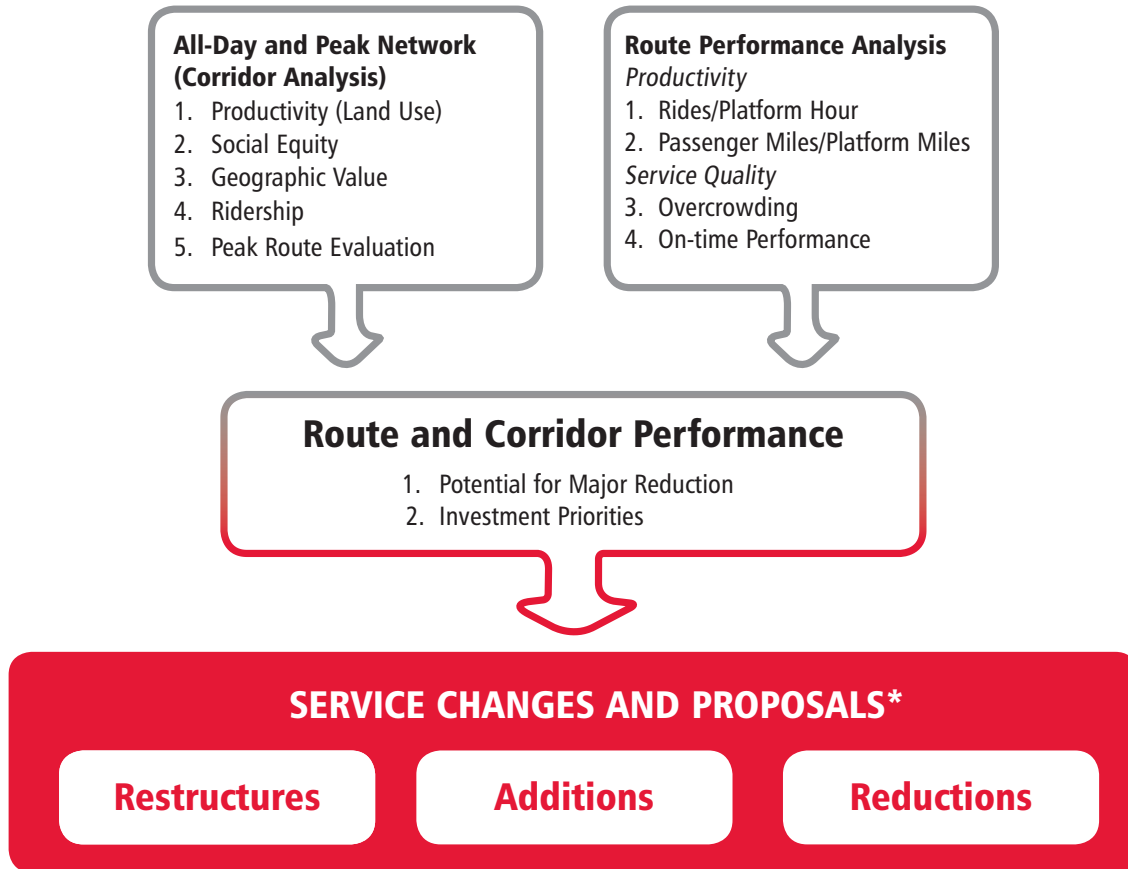
Where and how is Metro investing in alternative services? Section 3 presents information about performance of alternative services and steps we are taking to expand these services.

How is Metro using the guidelines? Section 4 describes how we used the guidelines to plan service changes in 2014.

Figure 1 summarizes the service guidelines process we followed in preparing this report. To read the complete service guidelines, visit <http://metro.kingcounty.gov/planning> and select the “Service Guidelines” tab.

FIG. 1

Metro Service Guidelines Process



*Service Design Principles guide changes to the system and are considered when planning for service changes.



Providing service where it's needed most: how the guidelines advance social equity and geographic value

Metro strives to provide equitable access to public transportation for everyone in our community and to deliver value throughout King County. The service guidelines help us by defining criteria and processes for analyzing and planning transit service that focus on social equity and geographic value.

Social equity

One of the most important processes is that of setting target service levels for corridors in the All-Day and Peak Network. The guidelines define a process for determining a social equity score that makes up 25 percent of each corridor's total service-level score. First we determine low-income and minority census tracts in the corridor using the most recent and best available census data. Then we assign a social equity score based on the percentage of people who board buses in those areas compared to the county average.

The social equity score is combined with scores for productivity (50 percent of the total) and geographic value (25 percent) to determine a preliminary target service level. The next step is to increase the service level if necessary to serve the actual number of current riders. This step helps us make sure that in areas where many people have few transportation options and rely on Metro to get around, we set a target service level that will accommodate them.



The investment priorities defined in the guidelines also benefit low-income and minority corridors where many people use transit. The table on the next page shows the findings of the 2014 guidelines analysis for investment needed to reduce overcrowding, improve reliability, and meet target service levels systemwide and in low-income and minority routes and corridors. The percentage of the investment need that is on minority routes and corridors increased for reliability and meeting target service levels, and decreased for passenger crowding. The percentage of the investment need that is on low-income routes and corridors increased for all three categories of investments.

Priority Investment Category	Estimated total hours needed	Hours on minority routes/corridors	% of total need	Hours on low-income routes/corridors	% of total need
Passenger crowding	22,200	9,900	45%	6,800	31%
Schedule reliability	38,650	17,600	46%	20,650	53%
Meeting target service levels	486,500	350,200	72%	308,300	63%

We also consider historically disadvantaged populations and people who depend on transit when we develop proposals to add, reduce or revise service. We strive to reach or maintain established target service levels. Even when reducing low-performing service, we avoid making reductions on corridors below target service levels, helping to ensure that low-income and minority communities are not disproportionately affected.

Another way we avoid disproportionate impacts is to conduct robust public outreach that engages people who have low incomes or are members of minority groups—including those who speak little or no English. We develop partnerships with community organizations, have public open houses and information tables at convenient times and locations, translate public communication materials, and offer to have language interpreters at meetings.

We follow the requirements and guidance of Title VI of the Civil Rights Act, which prohibits discrimination on the basis of race, color or national origin; King County Ordinance 16948, related to the “fair and just” principle of the King County Strategic Plan, which strives to eliminate inequities and social injustices based on race, income, and neighborhood; and the Executive Order on Translation, which requires County agencies to ensure that public communications are culturally and linguistically appropriate for the target audience, including people who do not speak English well.

For example, Ordinance 16948 lists 13 “determinants of equity.” When planning service changes we strive to maintain public transportation connections and access to health care, education, food, housing, employment and other activities of daily living and civic engagement that affect social equity.

Geographic value

To help us deliver value throughout the county’s geographic area, the guidelines identify the primary transit connections between centers on the basis of ridership and travel time. Centers are activity nodes that are the basis of the countywide transit network. They include regional growth centers, manufacturing/industrial centers, and transit activity centers. Transit activity centers include major destinations and transit attractions such as large employment sites and health and social service facilities.

In the process for setting target service levels, we assign higher levels to corridors that serve as primary connections between centers.

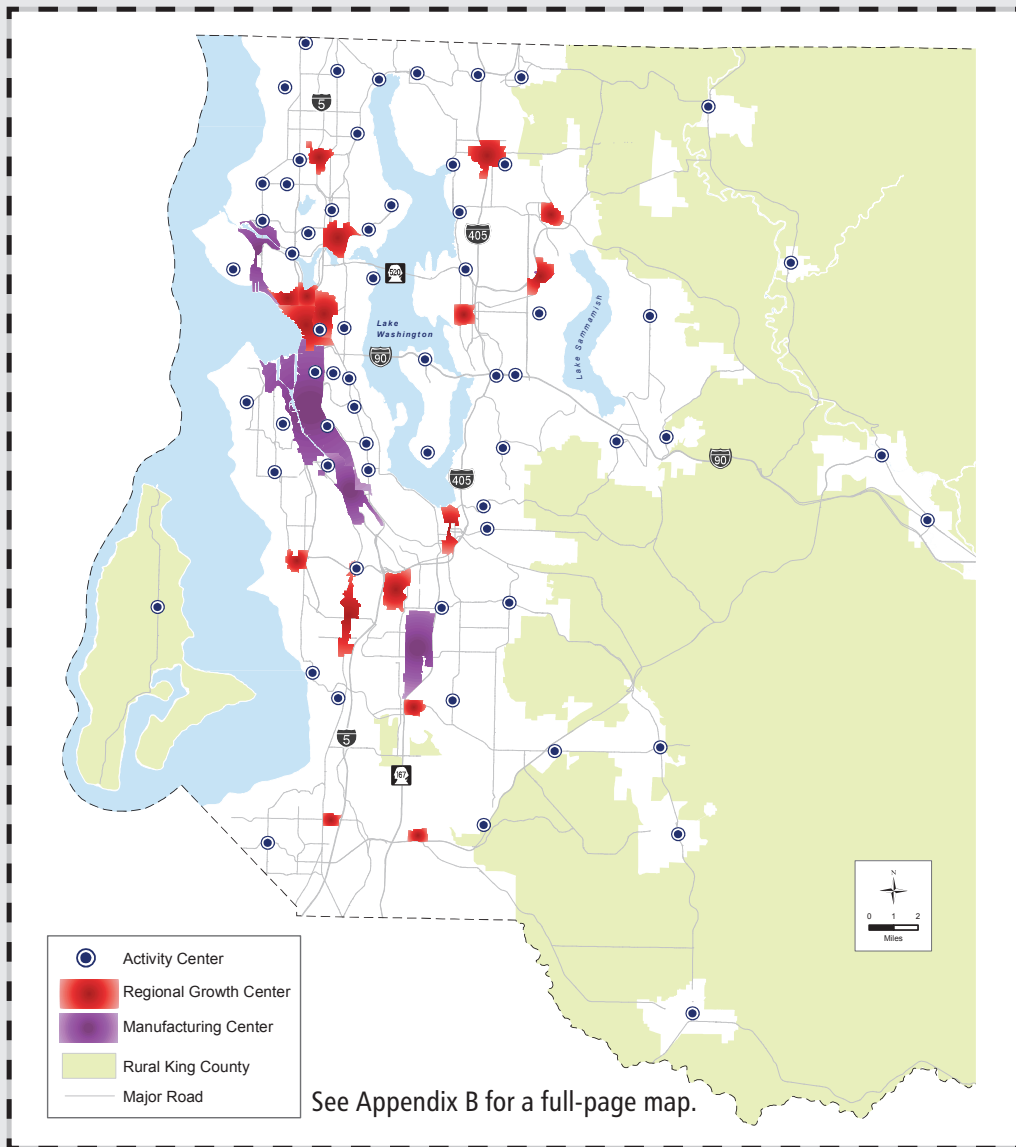
Primary Connections	Number of Corridors
Between regional growth centers	31
Between transit activity centers	49

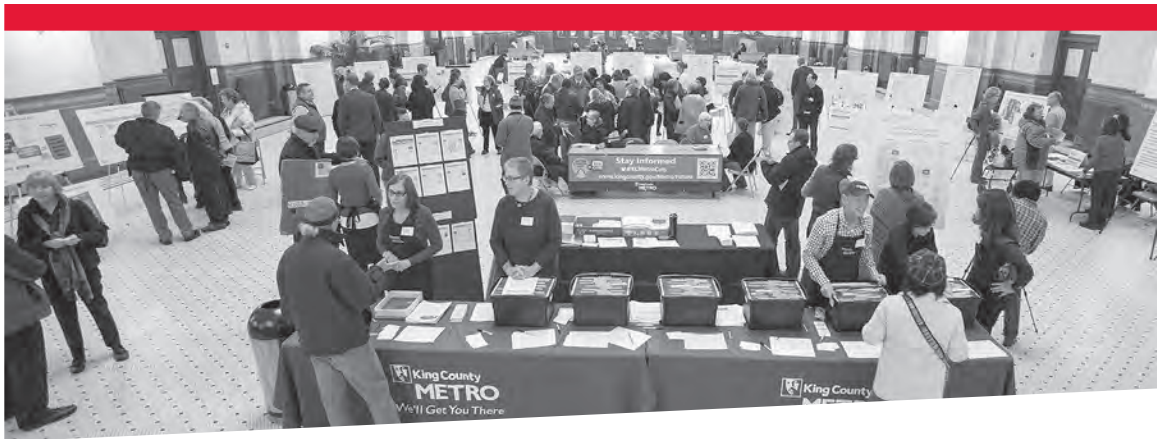
The guidelines also incorporate geographic value by classifying routes by market served. This classification allows us to compare similar routes when assessing productivity. We classify Metro routes into two groups:

- Seattle core routes, which connect to the greater downtown Seattle area and the University District.
- Non-Seattle core routes, which operate in other areas of Seattle and King County.

Routes that serve the Seattle core are expected to perform at a higher level because their market potential is greater than routes serving other parts of King County.

Transit Activity Centers





SECTION 1

SERVICE ANALYSIS

When Metro plans changes to our transit system, we analyze both the performance of routes (productivity and service quality) and how those routes serve the All-Day and Peak Network. This section describes how we do this analysis and then presents the results. This analysis is the starting point for planning service revisions but is not a service change proposal.

Route performance

We assess each route's performance by measuring its productivity using two measures:

- **Rides per platform hour** – total ridership divided by the total hours a bus travels from the time it leaves its base until it returns.
- **Passenger miles per platform mile** – total miles traveled by all passengers divided by the total miles the bus operates from its base until it returns.

We analyze productivity in peak, off-peak, and night periods in the market the route serves:

- **Seattle core** routes serve downtown Seattle, First Hill, Capitol Hill, South Lake Union, the University District, or Uptown.
- **Non-Seattle-core** routes serve other areas of Seattle and King County.

Routes below the productivity threshold are those in the bottom 25 percent of routes that operate in the same time period and market. High-productivity routes are those in the top 25 percent. The performance thresholds for 2014 are shown in Tables 1 and 2.

Change in route performance thresholds. The route performance thresholds change in each report to reflect current network performance. In 2014, the performance thresholds showed relatively little change from 2013 for most

What are corridors and routes?

Corridors are major transit pathways that connect regional growth, manufacturing/industrial, and activity centers; park-and-rides and transit hubs; and major destinations throughout King County. The service guidelines use the corridor analysis to evaluate and set target service levels for the 112 corridors of the All-Day and Peak Network.

Routes are the actual services provided. Service within a single corridor might be provided by multiple bus routes. For example, the corridor from Fremont to downtown Seattle via Dexter Avenue North is served by two different bus routes, 26 and 28, and both of these routes extend beyond Fremont. Some routes also cover multiple corridors. Route 271 serves three distinct travel markets: Issaquah-Eastgate, Eastgate-Bellevue, and Bellevue-University District. The service guidelines evaluate routes for productivity and service quality.

periods in both markets. This reflects a relatively stable period in the Metro system, with some increases in performance due to overall ridership growth. Performance thresholds increased or remained stable for most measures for non-Seattle core routes, with the exception of off-peak rides per platform hour. The change in performance thresholds for Seattle core routes was mixed, with increases or no change for most peak measures, declines in most night measures, and mixed changes in off-peak measures. Night service was added on several routes in 2013 and may be one cause of this change in night performance. Route performance threshold changes between 2013 and 2014 are shown in Tables 1 and 2. A table of performance by route is in Appendix C.

TABLE 1
2013-2014 Route Performance Threshold Changes for Top 25%

Market	Performance	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
Routes that DO NOT serve Seattle core	2014	25.2	8.1	24.7	8.0	18.8	6.3
	2013	24.1	7.4	24.5	7.9	18.8	6.3
	Change	1.1	0.7	0.2	0.1	0.0	0.0
Routes that serve Seattle core	2014	48.2	17.1	51.1	14.9	35.1	10.2
	2013	47.3	16.6	51.3	15.4	34.9	10.8
	Change	0.9	0.5	-0.2	-0.5	0.2	-0.6

TABLE 2
2013-2014 Route Performance Threshold Changes for Bottom 25%

Market	Performance	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
Routes that DO NOT serve Seattle core	2014	12.0	2.4	11.3	2.7	11.3	2.7
	2013	12.1	2.4	12.0	2.7	10.9	2.6
	Change	-0.1	0.0	-0.7	0.0	0.4	0.1
Routes that serve Seattle core	2014	24.3	10.7	33.7	9.8	20.7	5.9
	2013	24.0	10.7	32.6	9.8	21.4	6.3
	Change	0.3	0.0	1.1	0.0	-0.7	-0.4

All-Day and Peak Network

The All-Day and Peak Network analysis examines corridors and peak service.

1) Corridor analysis

Each corridor in the All-Day and Peak Network is assigned a target service level based on productivity, social equity, and geographic value. Table 3 shows the service family categories based on the target service levels. The All-Day and Peak Network analysis compares the target service levels to existing service to determine whether a corridor is below, at, or above the target levels. The steps of the corridor analysis as well as the results are in Appendix I.

TABLE 3
Service Families

Service family	Frequency (minutes)			Days of service	Hours of service
	Peak ¹	Off-peak	Night		
Very frequent	15 or better	15 or better	30 or better	7 days	16-20 hours
Frequent	15 or better	30	30	7 days	16-20 hours
Local	30	30 - 60	*	5-7 days	12-16 hours
Hourly	60 or worse	60 or worse	--	5 days	8-12 hours
Peak	8 trips/day minimum	--	--	5 days	Peak
Alternative services	Determined by demand and community collaboration process				

¹ Peak periods are 5-9 a.m. and 3-7 p.m. weekdays; off-peak are 9 a.m. to 3 p.m. weekdays and 5 a.m. to 7 p.m. weekends; night is 7 p.m. to 5 a.m. all days.

* Night service on local corridors is determined by ridership and connections.

As an outcome of our analysis of spring 2014 data, fewer corridors were targeted for very frequent or hourly service and more corridors were targeted for frequent and local service than in 2013, as seen in Table 4.

TABLE 4
Number of All-Day Corridors by Assigned Service Levels

Service Level	2013	2014	Change
Very frequent	53	51	-2
Frequent	22	25	3
Local	26	29	2
Hourly	11	7	-3

Ten all-day corridors moved to a more frequent service level and eight moved to a less frequent level. A list of all corridors that changed target service families and the reasons for the changes are in Appendix F.

Ten corridors received additional points from changes in the number of jobs per corridor mile. This reflects actual changes in the number of jobs or universities/college enrollment with access to transit. Three corridors received more points for ridership in minority census tracts, while one corridor received fewer points. Eight corridors received more points for ridership in low-income census tracts, while eight received fewer points. Five corridors moved to a higher service family in part because of higher demand/ridership on the corridor.

The target service levels are directly affected by changes in the use of bus service by people living and working in local communities and in the environment that local jurisdictions help create through policy and planning actions.

The complete network: integration with Sound Transit

On June 12, 2014, Executive Dow Constantine issued an executive order directing Metro to develop an integrated transit service plan in coordination with Sound Transit and partner agencies. Executive Constantine also authored a motion, passed by the Sound Transit Board on June 26, 2014, directing Sound Transit to study bus-rail integration in coordination with partner agencies.



Responding to the Executive’s directives, Metro and Sound Transit worked together to develop the Sound Transit/Metro integration report that was submitted to the King County Council and Sound Transit Board in September 2014. This report identifies potential efficiencies, and savings as well as ways the two agencies can collaborate to deliver better transit service and gain “efficiency dividends.” It also lays the foundation for coordinated efforts to optimize the region’s investments in high-capacity rail and bus service. The report outlines how the two agencies will move together in the following areas:

1. Short-term integration
2. Long-term integration
3. Rider engagement and information
4. Capital facilities
5. Operational efficiencies

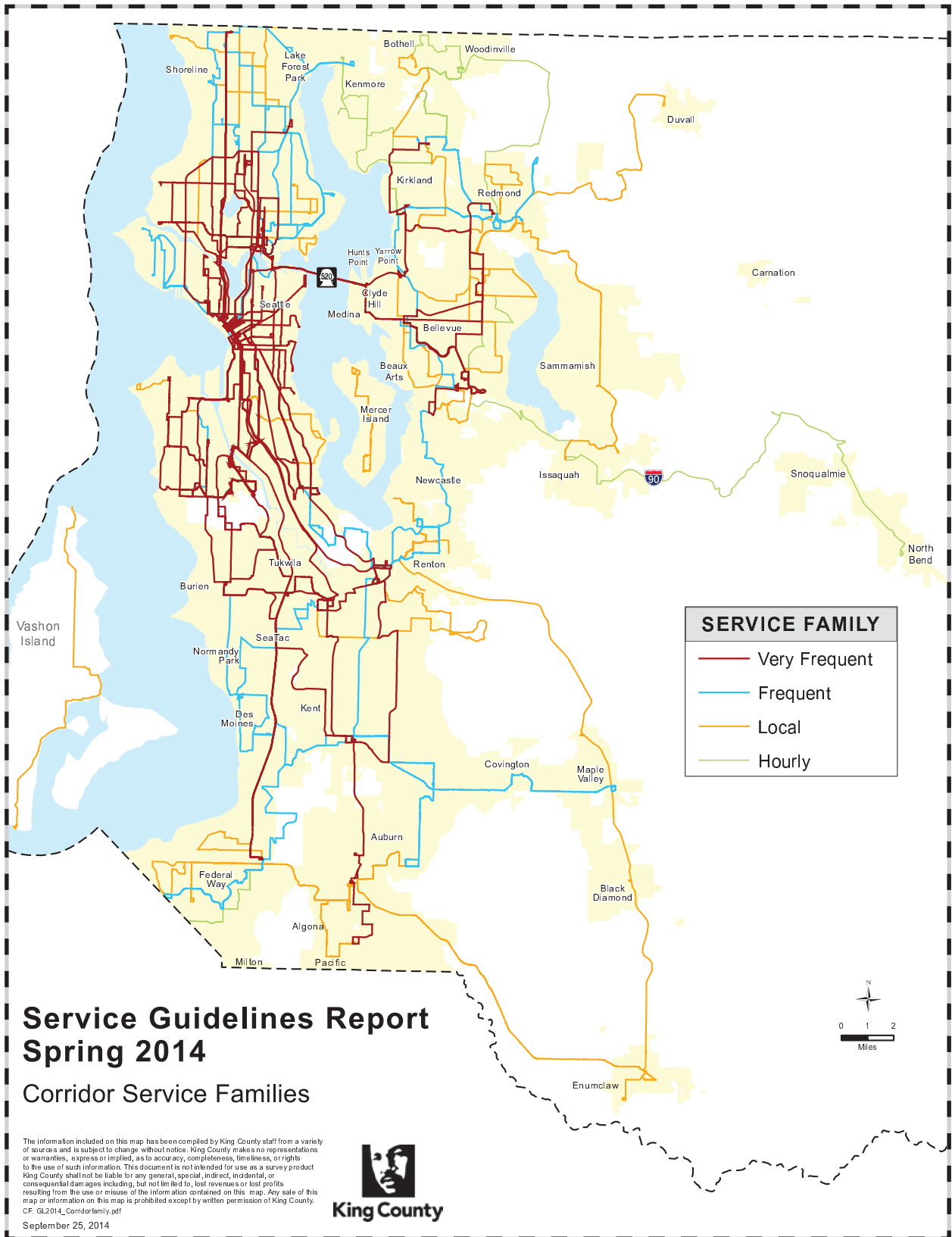
The two agencies are discussing new ways to better coordinate their analysis of corridors where both agencies operate service. At present, Metro’s All-Day Network does not include corridors where Sound Transit is the primary provider of all-day service. Key corridors in King County where Sound Transit is the primary provider of two-way, all-day transit service are listed in the table below. In many of these corridors, Metro mainly operates peak service that complements Sound Transit’s all-day service.

TABLE 5
Corridors Served Primarily by Sound Transit

Between	And	Via	Major Route
Woodinville	Downtown Seattle	Bothell, Kenmore, Lake Forest Park, Lake City	522
UW Bothell	Bellevue	Totem Lake	535
Redmond	Downtown Seattle	Overlake	545
Bellevue	Downtown Seattle	Mercer Island	550
Issaquah	Downtown Seattle	Eastgate, Mercer Island	554
Burien	Bellevue	SeaTac, Renton	560
Auburn	Overlake	Kent, Renton, Bellevue	566
SeaTac	Federal Way	I-5	574
Federal Way	Downtown Seattle	I-5	577/578
SeaTac	Downtown Seattle	Rainier Valley	Link light rail

As Link service expands, Sound Transit will become the primary provider in additional corridors such as the Northgate-to-downtown Seattle corridor. As services are introduced and modified, Metro and Sound Transit will make adjustments to the network.

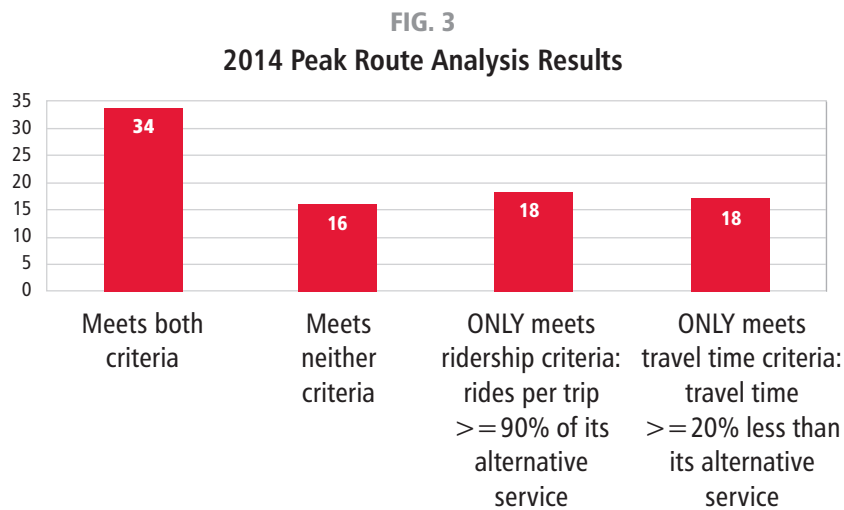
FIG. 2
Corridor Service Families



2) Peak analysis

This analysis compares rides per trip and travel time on peak-period routes to those on the local alternative. For peak service to be justified, a peak route must have at least 90 percent of the rides per trip that its alternative service has and must be at least 20 percent faster than its alternative. Information about whether routes meet one or both criteria is used in planning future service changes. Peak routes meeting neither criteria may be considered for change or restructuring to improve performance and use resources more efficiently.

In 2014, Metro analyzed 86 peak routes, two more than in 2013. The chart below shows the number of peak routes that meet one, two or neither of the peak criteria. This year, more routes meet both criteria than in 2013, and fewer routes meet neither or only one criteria. The results of the peak analysis are in Figure 3 and Appendix E.





SECTION 2

SERVICE INVESTMENT PRIORITIES

This section identifies where investments are needed to provide high-quality service and to meet target service levels. When Metro has resources available to invest, or reallocates existing service hours, these findings and the priorities defined in the guidelines will be the basis for investments.

The investment needs identified in this analysis of spring 2014 data are shown in Table 6 below. The investment needs to reduce passenger crowding, improve schedule reliability, and meet target service levels are higher than those in the previous year’s analysis

TABLE 6
2014 Investment Needs
(Based on Spring 2014 Data)

Priority	Investment Area	Estimated Annual Hours Needed
1	Reduce passenger crowding	22,200
2	Improve schedule reliability	38,650
3	Increase service to meet target service levels in All-Day and Peak Network*	486,500
Total investment need		547,350
4	Increase service on high-productivity routes	See discussion on page 2

* Referred to in the service guidelines as “corridors below target service levels”

Annual service hours needed to reduce passenger crowding increased from 15,400 to 22,200; hours needed to improve schedule reliability increased from 27,800 to 38,650; and hours needed to meet target service levels in the All Day and Peak Network increased from 467,500 to 486,500. The investment needs changed for several reasons:

- **Passenger crowding.** Growth in ridership resulted in more passenger crowding.
- **Schedule reliability declined** as a result of more crowded buses, more roadway construction, and traffic congestion that has worsened as the economy has improved.
- **Target service levels** changed for many corridors on the All-Day and Peak Network as a result of changes in ridership demand, land use, and distribution of low-income and minority riders. In addition, Metro made a significant investment in service on the corridor between Aurora Village and the Seattle central business district by starting the RapidRide E Line. This investment met the need identified on that corridor in last year’s report. The RapidRide F Line began service in summer 2014 but is not reflected in this year’s analysis because it was launched after the spring service change period.

Priority 1 – Passenger crowding investments

Investment in the most-crowded routes is the highest priority in the service guidelines. When service is chronically very crowded, it is poor quality and has a negative impact on riders and reduces overall ridership. Overcrowding is defined as a trip that on average has 25 to 50 percent more riders than seats (depending on service frequency) or has people standing for longer than 20 minutes. The passenger load thresholds are set so that we accept standing passengers on many of our services, but take action where crowding is at an unacceptable level on a regular basis. To ensure that investments are warranted to address problems, we consider performance over a longer period than a single service change.

The table below and Figure 4 identify routes that need additional trips to reduce crowding.

TABLE 7

Routes Needing Investment to Reduce Passenger Crowding

Shading indicates route is new to list of routes needing investment to reduce crowding

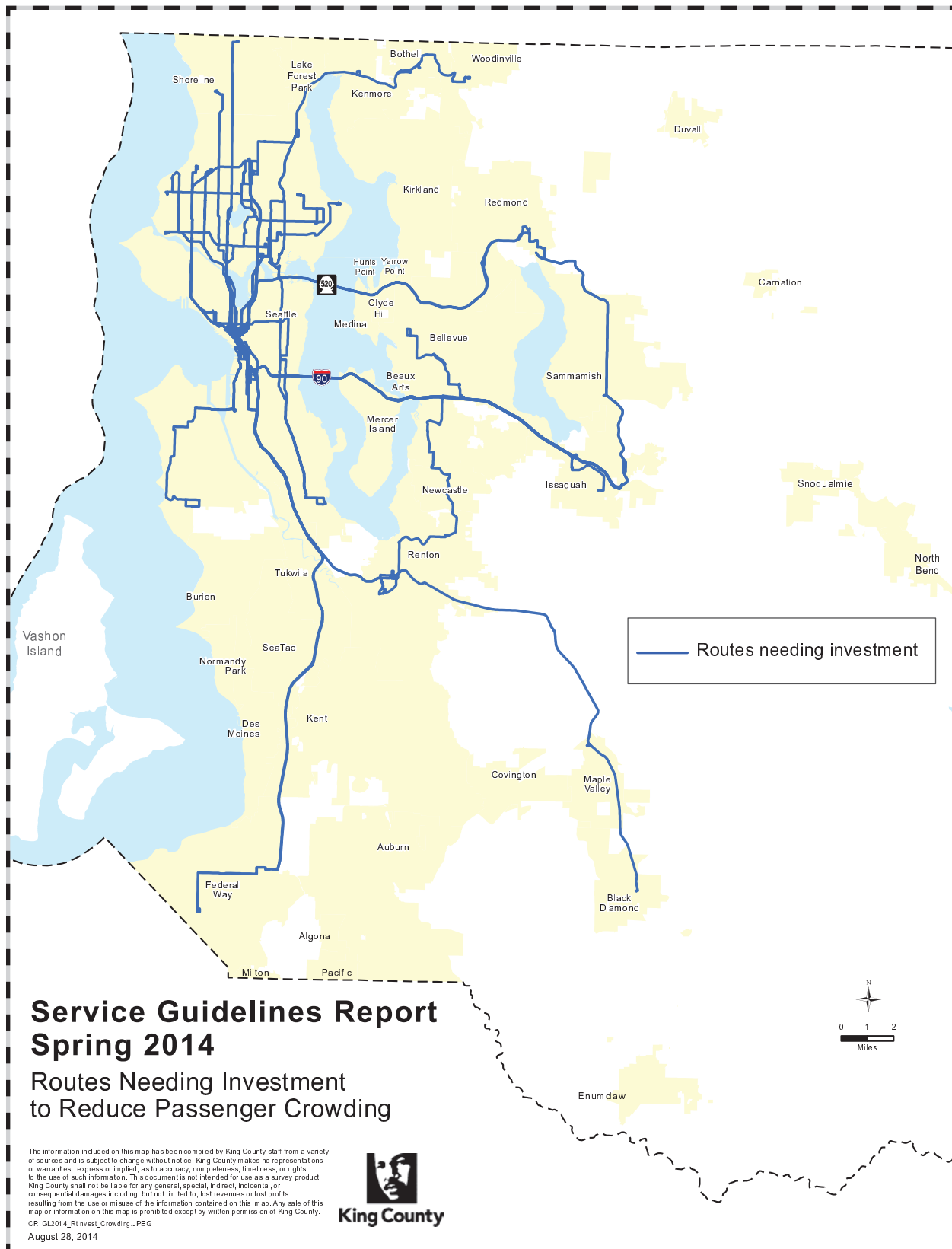
Route	Description	Day	Estimated Annual Hours Needed
C Line	Westwood Village - Alaska Junction - Seattle CBD	Weekday	1,400
D Line	Ballard - Seattle Center - Seattle CBD	Weekday	1,600
E Line	Aurora Village - Seattle CBD	Weekday	1,600
5	Shoreline CC - Seattle CBD	Weekday	1,300
8	Seattle Center - Capitol Hill - Rainier Beach	Weekday	600
15EX	Blue Ridge - Ballard - Seattle CBD	Weekday	1,100
16	Northgate TC - Wallingford - Seattle CBD	Weekday	1,600
18EX	North Beach - Ballard - Seattle CBD	Weekday	500
28	Whittier Heights - Ballard - Seattle CBD via Leary Av NW	Weekday	400
40	Northgate TC - Ballard - Seattle CBD via Leary Av NW	Weekday	700
41	Lake City - Seattle CBD via Northgate	Weekday	900
44	Ballard - Wallingford - Montlake	Weekday	300
48	Mount Baker - University District - Loyal Heights	Weekday	500
70	University District - Seattle CBD	Weekday	300
71	Wedgwood - University District - Seattle CBD	Weekday	400
72	Lake City - University District - Seattle CBD	Sunday	100
74EX	Sand Point - Seattle CBD	Weekday	500
101	Renton TC - Seattle CBD	Weekday	1,100
143EX	Black Diamond - Renton TC - Seattle CBD	Weekday	1,600
179	Twin Lakes - Seattle CBD	Weekday	600
214	Issaquah - Seattle CBD	Weekday	500
216	Sammamish - Seattle CBD	Weekday	700
218	Issaquah Highlands - Seattle CBD	Weekday	500
219	Redmond - Sammamish - Seattle CBD	Weekday	500
240	Bellevue - Newcastle - Renton	Weekday	1,700
268	Redmond - Seattle CBD	Weekday	600
372EX	Woodinville - Lake City - University District	Weekday	600
Total hours needed			22,200

Metro did not have resources to make investments in routes identified as overcrowded in 2013. Ten routes identified in last year's report continue to need investment, and the need has grown significantly on routes 15 Express, 101, 240, and the D Line. This year, several routes operating between East King County and downtown Seattle were identified as needing investment that were not identified in last year's report, specifically peak-period I-90 services such as routes 214, 216, 218, and 219.

Some additional routes were identified as overcrowded but were determined to not need immediate investment either because surrounding trips had capacity or because passenger crowding could be accommodated by assigning a larger bus. Routes 67, 68, 131 and 166 had crowded trips that could be mitigated by assigning a larger bus. Routes 11, 17 Express, 31, 32, 66 Express, 72, 73, 76, 120, 123, 131, 212, 252, 255, 257, 271, 301 and 311 had crowded trips, but trips on nearby routes had capacity available. These routes will continue to be monitored for possible future investments.

In 2014, Metro transmitted to the King County Council a report on alternative passenger crowding measures. This report described possible new ways to measure crowding in future reporting, and analyzed potential impacts to service needs from using different measures. This report discussed the use of performance measures based on the floor area of a bus rather than the number of seats on the bus. See Section 5 for more information about this process.

FIG. 4
Routes Needing Investment to Reduce Passenger Crowding



Priority 2 – Improve schedule reliability

Schedule reliability is measured as the percentage of trips that arrive between 1 minute early and 5 minutes late. Routes that are on time less than 80 percent of the time (65 percent for weekday PM peak) are candidates for investment of service hours. This threshold allows for variations in travel time, congestion, and ridership. In our 2014 report, we used reliability data from June 2013 – May 2014. We use a longer time period for this analysis when possible to ensure that schedule reliability needs are not understated by using data from just the four-month spring period.

The table below lists the 89 routes identified as needing service-hour investments to improve their reliability based on data from June 2013 to May 2014; Figure 8 is a map of those routes. Total need increased from 27,800 hours in 2013 to 38,650 annual hours in 2014. This year more routes experienced reliability problems on weekends. Several routes with larger identified needs in 2014 were affected by construction projects; for example, the Mercer Street project in South Lake Union was a likely cause of increased need for hours on routes 8, 40 and 70.

The total need was calculated based on how far above the lateness threshold the routes were during the different time period. While this calculation provides a reasonable estimate of total needs, individual routes may receive more or less investment than estimated depending on the scheduling techniques available to improve reliability.

TABLE 8
Routes Needing Investment to Improve Schedule Reliability
Shading indicates route is new to list of routes needing investment to improve reliability

Route	Area	Day	Estimated Annual Hours Needed
C Line	Westwood Village - Alaska Junction - Seattle CBD	Saturday	50
D Line	Ballard - Seattle Center - Seattle CBD	Saturday	100
1	Kinnear - Seattle CBD	Weekday, Saturday, Sunday	400
2	West Queen Anne - Seattle CBD - Madrona Park	Weekday, Saturday	650
3	North Queen Anne - Seattle CBD - Madrona Park	Weekday	500
4	East Queen Anne - Seattle CBD - Judkins Park	Weekday, Saturday	600
5	Shoreline CC - Seattle CBD	Saturday	100
7	Rainier Beach - Seattle CBD	Saturday	50
8	Seattle Center - Capitol Hill - Rainier Beach	Weekday	2,200
10	Capitol Hill - Seattle CBD	Weekday	250
11	Madison Park - Seattle CBD	Weekday, Saturday, Sunday	1,000
14	Mount Baker - Seattle CBD	Weekday, Saturday, Sunday	950
16	Northgate TC - Wallingford - Seattle CBD	Saturday, Sunday	25
17EX	Sunset Hill - Ballard - Seattle CBD	Weekday	250
18EX	North Beach - Ballard - Seattle CBD	Weekday	250
21EX	Arbor Heights - Westwood Village - Seattle CBD	Weekday	250
21	Arbor Heights - Westwood Village - Seattle CBD	Saturday	100
24	Magnolia - Seattle CBD	Weekday, Saturday	1,000
25	Laurelhurst - University District - Seattle CBD	Weekday	400
26EX	East Green Lake - Wallingford - Seattle CBD	Weekday	250
26	East Green Lake - Wallingford - Seattle CBD	Weekday, Saturday, Sunday	800
27	Colman Park - Leschi Park - Seattle CBD	Weekday, Saturday, Sunday	550

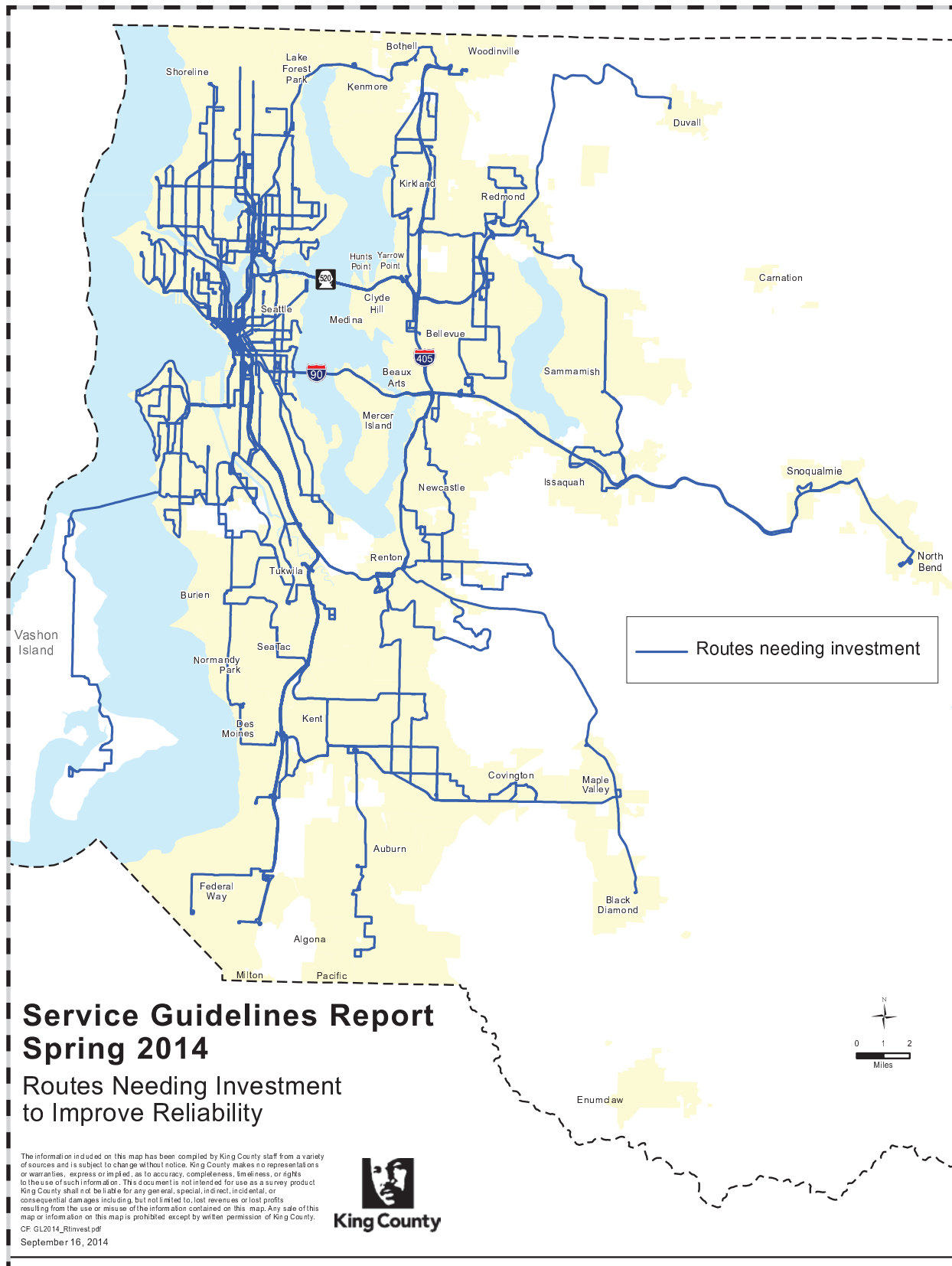
Route	Area	Day	Estimated Annual Hours Needed
28	Whittier Heights - Ballard - Seattle CBD via Leary Ave NW	Weekday, Saturday, Sunday	850
28EX	Broadview - Ballard - Seattle CBD via Leary Ave NW	Weekday	250
29	Ballard - Queen Anne - Seattle CBD	Weekday	400
31	University District - Fremont - Magnolia	Weekday, Saturday	350
32	University District - Fremont - Seattle Center	Saturday, Sunday	200
33	Discovery Park - Seattle CBD	Saturday	50
37	Alaska Junction - Alki - Seattle CBD	Weekday	250
40	Northgate TC - Ballard - Seattle CBD via Leary Ave NW	Weekday, Saturday, Sunday	2,100
41	Lake City - Seattle CBD via Northgate	Weekday	300
43	University District - Capitol Hill - Seattle CBD	Saturday	100
44	Ballard - Wallingford - Montlake	Saturday	50
48	Mt Baker - University District - Loyal Heights	Weekday, Saturday, Sunday	1,200
49	University District - Capitol Hill - Seattle CBD	Sunday	50
55	Admiral District - Alaska Junction - Seattle CBD	Weekday	250
56	Alki – Seattle CBD	Weekday	300
57	Alaska Junction - Seattle CBD	Weekday	300
60	Westwood Village - Georgetown - Capitol Hill	Saturday	100
64EX	Lake City - First Hill	Weekday	250
66EX	Northgate TC - Eastlake - Seattle CBD	Weekday	500
70	University District - Seattle CBD	Weekday	1,300
71	Wedgwood - University District - Seattle CBD	Weekday, Saturday, Sunday	350
72	Lake City - University District - Seattle CBD	Weekday, Saturday, Sunday	350
74EX	Sand Point - Seattle CBD	Weekday	250
76	Wedgwood - Seattle CBD	Weekday	250
83	Seattle CBD - Ravenna	Saturday	50
99	International District - Waterfront	Saturday, Sunday	100
101	Renton TC - Seattle CBD	Weekday, Saturday, Sunday	500
102	Fairwood - Renton TC - Seattle CBD	Weekday	250
105	Renton Highlands - Renton TC	Weekday, Sunday	300
111	Lake Kathleen - Seattle CBD	Weekday	400
114	Renton Highlands - Seattle CBD	Weekday	250
119EX	Dockton - Seattle CBD via ferry	Weekday	250
124	Tukwila - Georgetown - Seattle CBD	Weekday, Saturday, Sunday	1,600
128	Southcenter - Westwood Village - Admiral District	Weekday	700
131	Burien TC - Highland Park - Seattle CBD	Weekday, Saturday, Sunday	2,300
132	Burien TC - South Park - Seattle CBD	Weekday, Saturday, Sunday	1,000
143EX	Black Diamond - Renton TC - Seattle CBD	Weekday	400
157	Lake Meridian - Seattle CBD	Weekday	250
158	Kent East Hill - Seattle CBD	Weekday	250
159	Timberlane - Seattle CBD	Weekday	250
166	Kent Station - Burien TC	Weekday	300
167	Renton – Newport Hills – University District	Weekday	250
168	Maple Valley - Kent Station	Sunday	50

Route	Area	Day	Estimated Annual Hours Needed
169	Kent Station - East Hill - Renton TC	Weekday	800
177	Federal Way - Seattle CBD	Weekday	300
178	South Federal Way - Seattle CBD	Weekday	1,000
179	Twin Lakes - Seattle CBD	Weekday	600
180	Auburn - SeaTac Airport - Burien TC	Weekday	250
190	Redondo Heights - Seattle CBD	Weekday	250
192	Star Lake - Seattle CBD	Weekday	250
193EX	Federal Way - First Hill	Weekday	250
208	North Bend - Snoqualmie - Issaquah	Weekday, Saturday	300
219	Redmond - Sammamish - Seattle CBD	Weekday	250
221	Education Hill - Overlake - Eastgate	Sunday	50
232	Duvall - Bellevue	Weekday	250
237	Woodinville - Bellevue	Weekday	250
242	North City - Overlake	Weekday	250
245	Kirkland - Overlake - Factoria	Saturday, Sunday	200
255	Brickyard - Kirkland TC - Seattle CBD	Saturday	50
257	Brickyard - Seattle CBD	Weekday	250
269	Issaquah - Overlake	Weekday	300
277	Juanita - University District	Weekday	250
309EX	Kenmore - First Hill	Weekday	250
311	Duvall - Woodinville - Seattle CBD	Weekday	500
316	Meridian Park - Seattle CBD	Weekday	250
355EX	Shoreline CC - University District - Seattle CBD	Weekday	300
372EX	Woodinville - Lake City - University District	Weekday	250
601EX	Seattle CBD - Group Health (Tukwila)	Weekday	250
		Total hours needed	38,650

Some other routes had reliability problems but were determined not to need immediate investment because they were deleted in fall 2014 or have had major changes since spring 2014.

Reliability for all routes as measured during the period analyzed for this report is in Appendix D.

FIG. 5
Routes Needing Investment to Improve Schedule Reliability



Priority 3 – Corridors below target service levels

Our analysis found that 58 corridors in the All-Day and Peak Network were below target service levels in one or more time periods in spring 2014. Eleven corridors are new to this list in 2014 and 16 corridors from the 2013 list no longer have identified need in at least one time period. To bring service up to the target levels, an estimated 486,500 annual hours of investment would be needed—higher than the 2013 need of 467,500 annual hours and substantially higher than the 2012 need of 309,800 annual hours.

Table 9 lists the corridors that were below target service levels as of spring 2014; they are shown in Figure 6. Priority among these corridors was established according to the service guidelines by ordering the corridors in descending order of points, first by the geographic value score, then by the productivity score, and finally by the social equity score. This priority order helps ensure that service enhancements are distributed and productive throughout Metro’s service area.

TABLE 9
2014 Corridors Below Target Service Levels and Estimated Hours to Meet Service Level Targets, Ordered by Investment Priority
Shading indicates corridor is new to list of corridors below target service level

Corridor number	Between	And	Major route	Estimated hours to meet target
105	U. District	Seattle CBD	49	4,700
10	Ballard	Seattle CBD	D Line	9,100
12	Ballard	Seattle CBD	40	4,400
25	Cowen Park	Seattle CBD	71/72/73/74EX	4,800
68	Northgate	U. District	66EX/67	6,100
69	Northgate	Seattle CBD	16	25,900
99	Tukwila	Seattle CBD	124	11,900
9	Ballard	Northgate	40	4,400
19	Burien	Seattle CBD	132	15,300
20	Capitol Hill	White Center	60	19,300
84	Renton	Seattle CBD	101/102	7,500
51	Kent	Seattle CBD	150	7,700
81	Redmond	Totem Lake	930	11,000
33	Federal Way	Kent	183	12,500
50	Kent	Renton	169	12,800
52	Kent	Renton	153	13,000
83	Renton	Burien	140	18,000
3	Auburn	Burien	180	21,900
100	Tukwila	Des Moines	156	5,000
59	Madison Park	Seattle CBD	11	7,800
38	Greenwood	Seattle CBD	5	2,700
61	Magnolia	Seattle CBD	24	4,600
8	Ballard	U. District	48	5,000
111	West Seattle	Seattle CBD	C Line	6,200
18	Burien	Seattle CBD	131	13,000
79	Rainier Beach	Capitol Hill	9EX	17,900
86	Renton	Seattle CBD	106	16,900

Corridor number	Between	And	Major route	Estimated hours to meet target
94	Shoreline CC	Northgate	345	4,400
16	Bellevue	Renton	240	10,600
87	Renton	Renton Highlands	105	2,700
112	White Center	Seattle CBD	125	3,700
95	Shoreline CC	Lake City	330	3,200
7	Avondale	Kirkland	248	4,200
37	Green River CC	Kent	164	5,700
48	Kent	Burien	166	5,300
1	Admiral District	Southcenter	128	21,000
31	Fairwood	Renton	148	1,200
41	Issaquah	Overlake	269	11,300
44	Kenmore	Shoreline	331	5,000
46	Kenmore	Totem Lake	935 DART	2,800
49	Kent	Maple Valley	168	7,600
82	Redmond	Fall City	224	5,200
101	Tukwila	Fairwood	906 DART	6,000
30	Enumclaw	Auburn	186/915 DART	2,600
24	Colman Park	Seattle CBD	27	9,000
64	Mount Baker	Seattle CBD	14	8,200
107	U. District	Seattle CBD	25	8,600
26	Discovery Park	Seattle CBD	33	5,000
72	Eastgate	Bellevue	226	6,500
92	Sand Point	U. District	30	3,400
70	Northgate	U. District	68	8,100
58	Laurelhurst	U. District	25	3,400
28	Eastgate	Bellevue	246	6,200
93	Shoreline	U. District	373EX	24,900
47	Kennydale	Renton	909 DART	3,000
89	Renton Highlands	Renton	908 DART	3,000
102	Twin Lakes	Federal Way	903 DART	2,300
74	Pacific	Auburn	917 DART	3,000
			Total	486,500

Change from 2013

The list of corridors below target service levels identified in spring 2014 differs from the spring 2013 list because of service investments and changes in corridor scores since the last report. Corridor scores reflect changes in the underlying land use, social equity, and performance data. Table 10 lists the corridors that were below target service levels in 2013 but are no longer targeted for investment in at least one time period. Some of these corridors still have identified needs but have fewer time periods with needs this year. Reasons for change include:

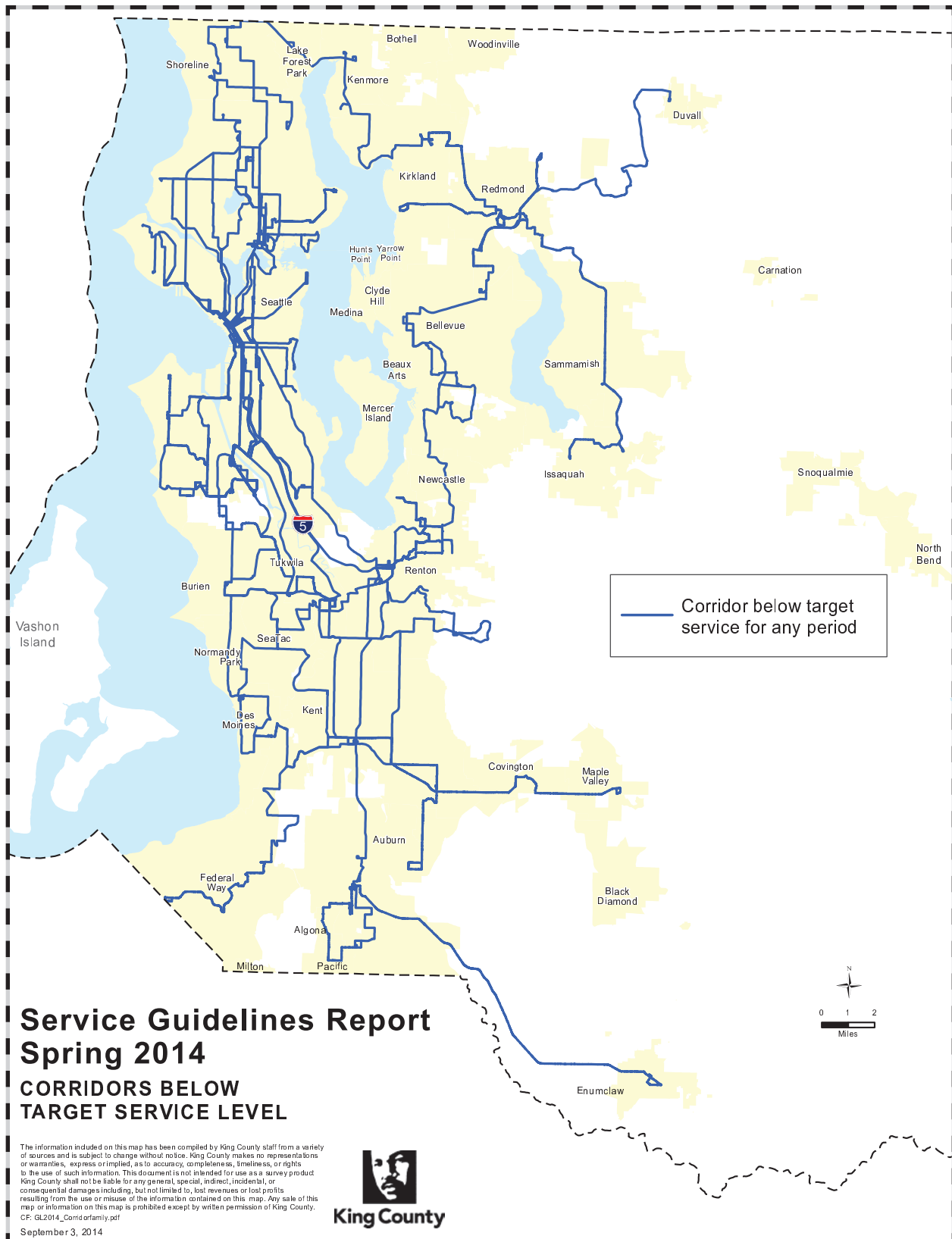
- Service improvements made in 2014. Service was improved when the RapidRide E Line began.
- Changes in ridership and productivity. The ridership and productivity of major routes changed on several corridors. While some corridors increased their target service levels, other corridors were targeted for less service because they needed less to meet existing demand.

In general, we expect to see changes each year in corridors that are below target service levels as ridership, productivity, and social conditions evolve. Our analysis takes such changes into account as we determine what investments may be needed.

TABLE 10
2013 Corridors Below Target Service Levels that are No Longer Targeted for Investment

Corridor Number	Between	And	Major route	Reason for Change
2	Alki	SODO	50	Lower peak loads
5	Aurora Village	Seattle CBD	E Line	Start of RapidRide E Line (service improvement)
27	Eastgate	Bellevue	241	Lower proportion of riders from low-income census tracts
32	Federal Way	SeaTac	A Line	Lower off-peak loads
35	Fremont	U. District	31/32	Lower peak and off-peak loads
37	Green River CC	Kent	164	Off-peak service no longer targeted because of lower off-peak loads; peak and night service remain targeted
45	Kenmore	U. District	372EX	Lower off-peak loads; lower proportion of riders from low-income census tracts
55	Lake City	Seattle CBD	41	Corrections to current frequency calculation; lower off-peak loads and night cost recovery
56	Northgate	U. District	75	Lower proportion of riders from low-income census tracts
57	Lake City	U. District	65	Corrections to current frequency calculation
65	Mountlake Terrace	Northgate	347	Lower cost recovery at night
70	Northgate	U. District	68	Corrections to current frequency calculation; off-peak and night service remain targeted
71	Othello Station	SODO	50	Lower peak loads
94	Shoreline CC	Northgate	345	Off-peak service no longer targeted due to lower proportion of riders from low-income tracts; peak and night service remain targeted
100	Tukwila	Des Moines	156	Night service no longer targeted because 2013 guidelines report erroneously showed no night service; peak service remains targeted
112	White Center	Seattle CBD	125	Night service no longer targeted as result of more accurate current frequency calculation and lower cost recovery; peak service remains targeted

FIG. 6
2014 Corridors Below Target Service Levels



Priority 4 – High-productivity routes

Route productivity is assessed using two measures: rides per platform hour or passenger miles per platform mile (see Section 1). High-productivity routes are defined as those that perform in the top 25 percent of comparable routes on one or both measures in at least one time period. In the spring 2014 period, of the 214 routes evaluated, 81 were in the top 25 percent in at least one time period on one or both productivity measures.

Metro must become more productive and carry more riders to help fulfill the public transportation expectation set in *Transportation 2040*—this is one reason why the guidelines define highly productive services as an investment priority. Investing in high-productivity routes in areas where there is latent demand for transit will result in higher ridership. A substantial portion of the growth needed to meet the *Transportation 2040* expectation (an additional 2.6 million annual service hours) will be on high-productivity services.

Metro has demonstrated that investments in highly productive service lead to increased ridership. We will continue to invest in high-productivity services when we restructure service, form service partnerships with local jurisdictions, or have other opportunities.

Many services that performed highly in 2013 continued to do so in 2014. Some notable groups of high-productivity routes include:

- **RapidRide lines.** Investments to improve frequency and quality of service have resulted in ridership growth on all RapidRide corridors. The A, B, D, and E lines are among the top 25 percent of routes on both performance measures in all time periods. The C Line and Route 140 (now F Line) were among the top 25 percent of routes on one or both performance measures in all time periods.
- **Downtown Seattle to University District routes.** Routes 49, 71, 72, 73 and 74 Express continue to be top performers that connect the largest transit markets in King County.
- **Commuter routes serving north Seattle.** Routes 15 Express, 74 Express, 76, 77 and 316 are the top-performing commuter routes. These highly successful commuter routes operate in areas that have high demand for service, including Ballard, the University District, northeast Seattle, and Shoreline.
- **Routes connecting regional growth centers in south King County.** The network of routes that connect regional growth centers in south King County—128, 140 (future F Line), 164, 166, 169, 180, and 181—continued to perform well in 2014. Their good performance is indicative of the strong demand for transit between regional growth and activity centers in south King County.
- **Routes that connect neighborhoods to Northgate.** The network of all-day routes in north King County connects several routes with the high-performing Route 41, which connects Northgate to downtown Seattle. Routes 345, 346 and 347 provide neighborhood circulation as well as a connection to Northgate. This group of routes performs well on the neighborhood routes that both circulate and connect to the trunk service and the all-day service to downtown Seattle.
- **Peak routes serving Eastgate Park and Ride.** Several peak routes that provide service between Eastgate Park and Ride and downtown Seattle perform well on passenger miles per platform mile—including routes 212, 216, 217, 218 and 219. Goal performance on the passenger miles measure indicates that service is well-used and buses are full along most of these routes.

TABLE 11
2014 Routes in Top 25% on Both Measures in All Time Periods Served
Shading indicates route is new to list of routes in top 25% on both measures

Route	Description	Time Period
A Line	Federal Way - Tukwila	Peak, off peak, night
B Line	Bellevue - Crossroads - Redmond	Peak, off peak, night
D Line	Ballard - Seattle Center - Seattle CBD	Peak, off peak, night
E Line	Aurora Village - Seattle CBD	Peak, off peak, night
15EX	Blue Ridge - Ballard - Seattle CBD	Peak
41	Lake City - Seattle CBD via Northgate	Peak, off peak, night
49	University District - Capitol Hill - Seattle CBD	Peak, off peak, night
71	Wedgwood - University District - Seattle CBD	Peak, off peak, night
72	Lake City - University District - Seattle CBD	Peak, off peak, night
73	Jackson Park - University District - Seattle CBD	Peak, off peak, night
74EX	Sand Point - Seattle CBD	Peak
76	Wedgwood - Seattle CBD	Peak
77	North City - Seattle CBD	Peak
164	Green River CC - Kent Station	Peak, off peak, night
166	Kent Station - Burien TC	Peak, off peak, night
169	Kent Station - East Hill - Renton TC	Peak, off peak, night
316	Meridian Park - Seattle CBD	Peak



SECTION 3

■ ALTERNATIVE SERVICES PERFORMANCE AND PROGRESS REPORT

This section presents the annual progress report for the King County Metro Transit Five-Year Implementation Plan for Alternative Services to Traditional Transit Service Delivery, complying with the request for an annual report in King County Motion 13736. Annual reporting for alternative services is being combined with the Service Guidelines Report to provide a comprehensive overview of services and performance. This section reviews both the actions Metro is taking to plan for and deliver alternative services and the performance of alternative services that were operating in spring 2014.

Historically, alternative services have included non-fixed-route services directly provided or supported by Metro: Community Access Transportation, Vanpool, Vanshare, and the Hyde Shuttle program. All of these programs provide access to local destinations and to fixed-route transit service.

Recently, Metro has focused on expanding alternative services on corridors that cannot be cost-effectively served by fixed-route transit. The first large-scale project in the Snoqualmie Valley resulted in the Snoqualmie Valley Shuttle, a deviated route funded through a partnership and operated by a local nonprofit organization. In 2014, Metro continued operations and support for alternative services, including the Snoqualmie Valley Shuttle and DART routes. We also began planning the Redmond alternative service project, focused on first/last mile connections, and engaged in discussions with several local jurisdictions about ways that alternative services could be provided in the future, primarily to offset the impact of service reductions.

Annual performance report

The Snoqualmie Valley Shuttle provides service between North Bend and Duvall, connecting riders to fixed-route transit service at both ends of the route and local destinations along the way. The shuttle has flexible service areas at the ends of the route. It is funded through a public/private partnership between Metro and the Snoqualmie Tribe, and is operated by a local nonprofit organization, Snoqualmie Valley Transportation. The Snoqualmie Valley Shuttle began operating in fall 2013, replacing portions of low-performing routes 224 and 311.

In spring 2014, both routes 224 and 311 had lower costs per vehicle trip and more rides per hour than before they were revised. Cost per ride increased because growth in cost per hour outpaced growth in rides per hour. The Snoqualmie Valley Shuttle had 2.1 rides per hour at an average cost to Metro of \$56.70 per trip, significantly lower than the cost per trip of the two routes it replaced. A comparison of these routes is shown in Table 12.

TABLE 12

Alternative Services Performance – Snoqualmie Valley Shuttle and Routes Changed in 2013

Route	Cost per vehicle trip (2013)	Cost per vehicle trip (2014)	Cost per ride (2013)	Cost per ride (2014)	Rides per hour (2013)	Rides per hour (2014)
224	\$201.10	\$121.20	\$18.84	\$18.88	7.1	7.4
311	\$319.77	\$282.74	\$6.57	\$6.71	21.7	22.2
Snoqualmie Valley Shuttle	n/a	\$56.70 /\$64.67*	n/a	\$16.88 /\$19.25*	n/a	2.1

* Including Snoqualmie Tribe contribution

Fare and policy changes

Metro is assessing the need to modify fare policy related to potential expansion of alternative services. The Snoqualmie Valley Shuttle operates with a suggested donation of \$1 per trip. Shuttle riders who connect to regular Metro service pay a fare on the Metro portion of their trip. In the spring 2014 service period, total donations on the Snoqualmie Valley Shuttle averaged about \$590 per month which was between 2 and 3 percent of operating costs. As Metro considers an expanded alternative service program, we will assess methods for ensuring that enough revenue is recovered to sustain the program.

Metro is currently considering policy changes that would support expansion of the alternative services program. One potential change would be to extend program eligibility to the general public. We will also consider policy changes relevant to alternative services in the 2015 update of the strategic plan and service guidelines. Metro is currently following policies updated in 2013 by incorporating alternative services more fully into our performance measurement.

Collaboration with local jurisdictions

In 2014, Metro focused on two projects: continuing to support the Snoqualmie Valley Shuttle and working with the City of Redmond to develop an alternative service concept to serve the southeast Redmond and Willows Road employment centers. As we shared information on service reductions, we also worked with stakeholders to discuss options for using alternative services to meet critical needs resulting from those reductions.

Under the Snoqualmie Valley Shuttle service agreement, Snoqualmie Valley Transportation (SVT) is primarily responsible for marketing and outreach. Metro worked with SVT to update the Metro and SVT websites to maximize cross-promotion of the shuttle and connections to Metro services, and provided materials to support SVT’s outreach through email and events. Metro and SVT are also collaborating on future outreach campaigns to increase shuttle ridership and promote the connection to Route 224 in Duvall. To help address the deletion of routes 209 and 215 in September 2014, Metro conducted an outreach campaign targeting affected riders that encouraged them to investigate Vanpool and Vanshare opportunities.

Metro and the City of Redmond conducted extensive employee outreach, working through employers in those areas. This project included four focus groups to fine-tune alternative service concepts and a survey to assess receptivity to these concepts that was completed by almost 800 commuters at over 16 worksites. One of the concepts, flexible carpooling and ridesharing, is currently being discussed with stakeholders. The current target for introducing alternative services in Redmond is first quarter of 2015.

Metro also discussed options for alternative services in several areas affected by service reductions. Metro is working with the Daybreak Star Indian Cultural Center in Magnolia to determine possible ways to serve the center after service reductions. Metro is also working with the City of Burien to identify potential services to mitigate elimination of Route 139, including looking at options for starting a Hyde Shuttle as part of Metro’s overall program.

Next steps

As part of Metro's 2015-2016 budget, the County Executive has proposed an expansion of the alternative services program. This effort is designed to continue and expand partnerships with local cities and organizations and to provide service better tailored to the unique travel patterns, schedules, and needs of communities.

Specific elements of the program could include:

- Community Shuttle services involve smaller buses that run on a designated route serving a flexible service area provided through a community partnership. Shuttle vehicles would be provided by Metro along with funds to pay a driver. Community partners could contribute resources and marketing/promotion. Shuttles would be open to the general population, operate during pre-determined hours and focus on common destinations helping riders with all-day travel needs.
- Community Hub services include creation of multi-modal transportation hubs where individuals can access services such as community shuttles/vans and bicycles as well as information on transportation options. Community van services, which can provide both regularly scheduled trips as well as one-time trips as necessary, and bike sharing services create a strong centralized focal point within a community and rely on strong community partners to be successful.
- Flexible Rideshare services build on the success of Uber and Lyft; this program provides the opportunity for individuals to participate in variable ridesharing as an alternative to the current vanpool program. Individuals can use their own or a Metro-provided vehicle and use a web-based or mobile application to find rides, designate specific pick-up points and connect to other services such as fixed route bus to complete their commute.



SECTION 4

■ THE GUIDELINES AT WORK

Metro uses the guidelines as we revise service three times each year, in the spring, summer, and fall. Metro launched the RapidRide E and F lines in February and June of 2014, respectively. In preparation for service reductions in September 2014, Metro limited service changes in February and June 2014 to minor routing and construction-mitigation changes. In September 2014, Metro implemented system-wide service reductions. A full list of changes made in 2014 is in Appendix G.

RapidRide E Line

In February 2014, Metro started the RapidRide E Line, which operates between downtown Seattle and the Aurora Village Transit Center via Green Lake and North Seattle. Like all of Metro's RapidRide service, the E Line offers free Wi-Fi, real-time bus arrival signs at stations, well-lit shelters, new buses, and frequent service all day, every day.

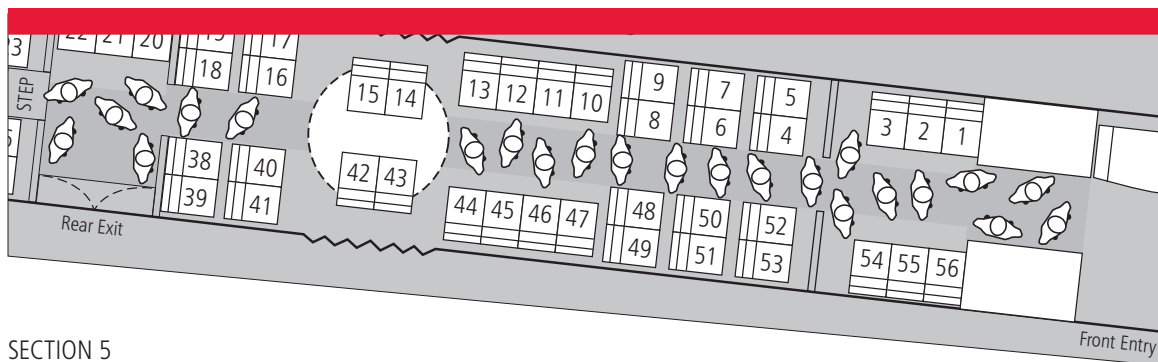
The E line operates 24 hours a day. On weekdays, service operates every 5 to 12 minutes during peak commute hours, every 12 minutes most other times of the day, and every 20 to 60 minutes after 10 p.m. On weekends, the E Line operates every 12 to 20 minutes most of the day and every 20 to 60 minutes after 10 p.m.

The E Line operates in business access and transit (BAT) lanes between Shoreline and North 38th Street in Seattle. Transit signal priority and queue jumps also help buses move more efficiently. Early results shows a 23 percent travel time savings on the E Line compared to the prior service (358 EX). The E Line has 58 total stops (not including downtown Seattle stops), including 31 stations with ORCA card readers and real-time information signs.

In the months following its launch, the E Line had a 16 percent ridership increase over the baseline period. After only three months, the overall rider satisfaction level was 83 percent. Eighty percent of riders were satisfied with how long their trip takes.

Service reductions

Metro implemented large-scale service reductions in September 2014, cutting 28 bus routes and revising 13 additional routes. The reduction of 161,000 annual service hours was approved by the King County Council in summer 2014. These reductions targeted low-performing service. A full list of September 2014 reductions is in Appendix G.



SECTION 5

POTENTIAL CHANGES TO THE SERVICE GUIDELINES AND STRATEGIC PLAN

The 2014 *Guidelines Report* reflects changes to the service guidelines methodology that were adopted when the strategic plan and guidelines were updated in 2013. Metro strives to improve and refine the service guidelines, and is preparing for a 2015 update. Topics that may be addressed include the following:

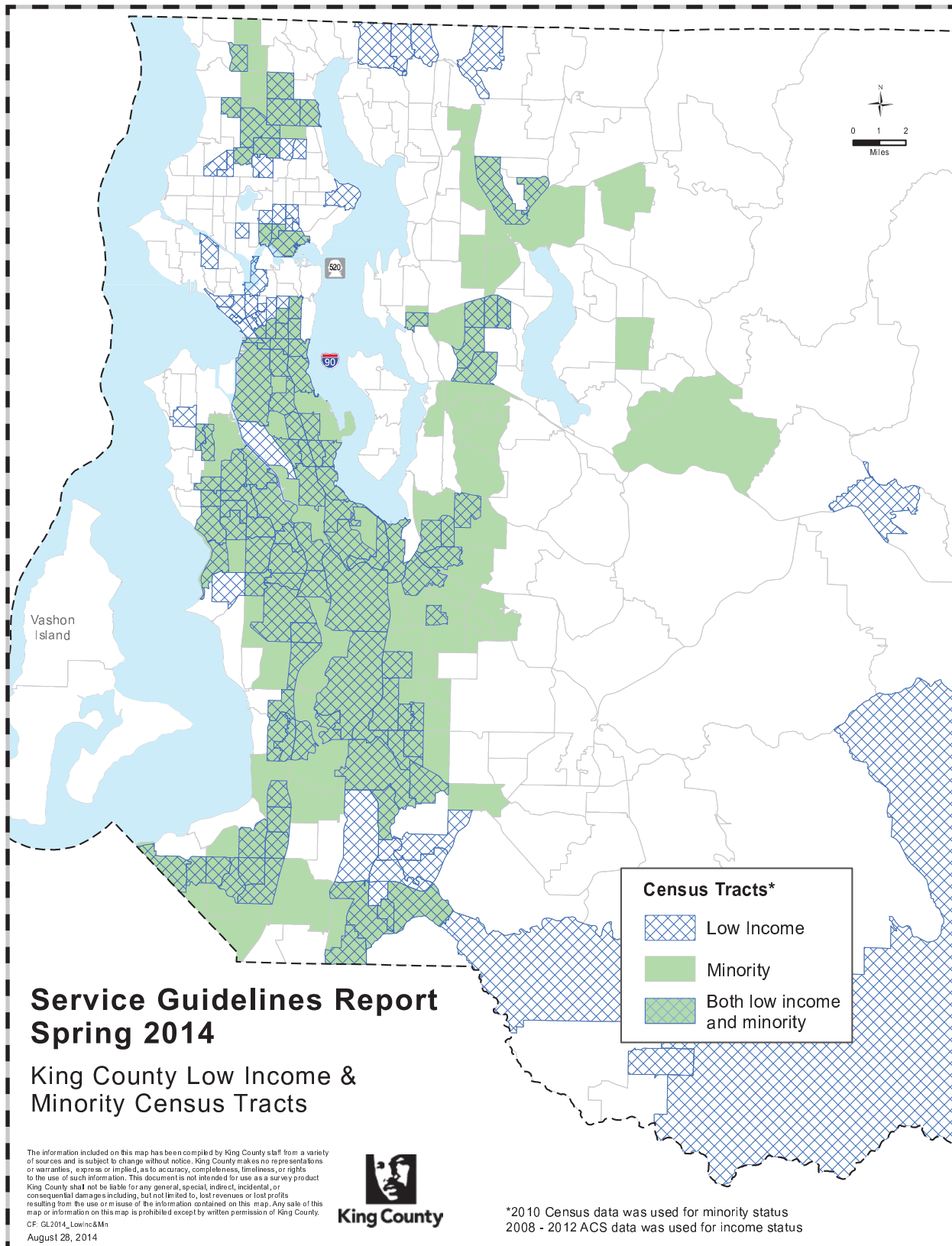
- 1) Reviewing social equity and geographic value measures.** Metro stakeholders have expressed interest in further review of the social equity and geographic measures in the Strategic Plan and Service Guidelines. Metro will be working with those stakeholders to explore how these issues are considered and balanced in the current guidelines and any potential policy changes. That discussion could also consider how to ensure that services are assessed appropriately by market.
- 2) Long-range plan development.** Our process of developing a long-range plan over the next two years may prompt us to consider updates to the strategic plan and service guidelines. The long-range plan will create a foundation for better coordination with partners, cities and other stakeholders; provide direction for cities in land-use and policy decisions; and provide better guidance on the future of Metro's service network. It will include service and capital elements of a future transit network.
- 3) Revisions to passenger load measures.** Metro is working with the Regional Transit Committee and King County Council staff to consider revisions to passenger load measures, including moving from a measure based on the number of seats in the bus to a measure based on area in the bus. Moving to area-based thresholds would resolve a concern that the guidelines will identify more crowding as Metro uses more low-floor buses, which have fewer seats. The Regional Transit Committee is reviewing this report and working with Metro to develop policy language and guidance about what to include in the 2015 update.
- 4) Alternative services.** Metro is continuing to identify and support development of alternative services, including developing concepts for new pilot projects. As this program grows and performance information becomes available, we will be developing performance measures for alternative services. Development of this program may lead to updates of the alternative services policies in the strategic plan.

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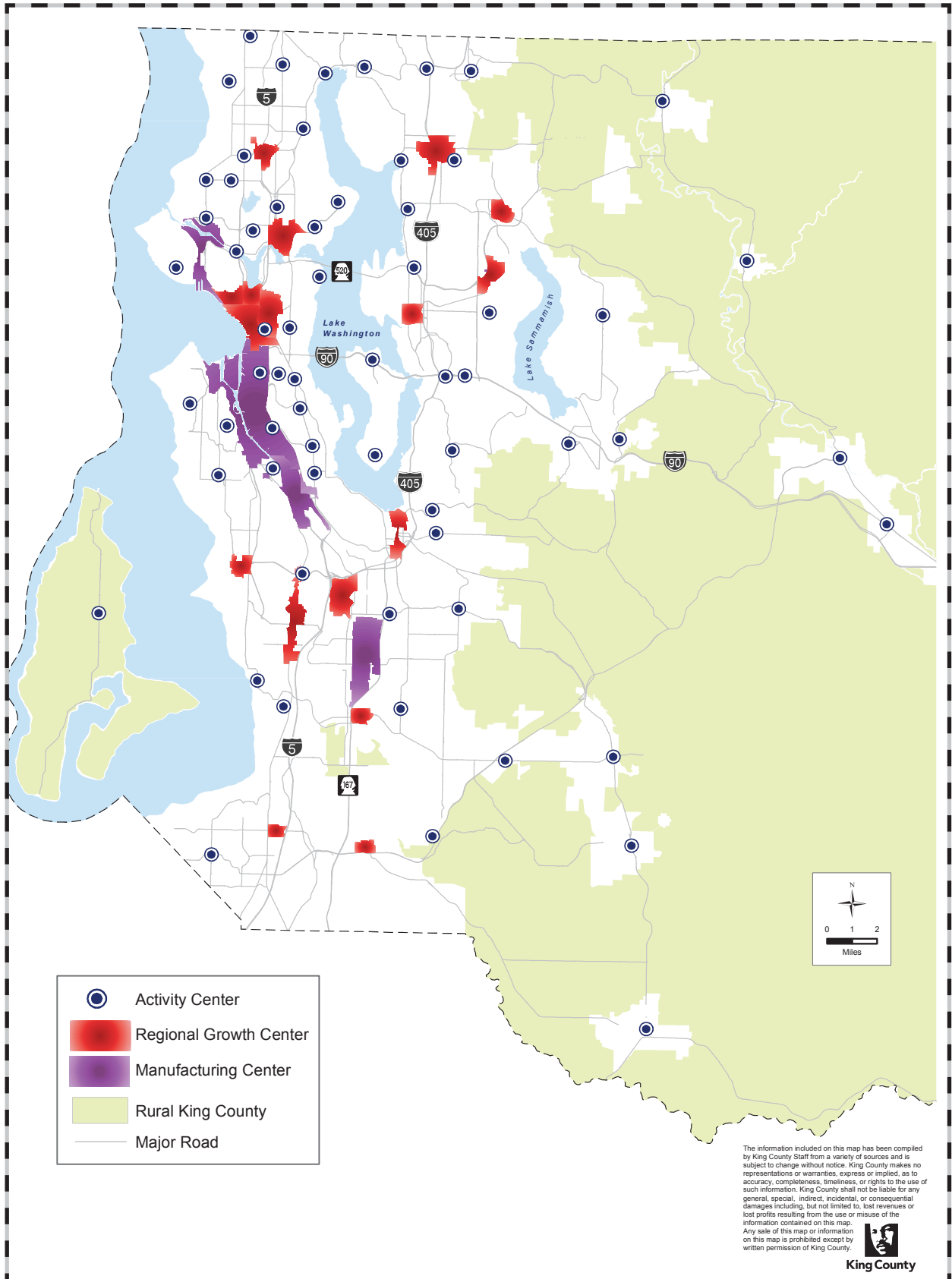
■ APPENDICES

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Appendix A: King County Low-Income and Minority Census Tracts



Appendix B: Transit Activity Centers and Regional Growth/Manufacturing Centers



Appendix C:
Route Productivity Data

Routes that Do Not Serve the Seattle Core

Route	Description	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
A Line	Federal Way - Tukwila	56.1	15.5	59.7	19.0	41.1	12.0
B Line	Bellevue - Crossroads - Redmond	43.5	12.3	37.2	10.7	30.2	7.5
22	Arbor Heights - Westwood Village - Alaska Junction	11.9	2.5	9.5	2.2	5.5	1.4
50	Alki - Columbia City - Othello Station	22.4	4.9	19.3	4.8	9.8	2.5
61	North Beach - Ballard	7.2	1.0	7.8	1.2	4.1	0.6
105	Renton Highlands - Renton TC	32.8	8.6	27.8	8.0	19.1	5.7
107	Renton TC - Rainier Beach	24.0	6.3	22.1	6.1	16.0	4.3
110	Tukwila Station - North Renton	12.1	2.1				
118	Tahlequah - Vashon	14.7	2.6	12.1	1.9	10.6	3.1
119	Dockton - Vashon	13.2	2.1	11.3	1.5		
128	Southcenter - Westwood Village - Admiral District	34.4	11.0	34.6	11.6	17.1	5.5
139	Burien TC - Gregory Heights	7.1	1.1	9.0	1.5		
140	Burien TC - Renton TC	27.3	8.1	30.6	9.7	23.5	8.3
148	Fairwood - Renton TC	17.2	5.6	17.5	6.3	22.4	8.5
153	Kent Station - Renton TC	20.2	5.8				
154	Tukwila Station - Boeing Industrial	17.9	4.5				
156	Southcenter - SeaTac Airport - Highline CC	19.0	5.6	18.0	6.6	11.5	4.0
164	Green River CC - Kent Station	43.5	12.0	42.5	15.1	29.3	8.3
166	Kent Station - Burien TC	28.3	10.2	29.5	10.8	19.3	6.5
168	Maple Valley - Kent Station	25.3	7.7	24.7	8.9	20.9	5.3
169	Kent Station - East Hill - Renton TC	43.0	17.8	42.5	17.6	29.7	10.5
173	Federal Way TC - Federal Center South	11.7	5.9				
180	Auburn - SeaTac Airport - Burien TC	36.6	11.5	34.5	12.1	18.2	6.9
181	Twin Lakes P&R - Green River CC	29.3	10.2	27.6	10.2	18.3	4.7
182	NE Tacoma - Federal Way TC	16.5	4.5	21.7	7.0		
183	Federal Way - Kent Station	21.0	6.2	21.8	9.0		
186	Enumclaw - Auburn Station	11.6	3.0				
187	Federal Way TC - Twin Lakes	24.8	6.3	26.6	7.4	16.3	3.6
200	Downtown Issaquah - North Issaquah	7.6	1.5	12.8	3.5		
201	South Mercer Island - Mercer Island P&R via Mercer Way	4.2	0.9				
203	Mercer Island P&R - Shorewood	12.7	1.9	13.2	1.3		
204	South Mercer Island - Mercer Island P&R via Island Crest			9.4	1.5		
208	Issaquah - North Bend	5.5	3.1	7.9	5.0		
209	North Bend - Snoqualamie - Issaquah	4.7	2.3				
213	Mercer Island P&R - Covenant Shores			7.2	0.8		
221	Education Hill - Overlake - Eastgate	20.4	6.7	18.4	5.4	11.7	2.7
224	Duvall - Redmond TC	7.4	3.1	7.4	3.3		
226	Eastgate - Crossroads - Bellevue	31.2	8.3	29.3	7.0	11.9	2.9

Route	Description	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
232	Duvall - Bellevue	18.7	6.9				
234	Kenmore - Kirkland TC - Bellevue	22.6	8.0	18.2	6.3	12.4	3.7
235	Kingsgate - Kirkland TC - Bellevue	21.7	7.3	16.5	6.3	11.3	3.9
236	Woodinville - Totem Lake - Kirkland	8.9	2.3	7.7	2.2	5.6	1.3
237	Woodinville - Bellevue	19.9	8.1				
238	Bothell - Totem Lake - Kirkland	11.0	3.0	12.5	3.6	6.3	1.6
240	Bellevue - Newcastle - Renton	28.6	10.7	23.4	10.0	14.7	6.5
241	Eastgate - Factoria - Bellevue	19.9	4.9	17.5	4.1	11.2	2.5
242	North City - Overlake	18.6	10.9				
244	Kenmore - Overlake	13.1	5.2				
245	Kirkland - Overlake - Factoria	27.5	8.4	24.6	7.4	17.5	5.0
246	Eastgate - Factoria - Bellevue	13.7	3.4	12.3	3.0		
248	Avondale - Redmond TC - Kirkland	24.1	6.8	19.4	5.1	11.4	2.7
249	Overlake - South Kirkland - South Bellevue	18.2	4.4	13.4	3.3		
269	Issaquah - Overlake	12.1	5.5				
330	Shoreline CC - Lake City	25.3	6.3	30.2	9.6		
331	Shoreline CC - Kenmore	17.5	6.2	18.8	5.9	8.6	2.5
342	Shoreline - Bellevue TC - Renton	20.1	10.9				
345	Shoreline CC - Northgate	38.5	10.4	36.8	10.3	16.9	6.0
346	Aurora Village - Northgate	38.2	11.1	29.7	10.0	14.2	5.7
347	Mountlake Terrace - Northgate	27.0	8.7	23.3	7.5	18.7	6.2
348	Richmond Beach - Northgate	23.6	6.1	24.0	6.6	16.9	5.2
901DART	Mirror Lake - Federal Way TC	16.1	3.5	18.0	3.1	17.2	4.8
903DART	Twin Lakes - Federal Way TC	16.9	3.3	18.2	2.5	11.2	1.9
906DART	Fairwood - Southcenter	13.4	5.3	14.3	7.0		
907DART	Enumclaw - Renton TC	3.4	1.3	5.4	2.7		
908DART	Renton Highlands - Renton TC	9.7	1.8	7.0	1.8		
909DART	Kennydale - Renton TC	12.2	2.1	10.8	2.1		
910DART	North Auburn - SuperMall			11.1	1.8		
913DART	Kent Station - Riverview	14.1	2.2				
914DART	Kent - Kent East Hill			22.4	5.5		
915DART	Enumclaw - Auburn Station			15.7	4.1		
916DART	Kent - Kent East Hill			17.8	4.7		
917DART	Pacific - Auburn	12.3	2.3	8.3	2.0		
919DART	SE Auburn - Auburn P&R			13.5	2.0		
927DART	Issaquah - Lake Sammamish	6.8	1.7	7.9	3.2		
930DART	Kingsgate - Redmond	9.5	1.3				
931DART	Bothell - Redmond	7.9	1.9	7.8	2.8		
935DART	Totem Lake - Kenmore	5.6	1.0				

Spring 2014 Thresholds Routes that Do Not serve the Seattle Core	Peak		Off Peak		Night	
Bottom 25%	12.0	2.4	11.3	2.7	11.3	2.7
Top 25%	25.2	8.1	24.7	8.0	18.8	6.3

Routes that Serve the Seattle Core

Route	Description	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
C Line	Westwood Village - Alaska Junction - Seattle CBD	50.4	20.9	45.7	20.0	30.1	12.6
D Line	Ballard - Seattle Center - Seattle CBD	76.1	20.8	66.2	19.8	45.0	12.7
E Line	Aurora Village - Seattle CBD	49.8	19.4	53.1	22.9	37.9	14.9
1	Kinnear - Seattle CBD	54.6	12.1	46.2	9.4	32.7	6.8
2	West Queen Anne - Seattle CBD - Madrona Park	49.0	11.2	44.8	10.0	28.4	6.7
3	North Queen Anne - Seattle CBD - Madrona	53.7	11.1	49.4	10.6	24.7	5.6
4	East Queen Anne - Seattle CBD - Judkins Park	50.4	10.5	44.8	9.4	25.1	5.9
5EX	Shoreline CC - Seattle CBD	44.9	15.7				
5	Shoreline CC - Seattle CBD	58.5	18.5	48.0	14.3	35.0	10.7
7EX	Rainier Beach - Seattle CBD	35.6	8.7				
7	Rainier Beach - Seattle CBD	53.2	15.8	60.2	17.6	35.2	11.0
8	Seattle Center - Capitol Hill - Rainier Beach	54.7	12.2	44.4	10.7	33.2	7.4
9EX	Rainier Beach - Capitol Hill	40.3	11.5	46.0	14.5		
10	Capitol Hill - Seattle CBD	56.1	10.5	56.1	11.1	35.6	7.3
11	Madison Park - Seattle CBD	61.8	11.8	55.4	9.8	38.1	5.9
12	Interlaken Park - Seattle CBD	54.4	10.1	36.9	7.1	17.3	4.3
13	Seattle Pacific University - Queen Anne - Seattle CBD	60.2	14.2	59.9	14.1	30.9	7.0
14	Mount Baker - Seattle CBD	42.4	9.7	45.0	9.1	23.4	4.9
15EX	Blue Ridge - Ballard - Seattle CBD	49.2	20.1				
16	Northgate TC - Wallingford - Seattle CBD	35.7	12.9	28.1	10.4	18.6	6.4
17EX	Sunset Hill - Ballard - Seattle CBD	48.3	17.1				
18EX	North Beach - Ballard - Seattle CBD	48.2	18.3				
19	West Magnolia - Seattle CBD	29.2	7.5				
21EX	Arbor Heights - Westwood Village - Seattle CBD	34.9	14.3				
21	Arbor Heights - Westwood Village - Seattle CBD	43.5	14.6	33.7	11.4	21.4	7.8
24	Magnolia - Seattle CBD	48.1	14.3	28.8	9.8	19.8	5.7
25	Laurelhurst - University District - Seattle CBD	24.8	6.4	18.4	5.0		
26EX	East Green Lake - Wallingford - Seattle CBD	48.6	16.3				
26	East Green Lake - Wallingford - Seattle CBD	54.2	13.1	34.8	11.1	24.5	7.2
27	Colman Park - Leschi Park - Seattle CBD	41.4	10.7	29.9	5.7	18.2	3.9
28	Whittier Heights - Ballard - Seattle CBD via Leary Ave NW	52.3	13.2	37.0	9.7	22.7	5.3
28EX	Broadview - Ballard - Seattle CBD via Leary Ave NW	41.3	13.4				
29	Ballard - Queen Anne - Seattle CBD	39.1	10.0				
30	Sand Point - University District	27.6	7.2	24.9	6.0	24.7	4.7

Route	Description	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
31	University District - Fremont - Magnolia	40.0	8.8	35.1	9.0		
32	University District - Fremont - Seattle Center	43.2	13.0	38.4	11.7	26.8	7.1
33	Discovery Park - Seattle CBD	45.8	13.9	27.5	8.2	21.0	6.5
36	Othello Station - Beacon Hill - Seattle CBD	46.1	13.2	49.9	13.6	25.3	7.0
37	Alaska Junction - Alki - Seattle CBD	17.1	7.9				
40	Northgate TC - Ballard - Seattle CBD via Leary Ave NW	41.3	13.5	37.7	12.0	25.1	8.8
41	Lake City - Seattle CBD via Northgate	60.1	25.9	56.8	26.0	39.7	20.7
43	University District - Capitol Hill - Seattle CBD	58.6	15.5	49.9	12.5	37.8	10.1
44	Ballard - Wallingford - Montlake	61.0	16.6	53.9	13.6	34.9	9.7
47	Summit - Seattle CBD	38.3	8.4	27.4	5.2	16.5	2.9
48EX	Mount Baker - University District - Loyal Heights	35.4	8.8				
48	Mount Baker - University District - Loyal Heights	48.7	13.3	51.1	14.8	30.3	8.4
49	University District - Capitol Hill - Seattle CBD	61.8	19.7	58.6	17.2	52.1	15.8
55	Admiral District - Alaska Junction - Seattle CBD	30.3	12.3				
56	Alki - Seattle CBD	35.0	13.2				
57	Alaska Junction - Seattle CBD	33.9	13.3				
60	Westwood Village - Georgetown - Capitol Hill	33.3	9.2	31.4	8.5	19.6	5.9
62	Ballard - Seattle Pacific University - Seattle CBD	18.6	4.8				
64EX	Lake City - First Hill	33.9	10.6				
65	Lake City - University District	34.7	8.4	38.8	9.6	23.8	7.3
66EX	Northgate TC - Eastlake - Seattle CBD	42.3	14.9	33.7	12.3	19.5	6.6
67	Northgate TC - University District	45.0	12.8	52.0	17.5	26.2	7.1
68	Northgate TC - Ravenna - University District	36.4	8.7	54.5	12.9		
70	University District - Seattle CBD	48.6	15.3	39.9	12.5		
71	Wedgwood - University District - Seattle CBD	61.8	21.4	60.7	21.1	38.0	11.9
72	Lake City - University District - Seattle CBD	62.1	21.0	61.9	22.6	38.4	12.1
73	Jackson Park - University District - Seattle CBD	62.2	21.4	58.9	20.4	45.6	14.1
74EX	Sand Point - Seattle CBD	62.0	19.3				
75	Northgate TC - Lake City - Seattle CBD	45.2	11.2	47.1	11.9	35.9	9.1
76	Wedgwood - Seattle CBD	51.6	18.7				
77	North City - Seattle CBD	59.1	27.4				
82	Seattle CBD - Greenwood					10.9	2.9
83	Seattle CBD - Ravenna					12.6	3.9
84	Seattle CBD - Madison Park - Madrona					7.3	1.5
98	South Lake Union Streetcar	82.9	12.0	51.1	8.5	22.3	3.8
99	International District - Waterfront	23.1	5.4				

Route	Description	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
101	Renton TC - Seattle CBD	41.5	22.2	50.0	26.8	35.3	20.4
102	Fairwood - Renton TC - Seattle CBD	36.0	20.4				
106	Renton TC - Rainier Beach - Seattle CBD	39.7	13.3	38.6	14.1	25.6	9.8
111	Lake Kathleen - Seattle CBD	25.4	16.6				
113	Shorewood - Seattle CBD	25.4	11.7				
114	Renton Highlands - Seattle CBD	18.5	11.2				
116EX	Fauntleroy Ferry - Seattle CBD	19.5	8.6				
118EX	Tahlequah - Seattle CBD via ferry	21.3	12.0				
119EX	Dockton - Seattle CBD via ferry	14.4	6.4				
120	Burien TC - Westwood Village - Seattle CBD	42.4	17.6	46.0	19.5	35.7	16.0
121	Highline CC -Burien TC - Seattle CBD via 1st Ave S	19.5	8.7				
122	Highline CC -Burien TC - Seattle CBD via Des Moines Memorial Dr S	21.1	10.3				
123	Burien - Seattle CBD	25.8	15.6				
124	Tukwila - Georgetown - Seattle CBD	37.4	13.5	38.0	14.9	23.9	9.9
125	Westwood Village - Seattle CBD	35.9	14.3	29.4	12.5	19.9	8.1
131	Burien TC - Highland Park - Seattle CBD	41.6	16.7	33.7	13.1	23.8	10.3
132	Burien TC - South Park - Seattle CBD	33.9	13.9	27.6	11.0	18.5	7.5
143	Black Diamond - Renton TC - Seattle CBD	23.0	14.2				
150	Kent Station - Southcenter - Seattle CBD	38.8	19.9	38.7	21.4	14.8	10.1
152	Auburn - Seattle CBD	17.4	11.3				
157	Lake Meridian - Seattle CBD	15.2	10.6				
158	Kent East Hill - Seattle CBD	22.1	16.1				
159	Timberlane - Seattle CBD	20.8	14.1				
161	Lake Meridian - Seattle CBD	18.5	11.1				
167	Renton - Newport Hills - University District	25.0	21.5				
177	Federal Way - Seattle CBD	20.1	13.0				
178	South Federal Way - Seattle CBD	24.5	17.7				
179	Twin Lakes - Seattle CBD	23.3	17.2				
190	Redondo Heights - Seattle CBD	20.7	13.2				
192	Star Lake - Seattle CBD	18.7	12.5				
193EX	Federal Way - First Hill	24.2	15.9				
197	Twin Lakes - University District	20.6	16.3				
202	South Mercer Island - Seattle CBD	12.1	4.2				
205EX	South Mercer Island - First Hill - University District	19.2	6.5				
210	Issaquah - Factoria - Seattle CBD	26.0	12.0				
211EX	Issaquah Highlands - First Hill	17.0	6.8				
212	Eastgate - Seattle CBD	36.0	19.2				
214	Issaquah - Seattle CBD	26.0	16.1				
215	North Bend - Seattle CBD	15.7	10.5				
216	Sammamish - Seattle CBD	37.0	24.0				
217	Issaquah - Eastgate - Seattle CBD	29.1	18.9				
218	Issaquah Highlands - Seattle CBD	42.1	23.4				
219	Redmond - Sammamish - Seattle CBD	31.3	21.6				

Route	Description	Peak		Off Peak		Night	
		Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile	Rides/ Platform Hour	Passenger Miles/ Platform Mile
243	Jackson Park - Bellevue	23.2	9.5				
250	Overlake - Seattle CBD	20.8	11.4				
252	Kingsgate - Seattle CBD	27.0	16.9				
255	Brickyard - Kirkland TC - Seattle CBD	31.5	16.3	25.9	13.4	24.2	13.2
257	Brickyard - Seattle CBD	24.3	15.6				
260	Finn Hill - Seattle CBD	18.0	10.4				
265	Overlake - Houghton - First Hill	17.7	9.5				
268	Redmond - Seattle CBD	28.2	18.3				
271	Issaquah - Bellevue - University District	27.6	11.3	28.4	12.4	21.1	8.9
277	Juanita - University District	12.5	4.9				
280	Seattle CBD - Bellevue - Renton					16.8	9.5
301	Aurora Village - Seattle CBD	34.2	19.8				
303EX	Shoreline - First Hill	34.1	17.3				
304	Richmond Beach - Seattle CBD	30.0	18.4				
306EX	Kenmore - Seattle CBD	34.5	19.0				
308	Horizon View - Seattle CBD	22.8	13.0				
309EX	Kenmore - First Hill	37.0	20.9				
311	Woodinville - Seattle CBD	22.2	14.7				
312EX	Bothell - Seattle CBD	33.4	16.0				
316	Meridian Park - Seattle CBD	53.7	20.1				
355EX	Shoreline CC - University District - Seattle CBD	30.5	10.7				
372EX	Woodinville - Lake City - University District	39.9	13.7	44.0	15.9	34.0	8.5
373EX	Aurora Village - University Village	35.4	13.2				
601EX	Seattle CBD - Group Health (Tukwila)	5.7	2.6				

Spring 2014 Thresholds Routes that serve Seattle Core	Peak		Off Peak		Night	
Bottom 25%	24.3	10.7	33.7	9.8	20.7	5.9
Top 25%	48.2	17.1	51.1	14.9	35.1	10.2

Appendix D: Route Reliability Data

Route	All-Day % Late	PM % Late	Saturday % Late	Sunday % Late
A Line	16%	18%	12%	12%
B Line	13%	15%	8%	4%
C Line	18%	20%	21%	12%
D Line	19%	21%	22%	12%
E Line	21%	22%	21%	11%
1	22%	25%	33%	23%
2	24%	29%	21%	17%
3	23%	33%	18%	16%
4	23%	34%	29%	17%
5EX	15%	14%	--	--
5	18%	24%	22%	15%
7EX	20%	32%	--	--
7	17%	21%	20%	20%
8	30%	44%	29%	27%
9EX	19%	26%	--	--
10	22%	26%	18%	12%
11	30%	40%	25%	31%
12	16%	18%	10%	9%
13	20%	28%	16%	12%
14	29%	32%	25%	22%
15EX	19%	23%	--	--
16	18%	26%	25%	20%
17EX	30%	42%	--	--
18EX	23%	34%	--	--
19	20%	25%	--	--
21EX	26%	40%	--	--
21	16%	24%	25%	17%
22	9%	21%	16%	4%
24	31%	36%	31%	17%
25	32%	55%	--	--
26EX	24%	--	--	--
26	25%	25%	36%	24%
27	27%	38%	37%	23%
28	27%	32%	31%	22%
28EX	20%	39%	--	--
29	30%	46%	--	--
30	6%	10%	6%	3%

Route	All-Day % Late	PM % Late	Saturday % Late	Sunday % Late
31	23%	32%	26%	--
32	19%	24%	27%	26%
33	19%	29%	30%	17%
36	17%	22%	12%	12%
37	34%	34%	--	--
40	25%	38%	30%	34%
41	21%	40%	11%	14%
43	13%	21%	23%	11%
44	17%	27%	21%	11%
47	9%	22%	12%	6%
48EX	21%	28%	--	--
48	22%	34%	30%	27%
49	15%	21%	13%	20%
50	17%	25%	16%	19%
55	24%	37%	--	--
56	31%	53%	--	--
57	42%	68%	--	--
60	19%	25%	26%	18%
61	14%	14%	17%	13%
62	23%	21%	--	--
64EX	26%	32%	--	--
65	15%	18%	20%	9%
66EX	24%	30%	13%	14%
67	7%	12%	--	--
68	16%	26%	10%	--
70	30%	40%	17%	--
71	25%	--	24%	20%
72	19%	56%	25%	22%
73	18%	--	18%	19%
74EX	28%	44%	--	--
75	15%	21%	15%	14%
76	24%	35%	--	--
77	16%	29%	--	--
82	7%	--	9%	1%
83	19%	--	22%	12%
84	5%	--	15%	7%
99	19%	26%	48%	35%

Route	All-Day % Late	PM % Late	Saturday % Late	Sunday % Late
101	22%	26%	27%	26%
102	23%	30%	--	--
105	24%	30%	17%	24%
106	18%	20%	15%	10%
107	11%	13%	13%	8%
110	7%	7%	--	--
111	29%	42%	--	--
113	15%	18%	--	--
114	26%	39%	--	--
116EX	16%	12%	--	--
118	10%	8%	17%	--
118EX	17%	32%	--	--
119	13%	18%	--	--
119EX	34%	30%	--	--
120	13%	18%	15%	14%
121	14%	22%	--	--
122	17%	27%	--	--
123	15%	21%	--	--
124	30%	40%	36%	23%
125	9%	11%	16%	--
128	24%	30%	9%	8%
131	38%	41%	42%	25%
132	25%	29%	36%	25%
139	13%	16%	5%	2%
140	12%	14%	15%	6%
143EX	32%	40%	--	--
148	10%	12%	16%	13%
150	20%	27%	13%	18%
152	21%	23%	--	--
153	19%	28%	--	--
154	13%	9%	--	--
156	7%	12%	10%	13%
157	28%	35%	--	--
158	22%	31%	--	--
159	20%	30%	--	--
161	19%	22%	--	--
164	20%	26%	8%	--
166	23%	37%	13%	10%
167	20%	25%	--	--
168	16%	22%	15%	25%

Route	All-Day % Late	PM % Late	Saturday % Late	Sunday % Late
169	28%	43%	19%	11%
173	28%	21%	--	--
177	28%	28%	--	--
178	47%	53%	--	--
179	35%	33%	--	--
180	21%	33%	9%	9%
181	16%	24%	16%	9%
182	17%	20%	11%	5%
183	7%	13%	9%	--
186	12%	21%	--	--
187	13%	20%	14%	8%
190	30%	20%	--	--
192	24%	22%	--	--
193EX	25%	32%	--	--
197	17%	19%	--	--
200	7%	6%	--	--
201	4%	4%	--	--
202	23%	31%	--	--
203	6%	10%	7%	1%
204	13%	16%	18%	6%
205EX	19%	17%	--	--
209	27%	25%	27%	--
210	23%	30%	--	--
211EX	16%	16%	--	--
212	13%	22%	--	--
213	10%	--	15%	3%
214	13%	19%	--	--
215	19%	28%	--	--
216	18%	26%	--	--
217	18%	19%	--	--
218	14%	18%	--	--
219	26%	33%	--	--
221	15%	30%	12%	21%
224	19%	35%	--	--
226	19%	28%	9%	8%
232	20%	31%	--	--
234	14%	21%	20%	8%
235	12%	21%	6%	2%
236	10%	13%	17%	10%

Route	All-Day % Late	PM % Late	Saturday % Late	Sunday % Late
237	40%	50%	--	--
238	16%	18%	14%	11%
240	18%	26%	13%	9%
241	17%	29%	11%	8%
242	26%	38%	--	--
243	25%	51%	--	--
244	20%	30%	--	--
245	15%	17%	29%	26%
246	13%	22%	--	--
248	12%	28%	10%	6%
249	12%	16%	10%	5%
250	20%	28%	--	--
252	20%	29%	--	--
255	18%	31%	20%	10%
257	23%	35%	--	--
260	22%	36%	--	--
265	18%	23%	--	--
268	18%	18%	--	--
269	25%	32%	--	--
271	11%	15%	17%	11%
277	22%	37%	--	--
280	45%	--	34%	41%
301	14%	32%	--	--
303EX	15%	26%	--	--
304	14%	17%	--	--
306EX	15%	20%	--	--
308	12%	21%	--	--
309EX	21%	39%	--	--
311	29%	31%	--	--
312EX	12%	16%	--	--
316	24%	36%	--	--
330	15%	27%	--	--
331	8%	11%	10%	4%
342	19%	33%	--	--
345	11%	13%	12%	7%
346	7%	12%	7%	3%
347	7%	11%	20%	11%
348	16%	25%	19%	7%
355EX	28%	49%	--	--

Route	All-Day % Late	PM % Late	Saturday % Late	Sunday % Late
372EX	21%	23%	--	--
373EX	20%	32%	--	--
601EX	43%	--	--	--

Appendix E: Peak Route Analysis Results

Route	Description	Alternative Route(s)*	Ridership >= 90% of alternative	Travel Time >= 20% faster than alternative
5EX	Shoreline CC - Seattle CBD	5	No	No
7EX	Rainier Beach - Seattle CBD	7	No	Yes
15EX	Blue Ridge - Ballard - Seattle CBD	D Line	Yes	Yes
17EX	Sunset Hill - Ballard - Seattle CBD	61	Yes	Yes
18EX	North Beach - Ballard - Seattle CBD	40	No	No
19	West Magnolia - Seattle CBD	24	No	Yes
21EX	Arbor Heights - Westwood Village - Seattle CBD	21	Yes	Yes
26EX	East Green Lake - Wallingford - Seattle CBD	26	Yes	No
28EX	Broadview - Ballard - Seattle CBD via Leary Ave NW	28	Yes	Yes
29	Ballard - Queen Anne - Seattle CBD	2	Yes	Yes
37	Alaska Junction - Alki - Seattle CBD	773 DART	Yes	Yes
48EX	Mount Baker - University District - Loyal Heights	48	No	No
55	Admiral District - Alaska Junction - Seattle CBD	50	Yes	No
56	Alki - Seattle CBD	50	Yes	Yes
57	Alaska Junction - Seattle CBD	56	Yes	No
62	Ballard - Seattle Pacific University - Seattle CBD	40	No	No
64EX	Lake City - First Hill	76	No	Yes
74EX	Sand Point - Seattle CBD	30	Yes	No
76	Wedgwood - Seattle CBD	71	No	No
77	North City - Seattle CBD	73	Yes	Yes
99	International District - Waterfront	1	No	Yes
102	Fairwood - Renton TC - Seattle CBD	148	Yes	No
110	Tukwila Station - North Renton	140	No	Yes
111	Lake Kathleen - Seattle CBD	None	Yes	Yes
113	Shorewood - Seattle CBD	None	Yes	Yes
114	Renton Highlands - Seattle CBD	240	Yes	Yes
116EX	Fauntleroy Ferry - Seattle CBD	C Line	No	No
118EX	Tahlequah - Seattle CBD via ferry	118	Yes	No
119EX	Dockton - Seattle CBD via ferry	119	Yes	No
121	Highline CC -Burien TC - Seattle CBD via 1st Ave S	166	Yes	Yes
122	Highline CC -Burien TC - Seattle CBD via Des Moines Memorial Dr S	156	Yes	Yes
123	Burien - Seattle CBD	139	Yes	No
143EX	Black Diamond - Renton TC - Seattle CBD	None	Yes	Yes
152	Auburn - Seattle CBD	None	Yes	Yes
154	Tukwila Station - Boeing Industrial	140	No	Yes
157	Lake Meridian - Seattle CBD	None	Yes	Yes
158	Kent East Hill - Seattle CBD	164	No	No
159	Timberlane - Seattle CBD	164	No	No
161	Lake Meridian - Seattle CBD	169	Yes	Yes
167	Renton - Newport Hills - University District	560EX	Yes	Yes
173	Federal Way TC - Federal Center South	A Line	No	Yes
177	Federal Way - Seattle CBD	577EX	No	No
178	South Federal Way - Seattle CBD	177	Yes	No
179	Twin Lakes - Seattle CBD	181	Yes	No
190	Redondo Heights - Seattle CBD	574EX	Yes	Yes

* Alternative routes must serve at least 50% of riders on the peak-only route.

Route	Description	Alternative Route(s)*	Ridership >= 90% of alternative	Travel Time >= 20% faster than alternative
192	Star Lake - Seattle CBD	574EX	No	Yes
193EX	Federal Way - First Hill	None	Yes	Yes
197	Twin Lakes - University District	181	Yes	Yes
201	South Mercer Island - Mercer Island P&R via Mercer Wy	None	Yes	Yes
202	South Mercer Island - Seattle CBD	205EX	No	No
205EX	South Mercer Island - First Hill - University District	202	Yes	No
210	Issaquah - Factoria - Seattle CBD	241	Yes	Yes
211EX	Issaquah Highlands - First Hill	212	No	No
212	Eastgate - Seattle CBD	554EX	No	No
214	Issaquah - Seattle CBD	554EX	No	No
215	North Bend - Seattle CBD	209	Yes	No
216	Sammamish - Seattle CBD	269	Yes	No
217	Issaquah - Eastgate - Seattle CBD	554EX	No	Yes
218	Issaquah Highlands - Seattle CBD	554EX	Yes	Yes
219	Bear Creek P&R - Sammamish - Seattle CBD	None	Yes	Yes
232	Duvall - Bellevue	248	Yes	Yes
237	Woodinville - Bellevue	311	No	Yes
242	North City - Overlake	66EX	No	Yes
243	Jackson Park - Bellevue	372EX	No	Yes
244	Kenmore - Overlake	None	Yes	Yes
250	Overlake - Seattle CBD	249	Yes	No
252	Kingsgate - Seattle CBD	255	No	Yes
257	Brickyard - Seattle CBD	238	Yes	Yes
260	Finn Hill - Seattle CBD	234	Yes	No
265	Overlake - Houghton - First Hill	245	No	Yes
268	Redmond - Seattle CBD	545EX	No	Yes
277	Juanita - University District	235	No	Yes
301	Aurora Village - Seattle CBD	E Line	No	Yes
303EX	Shoreline - First Hill	None	Yes	Yes
304	Richmond Beach - Seattle CBD	348	Yes	Yes
306EX	Kenmore - Seattle CBD	522EX	Yes	No
308	Horizon View - Seattle CBD	331	Yes	No
309EX	Kenmore - First Hill	312EX	Yes	Yes
311	Duvall - Woodinville - Seattle CBD	232	Yes	Yes
312EX	Bothell - Seattle CBD	522EX	Yes	No
316	Meridian Park - Seattle CBD	16	Yes	Yes
342	Shoreline - Bellevue TC - Renton	None	Yes	Yes
355EX	Shoreline CC - University District - Seattle CBD	5	No	No
601EX	Seattle CBD - Group Health (Tukwila)	None	Yes	Yes
913DART	Kent Station - Riverview	None	Yes	Yes

* Alternative routes must serve at least 50% of riders on the peak-only route.

Routes 153, 186, 269, 373 Express, 930, and 935 are included in the corridor analysis because they each serve as the only route on one of Metro's 112 corridors during at least one time period. These routes are not analyzed as part of the peak analysis because their target service levels are set by the corridor analysis.

Appendix F: Corridors that Changed Target Service Levels from 2013 to 2014

Corridor Number	Between	And	Major Route	2013 Service Level	2014 Service Level	Reasons for Change (Simplified)
2	Alki	SODO	50	Frequent	Local	Lower demand and night cost recovery
7	Avondale	Kirkland	248	Local	Frequent	Higher social equity score
24	Colman Park	Seattle CBD	27	Frequent	Very Frequent	Higher social equity score
27	Eastgate	Bellevue	241	Frequent	Local	Lower social equity score
37	Green River CC	Kent	164	Very Frequent	Frequent	Lower demand
40	Issaquah	Eastgate	271	Local	Hourly	Lower land use score
42	Issaquah	North Bend	208/215	Hourly	Local	Higher demand
44	Kenmore	Shoreline	331	Local	Frequent	Higher demand
45	Kenmore	U. District	372EX	Very Frequent	Frequent	Lower social equity score
47	Kennydale	Renton	909DART	Hourly	Local	Corridor revision; higher land use and social equity scores
48	Kent	Burien	166	Local	Frequent	Higher social equity score
50	Kent	Renton	169	Frequent	Very Frequent	Higher demand
53	Kirkland	Bellevue	234/235	Very Frequent	Frequent	Lower demand and cost recovery
71	Othello Station	SODO	50	Frequent	Local	Lower demand
82	Redmond	Fall City	224	Hourly	Local	Corridor revision; higher social equity and land use scores
88	Renton	Enumclaw	143EX/ 907DART	Hourly	Local	Higher demand
91	S Vashon	N Vashon	118	Hourly	Local	Higher demand
94	Shoreline CC	Northgate	345	Very Frequent	Frequent	Lower social equity score
102	Twin Lakes	Federal Way	903DART	Local	Frequent	Higher demand

Appendix G: 2014 Service Changes

Month	Route	Description of Change	Type
February	8	Revised layover in Uptown to assure sufficient capacity	Layover revision
February	8	Cut trips to help fund added running time and improve on-time performance.	Reduced trips
February	17EX/18EX	Routes shifted to serve the northbound green stops on 3rd ave. transit spine instead of the red stops.	Revised routing
February	28	New layover and turnaround loop	Layover revision
February	50	Deleted deviation into the VAMC campus. Pathway remains on S. Columbian Way in both directions.	Revised routing
February	60	Deleted deviation into the VAMC campus. Pathway remains on S. 15th Ave. S. in both directions.	Revised routing
February	64	Revised AM layover and extend PM route to NE 145 St farside of 15th Ave NE	Layover revision, revised routing
February	65	Terminal revised from Lake City to Jackson Park	Revised routing
February	159	Afternoon terminal revised from Blanchard St to Lenora St farside 5th Ave.	Layover revision
February	200	Revised layover to SE Clark St. farside 2nd Ave NE	Layover revision
February	237/342/952	Northbound routing revised to new temporary on-ramp from NE 160th St to northbound I-5.	Revised routing
February	311	Northbound routing revised to new temporary on-ramp from NE 160th St to northbound I-5.	Revised routing
February	312/372/522	Routing revised to use newly constructed segments of SR-522 and 98th Ave NE	Revised routing
February	342	Routing revised to use newly constructed segments of SR-522 and 98th Ave NE	Revised routing
February	358EX	Delete, replaced by RapidRide E Line	Delete route
February	D Line	New turnaround loop using 7th Ave NW between Holman Rd and NW 100th Pl.	Revised routing
February	E Line	RapidRide E Line started	Added new route
February	49	Night owl layover location revised	Layover revision
February	71/72/73/74/76/77	Moved routes to operate out of North Base	
February	82	Revised night owl layover location	Layover revision
February	83	Revised night owl layover location, minor inbound routing revision	Layover revision, revised routing
February	84	Revised night owl layover location	Layover revision
February	156	Revised routing in response to a long term road closure	Revised routing
February	280	Revised night owl layover location	Layover revision
February	C Line/D Line	Converted service hours dedicated to "cover" buses into regular trips	Add trips
June	48	Re-scheduled trips in peak period to emphasize a consistent 10-15 min. frequency, added additional trips to provide overload relief when demand is high.	Revised schedule, add trips
June	110	Discontinued route, replaced by RapidRide F Line	Delete route
June	140	Discontinued route, replaced by RapidRide F Line	Delete route
June	154	Revised routing to serve new Tukwila Sounder Station	Revised routing

Month	Route	Description of Change	Type
June	221/245	Revised schedule to serve Education Hill every other trip. Northbound AM trips will be shortened to end at the Redmond TC	Revise schedule, revised routing
June	F Line	New RapidRide F Line started	Added new route
September	7EX	Discontinued route in response to Metro's budget deficit	Delete route
September	19	Discontinued route in response to Metro's budget deficit	Delete route
September	27/33	Discontinued all weekend and weekday off-peak service on Route 27. Route 33, which is interlined with route 27, now live-loops in Pioneer Square during off-peak times when route 27 does not operate.	Reduced trips
September	30	Discontinued off-peak service	Reduced trips
September	47	Discontinued route in response to Metro's budget deficit	Delete route
September	48	Discontinued route in response to Metro's budget deficit	Delete route
September	61	Discontinued route in response to Metro's budget deficit	Delete route
September	62	Discontinued route in response to Metro's budget deficit	Delete route
September	139	Discontinued route in response to Metro's budget deficit	Delete route
September	152	Discontinued route in response to Metro's budget deficit	Delete route
September	161	Discontinued route in response to Metro's budget deficit	Delete route
September	173	Discontinued route in response to Metro's budget deficit	Delete route
September	200	Discontinued peak service	Reduced trips
September	202	Discontinued route in response to Metro's budget deficit	Delete route
September	203	Discontinued route in response to Metro's budget deficit	Delete route
September	204	Added weekday peak service, reduce off-peak frequency	Add trips, revised schedule
September	205	Discontinued route in response to Metro's budget deficit	Delete route
September	208	Added trips to operate in both directions during the peak periods. Reduce frequency.	Add trips, revised schedule
September	209	Discontinued route in response to Metro's budget deficit	Delete route
September	210	Discontinued route in response to Metro's budget deficit	Delete route
September	211	Discontinued route in response to Metro's budget deficit	Delete route
September	212	Added trips to help mitigate the deletion of Route 210	Add trips
September	213	Discontinued route in response to Metro's budget deficit	Delete route
September	215	Discontinued route in response to Metro's budget deficit	Delete route
September	236	Discontinued weekday trips after 8:00 p.m.	Reduced trips
September	238	Discontinued weekday and Saturday trips after 7:00 p.m.	Reduced trips
September	243	Discontinued route in response to Metro's budget deficit	Delete route
September	249	Reduced trips weekdays and weekends	Reduced trips
September	250	Discontinued route in response to Metro's budget deficit	Delete route
September	260	Discontinued route in response to Metro's budget deficit	Delete route
September	265	Discontinued route in response to Metro's budget deficit	Delete route
September	280	Discontinued route in response to Metro's budget deficit	Delete route
September	306	Discontinued route in response to Metro's budget deficit	Delete route
September	312	Added trips to help mitigate the deletion of Route 306	Add trips
September	331/345	Discontinued weekday trips after 7:00 p.m.	Reduced trips
September	903DART	Reduced frequency and span of trips	Reduced trips, revised schedule
September	909DART	Discontinued route in response to Metro's budget deficit	Delete route
September	919DART	Discontinued route in response to Metro's budget deficit	Delete route
September	927DART	Discontinued route in response to Metro's budget deficit	Delete route

Month	Route	Description of Change	Type
September	931DART	Discontinued off-peak service	Reduced trips
September	935DART	Discontinued route in response to Metro's budget deficit	Delete route
September	24	Revised routing for 2 AM and 2 PM trips currently scheduled to start/end at 35th Ave W/W McGraw St to begin at Magnolia Blvd W/W Emerson St instead	Revised routing
September	49	On Sunday through Friday, shifted northern terminal to southbound University Way NE farside NE 52 St.	Revised routing
September	82	Discontinued route in response to Metro's budget deficit	Delete route
September	83	Discontinued route in response to Metro's budget deficit	Delete route
September	84	Discontinued route in response to Metro's budget deficit	Delete route
September	96	Implemented Seattle Streetcar First Hill Line	Added new route
September	122	Revised AM inbound routing to operate between S 152 St and the Burien Transit Center via 1st Ave S and SW 150 St	Revised routing
September	167/242/252/ 257/268/277/ 311/982	Revised routing to use new facilities in the SR-520 corridor, including inside HOV lanes, Evergreen Point Road and Clyde Hill/Yarrow Point Freeway Stations	Revised routing
September	255/540/986	Revised routing to use new facilities in the SR-520 corridor, including inside HOV lanes, Evergreen Point Road and Clyde Hill/Yarrow Point Freeway Stations and new HOV direct access ramps to and from 108th Ave NE	Revised routing
September	271	Discontinued service to/from Evergreen Point	Revised routing
September	894	New Mercer Island School District route	Added new route

Appendix H: Route-level Ridership (weekday average, Spring 2013 and Spring 2014)

The table below contains weekday ridership and platform hour changes between 2013 and 2014 for all routes in the system. This list includes numerous custom bus routes which are excluded from the route analysis provided in this report. Weekday ridership has been rounded to the nearest 100, except where the weekday ridership is below 50 passengers. “ - ” indicates that the route did not operate during that period, therefore no weekday rides or platform hours exist.

Route	Weekday Rides in 2013	Weekday Rides in 2014	Change in Rides	Weekday Platform Hours in 2013	Weekday Platform Hours in 2014	Change in Platform Hours
1	2,300	2,400	100	48	48	(0)
2	5,700	5,600	(100)	127	127	0
3	6,700	6,600	(100)	136	132	(3)
4	5,300	5,000	(300)	112	113	1
5	8,000	7,900	(100)	153	153	(1)
7EX	400	400	-	12	12	0
7	12,900	13,100	200	247	247	(0)
8	10,300	10,300	-	209	211	2
9	2,700	2,800	100	65	65	0
10	4,400	4,700	300	88	84	(4)
11	3,200	3,700	500	64	65	0
12	3,500	3,500	-	76	74	(2)
13	3,200	3,200	-	61	61	(0)
14	2,700	2,700	-	66	66	0
15EX	1,000	1,000	-	20	21	1
16	5,200	4,800	(400)	155	160	4
17EX	700	700	-	14	15	1
18EX	1,000	900	(100)	19	19	(0)
19	300	300	-	9	10	0
21EX	1,000	1,000	-	28	29	1
21	3,800	4,000	200	111	111	(0)
22	200	200	-	16	16	0
24	2,300	2,400	100	61	61	0
25	500	600	100	27	27	0
26EX	800	700	(100)	15	15	(0)
26	2,700	3,000	300	73	71	(2)
27	1,400	1,400	-	39	39	0
28	2,800	3,000	200	72	74	2
28EX	1,200	1,200	-	28	28	0
29	1,300	1,200	(100)	33	32	(1)
30	1,300	1,300	-	49	49	0
31	1,800	2,100	300	52	52	0
32	2,600	2,800	200	72	70	(1)
33	1,800	1,700	(100)	45	44	(1)
36	10,600	10,600	-	232	232	(0)
37	200	200	-	11	11	0
40	7,900	7,900	-	202	206	4

Route	Weekday Rides in 2013	Weekday Rides in 2014	Change in Rides	Weekday Platform Hours in 2013	Weekday Platform Hours in 2014	Change in Platform Hours
41	10,400	9,700	(700)	180	170	(10)
43	7,900	7,700	(200)	147	144	(3)
44	7,100	7,400	300	133	136	3
47	800	800	-	26	26	0
48	11,500	12,000	500	249	251	2
49	8,500	8,000	(500)	136	134	(1)
50	2,000	2,200	200	109	108	(0)
55	700	600	(100)	22	21	(1)
56	800	700	(100)	21	19	(1)
57	300	400	100	10	10	1
60	5,100	4,900	(200)	154	152	(1)
61	300	200	(100)	35	35	0
62	300	300	-	17	16	(1)
64	800	800	-	22	24	2
65	3,000	3,200	200	91	88	(4)
66	3,400	3,100	(300)	76	89	13
67	1,700	1,800	100	42	42	0
68	2,300	2,200	(100)	47	48	0
70	4,700	4,600	(100)	101	101	(0)
71	5,000	5,300	300	86	92	6
72	4,900	4,800	(100)	80	83	3
73	6,600	6,100	(500)	96	102	6
74EX	1,400	1,400	-	23	22	(0)
75	4,500	4,400	(100)	97	98	0
76	1,100	1,100	-	20	21	1
77	1,100	1,000	(100)	24	17	(6)
82	<50	<50	-	3	4	1
83	100	<50	-	3	4	0
84	<50	<50	-	4	3	(0)
99	400	400	-	16	16	(1)
101	5,000	4,900	(100)	107	110	3
102	900	900	-	24	25	0
105	1,100	1,100	-	38	37	(1)
106	5,100	5,100	-	136	134	(2)
107	1,500	1,500	-	63	63	0
110	200	100	(100)	13	12	(1)
111	900	900	-	35	34	(0)
113	300	300	-	12	12	0
114	400	300	(100)	17	17	0
116EX	500	500	-	26	26	0
118EX	200	200	-	9	9	0
118	500	400	(100)	31	31	0
119EX	100	100	-	5	5	0
119	200	200	-	13	13	(0)
120	8,600	9,000	400	206	209	3

Route	Weekday Rides in 2013	Weekday Rides in 2014	Change in Rides	Weekday Platform Hours in 2013	Weekday Platform Hours in 2014	Change in Platform Hours
121	1,000	900	(100)	47	47	(0)
122	600	500	(100)	26	26	(0)
123	300	300	-	12	12	(0)
124	3,300	3,400	100	95	96	1
125	1,800	1,900	100	56	57	1
128	4,400	4,400	-	134	134	(0)
131	2,900	3,100	200	82	81	(1)
132	3,100	3,000	(100)	99	102	3
139	200	100	(100)	15	15	(1)
140	3,500	3,600	100	114	132	18
143EX	600	600	-	27	27	0
148	600	700	100	38	38	0
150	7,100	7,000	(100)	184	185	1
152	300	300	-	20	15	(5)
153	400	400	-	20	20	(0)
154	200	200	-	9	9	(0)
155	400	-	(400)	22	-	(22)
156	1,000	1,200	200	71	65	(6)
157	200	200	-	15	16	1
158	600	600	-	26	26	(1)
159	500	500	-	23	23	0
161	400	400	-	22	22	0
164	2,100	2,000	(100)	47	48	1
166	2,200	2,200	-	79	78	(0)
167	400	400	-	16	16	0
168	1,700	1,700	-	68	68	1
169	3,000	3,200	200	78	78	0
173	100	100	-	6	6	0
177	700	600	(100)	29	30	1
178	700	700	-	29	28	(1)
179	700	700	-	29	31	1
180	4,600	5,000	400	149	149	0
181	2,200	2,400	200	81	86	5
182	500	500	-	29	28	(1)
183	700	700	-	34	35	0
186	200	200	-	20	20	0
187	500	500	-	21	20	(1)
190	400	400	-	18	20	1
192	300	200	(100)	12	12	0
193EX	700	600	(100)	27	27	(1)
197	800	800	-	38	38	(1)
200	400	300	(100)	34	35	1
201	<50	<50	-	2	2	0
202	200	200	-	15	17	2
203	100	100	-	8	8	0

Route	Weekday Rides in 2013	Weekday Rides in 2014	Change in Rides	Weekday Platform Hours in 2013	Weekday Platform Hours in 2014	Change in Platform Hours
204	100	100	-	11	11	0
205	200	200	-	12	12	0
208	-	200	200	-	24	24
209	300	<50	(300)	33	8	(25)
210	200	400	200	15	16	1
211EX	400	400	-	26	24	(2)
212	2,400	2,000	(400)	67	56	(11)
213	<50	<50	-	1	1	0
214	800	1,000	200	34	38	4
215	600	400	(200)	24	23	(2)
216	700	900	200	24	24	1
217	200	200	-	8	8	(0)
218	2,000	1,000	(1,000)	44	23	(21)
219	-	900	900	-	28	28
221	1,500	1,500	-	82	80	(2)
224	100	100	-	20	16	(3)
226	1,600	1,800	200	61	60	(1)
232	400	400	-	21	21	1
234	1,500	1,500	-	72	73	1
235	1,100	1,200	100	66	66	(0)
236	500	500	-	59	60	1
237	100	100	-	5	5	(0)
238	900	800	(100)	72	71	(1)
240	2,600	2,500	(100)	115	97	(18)
241	700	800	100	41	41	0
242	500	400	(100)	22	22	0
243	200	200	-	8	8	0
244	200	200	-	18	18	0
245	3,700	3,800	100	156	146	(10)
246	500	400	(100)	41	29	(11)
248	1,100	1,200	100	56	55	(0)
249	1,200	1,000	(200)	69	58	(12)
250	400	300	(100)	19	14	(5)
252	600	700	100	24	24	1
255	6,100	6,400	300	218	217	(1)
257	500	500	-	21	21	1
260	200	200	-	11	11	(0)
265	600	500	(100)	36	29	(7)
268	400	400	-	14	15	1
269	600	600	-	48	49	1
271	6,000	6,400	400	223	224	1
277	300	200	(100)	19	19	0
280	100	100	-	4	3	(1)
301	1,600	1,600	-	48	48	0
303EX	1,300	1,300	-	38	37	(1)

Route	Weekday Rides in 2013	Weekday Rides in 2014	Change in Rides	Weekday Platform Hours in 2013	Weekday Platform Hours in 2014	Change in Platform Hours
304	400	400	-	16	15	(1)
306EX	400	600	200	19	17	(2)
308	200	200	-	9	9	0
309EX	200	500	300	14	13	(1)
311	1,100	1,000	(100)	51	44	(8)
312EX	2,000	1,800	(200)	54	55	1
316	1,000	900	(100)	17	16	(1)
330	300	400	100	14	14	(0)
331	1,100	1,000	(100)	54	55	0
342	300	300	-	16	16	0
345	1,500	1,300	(200)	36	36	0
346	1,600	1,400	(200)	43	43	(0)
347	1,300	1,400	100	56	56	(0)
348	1,300	1,300	-	56	56	0
355EX	1,000	900	(100)	29	29	0
358EX	12,000	-	12,000)	222	-	(222)
372EX	5,300	5,100	(200)	124	126	2
373EX	900	1,000	100	29	29	0
601EX	<50	<50	-	5	5	(0)
A Line	8,700	10,100	1,400	179	179	(0)
B Line	6,100	6,700	600	164	162	(2)
C Line	7,000	8,100	1,100	169	171	2
D Line	8,800	11,000	2,200	156	160	3
E Line	-	13,700	13,700	-	277	277
773	100	100	-	8	8	0
775	100	100	-	5	5	0
823	100	100	-	2	2	0
824	100	100	-	2	2	(0)
887	100	100	-	2	2	0
888	100	100	-	3	3	0
889	100	100	-	2	2	0
891	100	100	-	3	3	0
892	100	100	-	2	2	0
893	100	100	-	2	2	(0)
901DART	400	300	(100)	19	19	0
903DART	500	500	-	28	28	0
906DART		400	400		26	26
907DART	100	100	-	19	19	0
908DART	100	100	-	10	10	0
909DART	100	200	100	14	14	0
910DART	100	100	-	9	9	(0)
913DART	200	200	-	13	13	0
914DART	200	200	-	10	10	0
915DART	100	100	-	7	7	0
916DART	200	200	-	11	11	0

Route	Weekday Rides in 2013	Weekday Rides in 2014	Change in Rides	Weekday Platform Hours in 2013	Weekday Platform Hours in 2014	Change in Platform Hours
917DART	200	100	(100)	14	14	0
919DART	100	100	-	8	8	0
927DART	100	200	100	21	21	0
930DART	100	100	-	13	13	0
931DART	300	300	-	39	39	0
935DART	100	100	(100)	19	19	0
952	300	300	-	25	25	0
980	<50	<50	-	2	2	0
981	<50	<50	-	2	2	(0)
982	100	100	-	3	3	0
983	<50		-	2		(2)
984	<50	<50	-	1	1	0
986	100	100	-	3	3	0
987	100	100	-	3	3	0
988	100	100	-	3	3	0
989	100	100	-	4	4	(0)
994	100	100	-	3	3	0
995	100	100	-	3	3	0

Appendix I:
Corridor Analysis

CORRIDOR ID NUMBER	BETWEEN	AND	VIA	Connections		Land Use - Productivity				Social Equity - Demographics				Geographic Value - Primary Connections				Preliminary Target Service Levels		
				MAJOR ROUTE	HOUSEHOLDS/CORRIDOR MILE	POINTS	JOB/CORRIDOR MILE	POINTS	MINORITY	POINTS	LOW-INCOME	POINTS	ACTIVITY CENTERS	POINTS	REGIONAL & MANUFACTURING/INDUSTRIAL CENTERS	POINTS	PEAK	OFFPEAK	NIGHT	
1	Admiral District	Southcenter	California Ave SW, Military Rd, TIBS	128	1025	2	937	2	69%	5	61%	0	Yes	5	30	30	0			
2	Alki	SODO	Alaska Junction	50	1228	4	1898	4	20%	0	73%	5	Yes	5	30	30	0			
3	Auburn	Burien	Kent, Sealac	180	571	0	1199	2	73%	5	99%	5	No	0	15	30	30			
4	Auburn/GRCC	Federal Way	15th St SW, Lea Hill Rd	181	585	0	1230	2	24%	0	95%	5	No	0	30	30	0			
5	Aurora Village	Seattle CBD	Aurora Ave N	E Line	2272	6	9022	8	56%	5	37%	0	Yes	5	<15	15	15			
6	Aurora Village	Northgate	Meridian Av N	346	1101	2	2624	4	99%	5	43%	0	Yes	5	30	30	0			
7	Avondale	Kirkland	NE 85th St, NE Redmond Wy, Avondale Wy NE	248	1156	2	1549	4	80%	5	64%	5	Yes	5	15	30	30			
8	Ballard	U. District	Green Lake, Greenwood	48	2321	6	8250	8	9%	0	29%	0	Yes	5	15	30	30			
9	Ballard	Northgate	Holman Road, Northgate	40	1969	6	3477	6	16%	0	51%	0	No	0	15	30	30			
10	Ballard	Seattle CBD	15th Ave W	D Line	3205	10	12778	10	0%	0	24%	0	No	0	<15	15	15			
11	Ballard	U. District	Wallingford (N 45th St)	44	2381	10	13573	10	16%	0	29%	0	No	0	15	15	30			
12	Ballard	Seattle CBD	Ballard/Interbay M/C, Fremont, South Lake Union	40	3159	10	22747	10	1%	0	21%	0	No	0	15	15	30			
13	Beacon Hill	Seattle CBD	Beacon Ave	36	2327	6	13789	10	95%	5	87%	5	No	0	15	15	30			
14	Bellevue	Eastgate	Lake Hills Connector	271	747	2	5718	8	98%	5	91%	5	Yes	5	15	15	30			
15	Bellevue	Redmond	NE 8th St, 156th Ave NE	B Line	1280	4	4237	6	91%	5	53%	0	No	0	<15	15	15			
16	Bellevue	Renton	Newcastle, Factoria	240	951	2	3669	6	91%	5	71%	5	Yes	5	15	30	30			
17	Burien	Seattle CBD	Delridge, Ambaum	120	1282	4	5794	8	73%	5	61%	0	No	0	15	15	30			
18	Burien	Seattle CBD	1st Ave S, South Park, Airport Wy	131	1336	4	8684	8	70%	5	100%	5	Yes	5	15	15	30			
19	Burien	Seattle CBD	Des Moines Mem Dr, South Park	132	1153	2	8112	8	71%	5	100%	5	No	0	15	15	30			
20	Capitol Hill	White Center	South Park, Georgetown, Beacon Hill, First Hill	60	1575	4	3858	6	89%	5	78%	5	No	0	15	15	30			
21	Capitol Hill	Seattle CBD	15th Ave E	10	5463	10	22871	10	0%	0	87%	5	No	0	15	15	30			
22	Capitol Hill	Seattle CBD	Madison St	12	4648	10	38510	10	0%	0	100%	5	No	0	15	15	30			
23	Central District	Seattle CBD	E Jefferson St	3/4	4261	10	34891	10	64%	5	100%	5	Yes	5	15	15	30			
24	Colman Park	Seattle CBD	Leschi, Yesler	27	2999	8	20257	10	85%	5	85%	5	No	0	15	15	30			
25	Cowen Park	Seattle CBD	University Way, I-5	71EX/72EX/73EX/74EX	1720	4	20145	10	71%	5	100%	5	No	0	15	15	30			
26	Discovery Park	Seattle CBD	Gilman Ave W, 22nd Ave W, Thornodyke Av W	33	2787	8	13616	10	0%	0	19%	0	No	0	30	30	0			
27	Eastgate	Bellevue	Newport Wy, S. Bellevue, 112th	241	948	2	6556	8	78%	5	59%	0	No	0	30	30	0			
28	Eastgate	Bellevue	Somerset, Factoria, Woodridge	246	933	2	5565	8	85%	5	32%	0	No	0	30	30	0			
29	Eastgate	Overlake	Phantom Lake	226	683	2	2619	4	31%	0	31%	0	No	0	60	60	0			
30	Enunclaw	Auburn	Auburn Wy S, SR 164	186/915	207	0	486	0	43%	0	97%	5	Yes	5	30	30	0			
31	Fairwood	Renton	S Puget Dr, Royal Hills	148	741	2	743	2	100%	5	34%	0	Yes	5	30	30	0			
32	Federal Way	SeaTac	SR-99	A Line	884	2	2256	4	100%	5	94%	5	No	0	<15	15	15			
33	Federal Way	Kent	Military Road	183	711	2	659	2	97%	5	69%	5	No	0	15	15	30			
34	Fremont	Seattle CBD	Dexter Ave N	26/28	4248	10	25973	10	0%	0	5%	0	Yes	5	15	15	30			
35	Fremont	U. District	N 40th St	31/32	2141	6	25297	10	6%	0	6%	0	Yes	5	15	30	30			
36	Fremont	Whittier Hts	8th Av NW, 3rd Av NW	28	1630	4	1965	4	0%	0	8%	0	No	0	60	60	0			
37	Green River CC	Seattle CBD	132nd Ave SE	164	937	2	1869	4	44%	0	82%	5	Yes	5	30	30	0			
38	Greenwood	Seattle CBD	Greenwood Ave N	5	3606	10	13783	10	0%	0	23%	0	Yes	5	15	15	30			
39	High Point	Seattle CBD	35th Ave SW	21	1851	6	9731	8	69%	5	69%	5	Yes	5	15	15	30			

† Figures rounded for display purposes.

Threshold	Points	Threshold	Points	Threshold	Points	Threshold	Points	Threshold	Points	Threshold	Points	Threshold	Points
> 3000	10	> 10250	10	> 51%	5	> 63%	5	Yes	5	Yes	10	Yes	10
> 2400	8	> 5500	8	DART 46%	5	DART 41%	5	No	0	No	0	No	0
> 1800	6	> 3000	6	< 51%	0	< 63%	0						
> 1200	4	> 1400	4										
> 600	2	> 500	2										

CORRIDOR ID NUMBER	Connections		Land Use - Productivity		Social Equity - Demographics			Geographic Value - Primary Connections				Preliminary Target Service Levels								
	BETWEEN	AND	VIA	MAJOR ROUTE	HOUSEHOLDS/ CORRIDOR MILE	POINTS	JOB/CORRIDOR MILE	POINTS	MINORITY	POINTS	LOW-INCOME	POINTS	ACTIVITY CENTERS	POINTS	REGIONAL & MANUFACTURING/ INDUSTRIAL CENTERS	POINTS	TOTAL SCORE	RAPIDRIDE	PEAK	OFFPEAK
40	Issaquah	Eastgate	Newport Way	271	256	0	2471	4	60%	5	46%	0	No	0	No	0	9	60	60	0
41	Issaquah	Overlake	Sammamish, Bear Creek	269	441	0	1794	4	85%	5	0%	0	Yes	5	No	0	14	30	30	0
42	Issaquah	North Bend	Fall City, Snoqualmie	208/209	127	0	382	0	1%	0	18%	0	Yes	5	No	0	5	60	60	0
43	Kenmore	Kirkland	Juanta	234	1004	2	725	2	0%	0	0%	0	Yes	5	No	0	9	60	60	0
44	Kenmore	Shoreline	Lake Forest Park, Aurora Village TC	331	696	2	994	2	11%	0	23%	0	Yes	5	No	0	9	60	60	0
45	Kenmore	U. District	Lake Forest Park, Lake City	372EX	1182	2	6976	8	32%	0	61%	0	Yes	5	No	0	15	30	30	0
46	Kenmore	Totem Lake	Finn Hill, Juanita	935	767	2	1151	2	0%	0	3%	0	Yes	5	No	0	9	60	60	0
47	Kennydale	Renton	Edmonds Av NE	909	1080	2	2592	4	91%	5	45%	5	No	0	No	0	16	30	30	0
48	Kent	Burien	Kent-DM Rd. S, 240th St., 1st Av S	166	836	2	1361	2	61%	5	83%	5	Yes	5	No	0	19	15	15	30
49	Kent	Maple Valley	Kent-Kangley Road	168	619	2	679	2	41%	0	34%	0	Yes	5	No	0	9	60	60	0
50	Kent	Renton	Kent East Hill	169	781	2	1213	2	100%	5	73%	5	No	0	Yes	10	24	15	15	30
51	Kent	Seattle CBD	Tukwila	150	449	0	4703	6	99%	5	100%	5	No	0	Yes	10	26	15	15	30
52	Kent	Renton	84th Av S, Lind Av SW	153	363	0	2779	4	100%	5	100%	5	No	0	Yes	10	24	15	15	30
53	Kirkland	Bellevue	South Kirkland	234/235	1555	4	7108	8	1%	0	1%	0	Yes	5	No	0	17	30	30	0
54	Kirkland	Factoria	Overlake, Crossroads, Eastgate	245	889	2	3338	6	62%	5	44%	0	Yes	5	No	0	18	30	30	0
55	Lake City	Seattle CBD	NE 125th St, Northgate, I-5	41	1309	4	9122	8	87%	5	100%	5	No	0	Yes	10	32	15	15	30
56	Northgate	U. District	Lake City, Sand Point	75	1194	2	8734	8	35%	0	63%	0	Yes	5	No	0	15	30	30	0
57	Lake City	U. District	35th Ave NE	65	1431	4	8538	8	44%	0	40%	0	Yes	5	No	0	17	30	30	0
58	Laurelhurst	U. District	NE 45th St	25	855	2	11481	10	0%	0	17%	0	No	0	No	0	12	30	30	0
59	Madison Park	Seattle CBD	Madison St	11	4449	10	17424	10	28%	0	79%	5	Yes	5	No	0	30	15	15	30
60	Madrona	Seattle CBD	Union St	2	3816	10	23475	10	28%	0	84%	5	No	0	No	0	25	15	15	30
61	Magnolia	Seattle CBD	34th Ave W, 28th Ave W	24	2897	8	13561	10	0%	0	25%	0	Yes	5	No	0	23	15	15	30
62	Mercer Island	S Mercer Island	Island Crest Way	202/204	615	2	736	2	0%	0	0%	0	Yes	5	No	0	9	60	60	0
63	Mirror Lake	Federal Way	S 312th St	901	872	2	569	2	97%	5	63%	5	No	0	No	0	14	30	30	0
64	Mount Baker	Seattle CBD	31st Av S, S Jackson St	14	2492	8	18196	10	100%	5	100%	5	No	0	No	0	28	15	15	30
65	Mountlake Terrace	Northgate	15th Ave NE, 5th Ave NE	347	1239	4	2121	4	44%	0	30%	0	No	0	No	0	8	60	60	0
66	Mt Baker	U. District	23rd Ave E	48	1643	4	11372	10	85%	5	90%	5	Yes	5	No	0	29	15	15	30
67	NE Tacoma	Federal Way	SW 356th St, 9th Ave S	182	341	0	1082	2	54%	0	32%	0	No	0	No	0	7	60	60	0
68	Northgate	U. District	Roosevelt	66EX/67	1680	4	13290	10	17%	0	72%	5	No	0	Yes	10	29	15	15	30
69	Northgate	Seattle CBD	Green Lake, Wallingford	16	2154	6	8116	8	30%	0	57%	0	No	0	Yes	10	24	15	15	30
70	Northgate	U. District	Roosevelt Way NE, NE 75th St	68	1649	4	12949	10	22%	0	86%	5	No	0	No	0	19	30	30	0
71	Ohlito Station	SODO	Columbia City Station	50	975	2	1403	4	100%	5	61%	0	No	0	No	0	11	30	30	0
72	Eastgate	Bellevue	Bell Red Road	226	1856	6	10613	10	94%	5	82%	5	No	0	No	0	26	15	15	30
73	Overlake	Bellevue	Sammamish Viewpoint, Northrup Way	249	1007	2	4838	6	39%	0	4%	0	Yes	5	No	0	13	30	30	0
74	Pacific	Auburn	Algonia	917	304	0	466	0	94%	5	63%	5	No	0	No	0	30	30	30	0
75	Queen Anne	Seattle CBD	Queen Anne Ave N	2/13	4474	10	20650	10	0%	0	80%	0	No	0	No	0	25	15	15	30
76	Queen Anne	Seattle CBD	Taylor Ave N	3/4	4435	10	22144	10	0%	0	95%	5	No	0	No	0	25	15	15	30
77	Rainier Beach	Seattle CBD	Rainier Ave	7	2024	6	11812	10	96%	5	82%	5	No	0	No	0	26	15	15	30
78	Rainier Beach	Seattle Center	MLK Jr Ww, E John St, Denny Way	8	2922	8	4045	6	39%	0	100%	5	No	0	Yes	10	29	15	15	30

+ Figures rounded for display purposes.

Levels	Points	Points	Points	Points	Points	Points	Points	Points	Points	Points	Points				
15	19-40	15-40	---	10	> 51%	10	> 10250	10	> 63%	5	Yes	5	Yes	10	10
30	10-18	10-24	19-40	8	DART 46%	5	> 5500	8	DART 41%	5	No	0	No	0	0
60	0-9	0-9	0-18	6	< 5.1%	0	> 3000	6	< 63%	0	No	0	No	0	0
				4	> 1200	4	> 1400	4	> 600	2	> 500	2			

CORRIDOR ID NUMBER	Connections		MAJOR ROUTE	Land Use - Productivity		Social Equity - Demographics			Geographic Value - Primary Connections				Preliminary Target Service Levels											
	BETWEEN	AND		VIA	HOUSEHOLDS/ CORRIDOR MILE	POINTS	JOB/CORRIDOR MILE	POINTS	MINORITY	POINTS	LOW-INCOME	POINTS	ACTIVITY CENTERS	POINTS	REGIONAL & MANUFACTURING/ INDUSTRIAL CENTERS	POINTS	TOTAL SCORE	RAPIDRIDE	PEAK	OFFPEAK	NIGHT	Points	Points	Points
79	Rainier Beach	Capitol Hill	Rainier Ave	2353	6	4931	6	97%	5	80%	5	Yes	5	No	0	27		15	15	30		15	15	30
80	Redmond	Eastgate	148th Ave, Crossroads, Bellevue College	751	2	2198	4	83%	5	58%	0	Yes	5	No	0	16		30	30	0		30	30	0
81	Redmond	Totem Lake	Willows Road	685	2	2948	4	66%	5	36%	0	No	0	Yes	10	21		15	30	30		15	30	30
82	Redmond	Fall City	Duvall, Carnation	429	0	547	2	60%	5	17%	0	Yes	5	No	0	12		30	30	0		30	30	0
83	Renton	Burien	S 154th St	513	0	1615	4	97%	5	100%	5	No	0	Yes	10	24	Yes	<15	15	15		<15	15	15
84	Renton	Seattle CBD	MLK Jr. Wv. I-5	876	2	6824	8	95%	5	100%	5	No	0	Yes	10	30		15	15	30		15	15	30
85	Renton	Rainier Beach	West Hill, Rainier View	838	2	535	2	100%	5	93%	5	No	0	No	0	14		30	30	0		30	30	0
86	Renton	Seattle CBD	Skyway, S. Beacon Hill	1066	2	7485	8	93%	5	78%	5	Yes	5	No	0	25		15	15	30		15	15	30
87	Renton	Renton Highlands	NE 4th St, Union Ave NE	1217	4	2607	4	97%	5	90%	5	Yes	5	No	0	23		15	30	30		15	30	30
88	Renton	Enumclaw	Maple Valley, Black Diamond	183	0	17%	0	0%	0	0%	0	Yes	5	No	0	5		60	60	0		60	60	0
89	Renton Highlands	Renton	NE 7th St, Edmonds Av NE	995	2	2824	4	87%	5	77%	5	No	0	No	0	16		30	30	0		30	30	0
90	Richmond Beach	Northgate	Richmond Bch Rd, 15th Ave NE	1331	4	2199	4	61%	5	56%	0	Yes	5	No	0	18		30	30	0		30	30	0
91	S. Washon	N. Washon	Valley Center	39	0	90	0	0%	0	0%	0	No	0	No	0	0		60	60	0		60	60	0
92	Sand Point	U. District	NE 55th St	1855	6	12790	10	9%	0	74%	5	No	0	No	0	21		15	30	30		15	30	30
93	Shoreline	U. District	Jackson Park, 15th Av NE	1146	2	5588	8	100%	5	56%	0	No	0	No	0	15		30	30	0		30	30	0
94	Shoreline CC	Northgate	N 130th St, Meridian Av N	1240	4	3989	6	61%	5	62%	0	Yes	5	No	0	20		15	30	30		15	30	30
95	Shoreline CC	Lake City	N 155th St, Jackson Park	1346	4	1961	4	31%	0	12%	0	Yes	5	No	0	13		30	30	0		30	30	0
96	Shoreline CC	Greenwood	Greenwood Av N	1824	6	2326	4	12%	0	38%	0	Yes	5	No	0	15		30	30	0		30	30	0
97	Totem Lake	Seattle CBD	Kirkland, SR-520	1129	2	6172	8	0%	0	3%	0	No	0	Yes	10	20		15	30	30		15	30	30
98	Woodinville	Kirkland	Kingsgate	994	2	1230	2	24%	0	24%	0	Yes	5	No	0	9		60	60	0		60	60	0
99	Tukwila	Seattle CBD	Pacific Hwy S, 4th Ave S	1413	4	10200	8	88%	5	84%	5	No	0	Yes	10	32		15	15	30		15	15	30
100	Tukwila	Des Moines	McMicken Heights, Sea-Tac	524	0	1150	2	93%	5	71%	5	No	0	Yes	10	22		15	30	30		15	30	30
101	Tukwila	Fairwood	S 180th St, Carr Road	588	0	1386	2	100%	5	49%	0	Yes	5	No	0	12		30	30	0		30	30	0
102	Twin Lakes	Federal Way	SW Campus Dr, 1st Ave S	775	2	1208	2	100%	5	68%	5	No	0	No	0	14		30	30	0		30	30	0
103	Twin Lakes	Federal Way	S 320th St	744	2	621	2	61%	5	57%	0	No	0	No	0	9		60	60	0		60	60	0
104	U. District	Seattle CBD	Eastlake, Fairview	3142	10	32153	10	39%	0	89%	5	No	0	Yes	10	35		15	15	30		15	15	30
105	U. District	Seattle CBD	Broadway	3284	10	19087	10	47%	0	78%	5	No	0	Yes	10	35		15	15	30		15	15	30
106	U. District	Bellevue	SR-520	885	2	11825	10	79%	5	51%	0	No	0	Yes	10	27		15	15	30		15	15	30
107	U. District	Seattle CBD	Lakeview	2542	8	23654	10	20%	0	66%	5	No	0	No	0	23		15	30	30		15	30	30
108	UW Bothell	Redmond	Woodinville, Cottage Lake	349	0	1066	2	6%	0	30%	0	Yes	5	No	0	7		60	60	0		60	60	0
109	UW Bothell/CCC	Kirkland	132nd Ave NE, Lk Wash Inst. of Tech	875	2	1947	4	0%	0	32%	0	Yes	5	No	0	11		30	30	0		30	30	0
110	Wedgwood	Cowen Park	View Ridge, NE 65th St	1381	4	422	0	0%	0	22%	0	No	0	No	0	4		60	60	0		60	60	0
111	West Seattle	Seattle CBD	Faunieroy, Alaska Junction	1979	6	8113	8	16%	0	57%	0	Yes	5	No	0	19		<15	15	15		<15	15	15
112	White Center	Seattle CBD	16th Ave SW, SSSC	684	2	4793	6	94%	5	47%	0	Yes	5	No	0	18		30	30	0		30	30	0

+ Figures rounded for display purpose.

CORRIDOR ID NUMBER	Connections		Loads at Preliminary Service Level		Load-Based Service Level Improvements		Cost Recovery at Preliminary Service Level		Cost Recovery-Based Service Level Improvements		Night Service Additions			Service Level Improvements			Final Target Service Levels and Family		
	BETWEEN	AND	VIA	MAJOR ROUTE	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFFPEAK	PEAK	OFFPEAK	NIGHT	PEAK	OFFPEAK	NIGHT	PEAK	OFFPEAK	NIGHT
40	Issaquah	Eastgate	Newport Way	271	0.70	0.66	-	22%	22%	8%	-	-	-	-	-	60	60	60	Hourly
41	Issaquah	Overlake	Sammamish, Bear Creek	269	0.26	N/A	-	10%	N/A	N/A	-	-	-	-	-	30	30	0	Local
42	Issaquah	North Bend	Fall City, Snoqualmie	208/209	0.66	0.21	-	4%	6%	0%	-	-	-	-	-	60	60	0	Hourly
43	Kenmore	Kirkland	Juanita	234	0.57	0.26	-	18%	14%	5%	-	-	-	-	-	60	60	0	Hourly
44	Kenmore	Shoreline	Lake Forest Park, Aurora Village TC	331	1.54	0.92	2	28%	29%	7%	-	-	-	-	-	15	30	30	Frequent
45	Kenmore	U. District	Lake Forest Park, Lake City	372EX	2.82	0.69	2	97%	34%	26%	1	-	-	-	-	30	30	30	Frequent
46	Kenmore	Totem Lake	Finn Hill, Juanita	935	0.48	N/A	-	9%	N/A	N/A	-	-	-	-	-	60	60	0	Hourly
47	Kenmore	Renton	Edmonds Av NE	909	0.20	0.18	-	5%	4%	N/A	-	-	-	-	-	30	30	0	Local
48	Kenmore	Burien	Kent-DM Rd, S, 240th St, 1st Av S	166	0.41	0.68	-	11%	23%	15%	-	-	-	-	-	15	30	30	Frequent
49	Kenmore	Maple Valley	Maple Valley	168	1.96	0.94	2	41%	38%	16%	-	-	-	-	-	15	30	30	Frequent
50	Kenmore	Renton	Kent-Kangley Road	169	0.46	0.85	-	17%	33%	23%	-	-	-	-	-	15	15	30	Very Frequent
51	Kenmore	Seattle CBD	Tukwila	150	0.86	0.57	1	31%	30%	24%	-	-	-	-	-	<15	15	30	Very Frequent
52	Kenmore	Renton	84th Av S, Lind Av SW	153	1.02	0.52	1	36%	27%	9%	-	-	-	-	-	15	30	30	Frequent
53	Kirkland	Bellevue	South Kirkland	234/235	1.02	0.52	1	36%	27%	9%	-	-	-	-	-	15	30	30	Frequent
54	Kirkland	Factoria	Overlake, Crossroads, Eastgate	245	1.38	0.84	1	44%	38%	14%	-	-	-	-	-	15	15	30	Very Frequent
55	Lake City	Seattle CBD	NE 125th St, Northgate, I-5	41	1.74	0.70	2	91%	44%	31%	1	-	-	-	-	<15	15	30	Very Frequent
56	Northgate	U. District	Lake City, Sand Point	75	1.42	0.65	1	91%	36%	28%	1	-	-	-	-	<15	30	30	Frequent
57	Lake City	U. District	35th Ave NE	65	1.84	0.50	2	104%	30%	18%	2	-	-	-	-	30	30	0	Local
58	Laurierhurst	U. District	NE 45th St	25	0.22	0.08	-	5%	4%	N/A	-	-	-	-	-	30	30	0	Local
59	Madison Park	Seattle CBD	Madison St	11	0.78	0.32	1	50%	21%	29%	-	-	-	-	-	<15	15	30	Very Frequent
60	Madrona	Seattle CBD	Union St	2	0.96	0.61	1	49%	35%	22%	-	-	-	-	-	<15	15	30	Very Frequent
61	Magnolia	Seattle CBD	34th Ave W, 28th Ave W	24	0.56	0.44	-	29%	22%	15%	-	-	-	-	-	15	30	30	Frequent
62	Mercer Island	S Mercer Island	Island Crest Way	202/204	0.84	0.24	1	21%	12%	N/A	-	-	-	-	-	30	60	0	Local
63	Mirror Lake	Federal Way	S 312th St	901	0.62	0.35	-	13%	14%	13%	-	-	-	-	-	30	30	0	Local
64	Mount Baker	Seattle CBD	31st Av S, S Jackson St	14	0.96	0.33	1	34%	17%	18%	-	-	-	-	-	<15	15	30	Very Frequent
65	Mountlake Terrace	Northgate	15th Ave NE, 5th Ave NE	347	1.48	0.86	1	44%	36%	14%	-	-	-	-	-	30	30	60	Local
66	MT Baker	U. District	23rd Ave E	48	1.29	0.74	1	88%	39%	47%	1	-	-	-	-	<15	15	15	Very Frequent
67	NE Tacoma	Federal Way	SW 356th St, 9th Ave S	182	0.72	0.46	-	29%	17%	0%	-	-	-	-	-	60	60	0	Hourly
68	Northgate	U. District	Roosevelt	66E/67	0.67	0.32	-	35%	14%	16%	-	-	-	-	-	15	15	30	Very Frequent
69	Northgate	Seattle CBD	Green Lake, Wallingford	16	0.90	0.76	1	22%	32%	14%	-	-	-	-	-	<15	15	30	Very Frequent
70	Northgate	U. District	Roosevelt Way NE, NE 75th St	68	0.64	0.75	-	29%	42%	N/A	-	-	-	-	-	15	15	30	Very Frequent
71	Northgate	SODO	Columbia City Station	50	0.69	0.46	-	40%	15%	8%	-	-	-	-	-	30	30	0	Local
72	Overlake	Bellevue	Bell-Red Road	226	0.24	0.21	-	13%	11%	5%	-	-	-	-	-	15	15	30	Very Frequent
73	Overlake	Bellevue	Sammamish Viewpoint, Northrup Way	249	0.39	0.22	-	24%	7%	0%	-	-	-	-	-	30	30	0	Local
74	Pacific	Albany	Albany	917	0.32	0.12	-	7%	3%	N/A	-	-	-	-	-	30	30	0	Local
75	Queen Anne	Seattle CBD	Queen Anne Ave N	2/13	1.10	0.67	1	64%	38%	45%	1	-	-	-	-	<15	15	15	Very Frequent
76	Queen Anne	Seattle CBD	Taylor Ave N	3/4	0.92	0.61	1	63%	36%	38%	1	-	-	-	-	<15	15	15	Very Frequent
77	Rainier Beach	Seattle CBD	Rainier Ave	7	1.18	0.96	1	64%	70%	54%	1	-	-	-	-	<15	15	15	Very Frequent
78	Rainier Beach	Seattle Center	MLK Jr Way, E John St, Denny Way	8	0.73	0.47	-	44%	34%	26%	-	-	-	-	-	15	15	30	Very Frequent

Cost Recovery**	Off Peak	Peak	Night
>= 100%	2	2	2
>= 50%	1	1	1
>= 33%	---	---	---
>= 16%	---	---	---
>= 8%	---	---	---

Load Factor*	Off Peak	Peak	Night
1.50	2	2	2
0.75	1	1	1

* Lead Factor and Cost Recovery service level improvements move the preliminary levels of service up one or two levels, e.g. a load factor or cost recovery service level improvement of 2 changes a 30 min. service to <15 or a 60 min. service to 15, etc. A cost recovery >8% warrants 60 min. night service, >16% warrants 30 min.

** Figures rounded for display purposes.

Using the Guidelines to Plan, Assess and Change Service

Where do we provide service?

Our Transit network is comprised of corridors connecting centers

Centers:

- Transit centers and places where many people work, live or go for services or activities
- 85 centers across King County today

Corridors

112 Metro corridors serve centers

All-Day and Peak Network

These 112 corridors create Metro’s all-day transit network. Metro provides additional peak only service to meet demand.

How much service should we provide?

Target corridor service levels are set in two steps:

1. What is the preliminary service level?

Productivity (Jobs & Households)

+

Social Equity (low-income & minority riders)

+

Geographic Value (connections to centers)

Preliminary Service Level

2. Does preliminary service level provide enough buses?

Preliminary Service level	Current Riders	Target

How is service performing?

Service analysis looks at both routes and corridors:

Route Productivity Rides/ Hr. Pass.Mi/ Mi.

Top 25%	Bottom 25%
---------	------------

Service Reliability

< 5 Minutes late

Overcrowding

Avg. load < 125% seats: regular service
Avg. load < 150% seats: 10 min. service
Standing load < 20 min all service

Peak Criteria

Travel time
Ridership

Target Service Comparison

Target	Existing
	Below

Above
At
Below

What should we do differently?

+

Investment Priorities

Invest to:

- Reduce overcrowding
- Improve reliability
- Achieve target service levels
- Become more productive

-

Reduction Priorities

Reduce service to:

- Meet budget constraints
- Re-invest in investment priorities

Improvements & Restructures

Make improvements and restructures to:

- Match design guidelines
- Meet investment priorities

=

Service Change Proposals

How does Metro determine where to cut service? **By following priorities in the service guidelines**

When Metro has to reduce service to fit our budget, we follow service guidelines that set priorities for making cuts or changes. The guidelines also help us make the best use of fewer transit dollars by keeping service where it's needed most: highly productive routes that carry many riders, low-income and minority communities where many people rely on buses, and routes that get people to key destinations across King County.

Priority 1: Cut the lowest-performing service (bottom 25%) that:

1. Duplicates other service.
2. Runs in peak periods only and doesn't carry enough riders or travel faster enough compared to regular all-day service.
3. Is on a corridor where service is above the target service level.
4. Is on a corridor where service is at the target service level.

Priority 2: Restructure a network of routes

We also look for ways to change a group of routes in an area so the network serves the most riders and costs less to operate, and cuts have the least impact on our riders. We might combine routes, delete parts of routes that carry fewer riders, or move buses to different streets.

Priority 3: Cut the next-lowest performing service (above the bottom 25%)

When we must make deeper cuts, we have to take service from routes that are performing better than those in the lowest-performing group. Again, we cut service that:

1. Duplicates other service.
2. Runs in peak periods only.
3. Is on a corridor where service is above the target service level.
4. Is on a corridor where service is at the target service level.

Priority 4: Reduce the lowest performing service (lowest 25%) on corridors that are below their target service levels

Even though service in this category is among the lowest performing in the Metro system, it's not top priority to be cut because we try to meet the target service level in every corridor—although that's not always possible within our available resources.

Transit terms

Service can mean a whole route, part of a route, or a single trip.

Low performing service carries fewer people or carries them for shorter distances to fewer of the places the route goes.

Duplicates other service means a route or part of a route serves the same area or part of a street that another route serves, so another option is available to riders.

Corridor is a transit service area linking major destinations. More than one route can operate on a corridor.

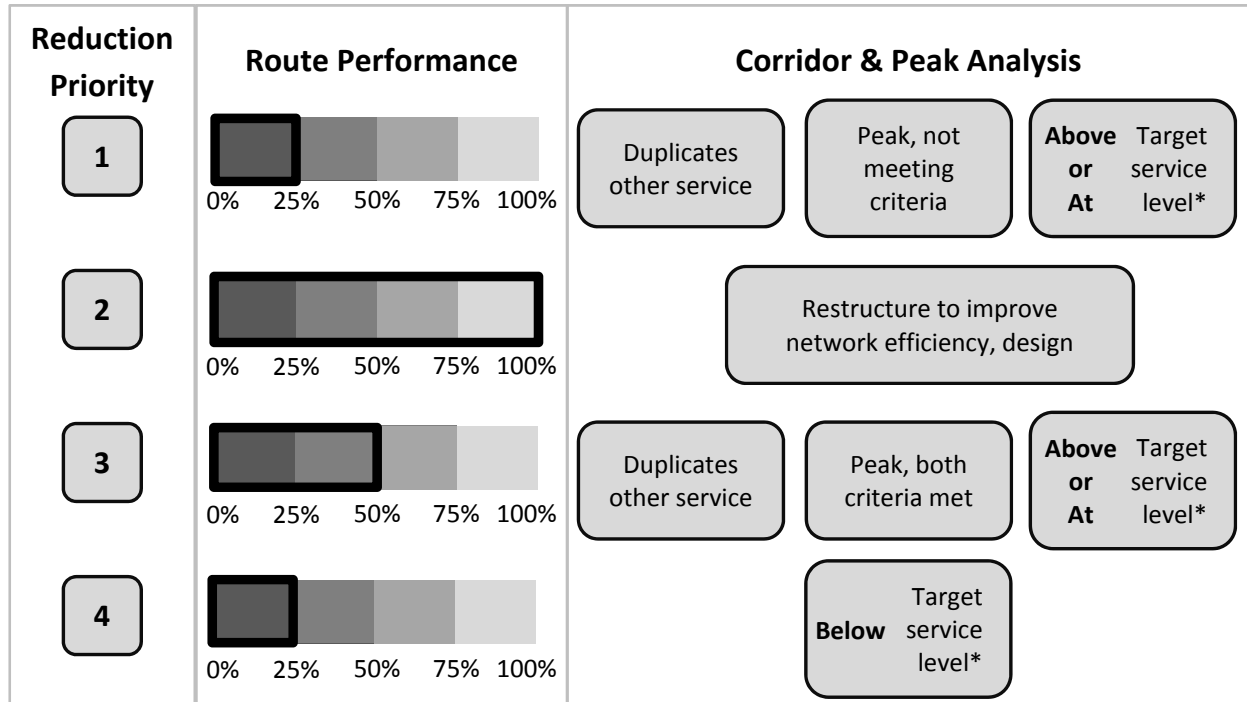
Service level means how often buses come, how many hours a day they run, and how many days of the week they provide service.

Target service level—Metro sets this for each corridor, based on:

- the number of homes, jobs, and colleges nearby
- the number of riders in areas that have many minority or low-income residents
- connections to major destinations
- the number of riders using the service

See an illustration of the process >>

Metro Service Guidelines Methodology for Reducing Service



*Target service level is based on demographics and demand between connections served by transit