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SERVICE, DESIGN,  
PERFORMANCE  
AND EVALUATION  
GUIDELINES

**bigblue** bus





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# 1 Overview

**Santa Monica presents a unique case for transit in greater Los Angeles. While dense, it has historically been somewhat geographically removed from the urban core of the region. As a result, it encouraged the growth and success of its own transit system to better cater to the distinct needs of Santa Monica and its surrounding communities. Big Blue Bus has successfully served this area since 1928, and continues to be a highly-performing model for other transit agencies across the country to follow.**

Today, Big Blue Bus is the primary transit provider for the City of Santa Monica as well as many surrounding portions of Los Angeles. Service is provided to many major area destinations and transit centers, namely UCLA, the Rimpau Transit Center, the Culver City Expo Line station, the Wilshire/Western Purple Line station, the Aviation/LAX Green Line station, and downtown Los Angeles.

The Los Angeles area is a highly dynamic region. As its population grows, so does its need for higher-capacity transportation solutions, with mass transit figuring prominently in regional provider LA Metro's set of solutions. The introduction of the first phase of its Exposition Light Rail Line (Expo) has had a substantial positive impact on areas from downtown Los Angeles to Culver City and neighborhoods in between. By extending the Expo Line and increasing the level of connectivity between the already-powerful Santa Monica area and greater Los Angeles (Expo Phase 2 is scheduled for completion in 2016), there is substantial potential for mobility growth in the city and its surroundings. Yet with this growth comes a new set of challenges for transit in Santa Monica. How can Big Blue Bus ensure that it connects the people and businesses of Santa Monica with each other as well as with this new link to the greater Los Angeles area?

These standards will guide Big Blue Bus in ensuring that its service is meeting the expectations of both passengers and taxpayers, and will guide every change and investment in service as Santa Monica's mobility needs and wants evolve.

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**This set of standards consists of three primary components:**

**Figure 1: Service Standard Components**

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The service design standards lay out how Big Blue Bus service should be designed and operated, for existing as well as new services. The service performance standards describe how Big Blue Bus analyzes its routes to ensure the highest possible level of performance in terms of service effectiveness, efficiency, and quality for customers. The service evaluation process presents Big Blue Bus' strategy for analyzing, updating, and communicating its service plans to ensure that it continues to provide service that stays relevant to the needs of the City and its residents, employees, and visitors.

Big Blue Bus is committed to the enforcement of US-DOT's Title VI regulations which state that no person or group of persons shall be discriminated against with regard to the routing, scheduling, or quality of service of transportation provided on the basis of race, color, or national origin.

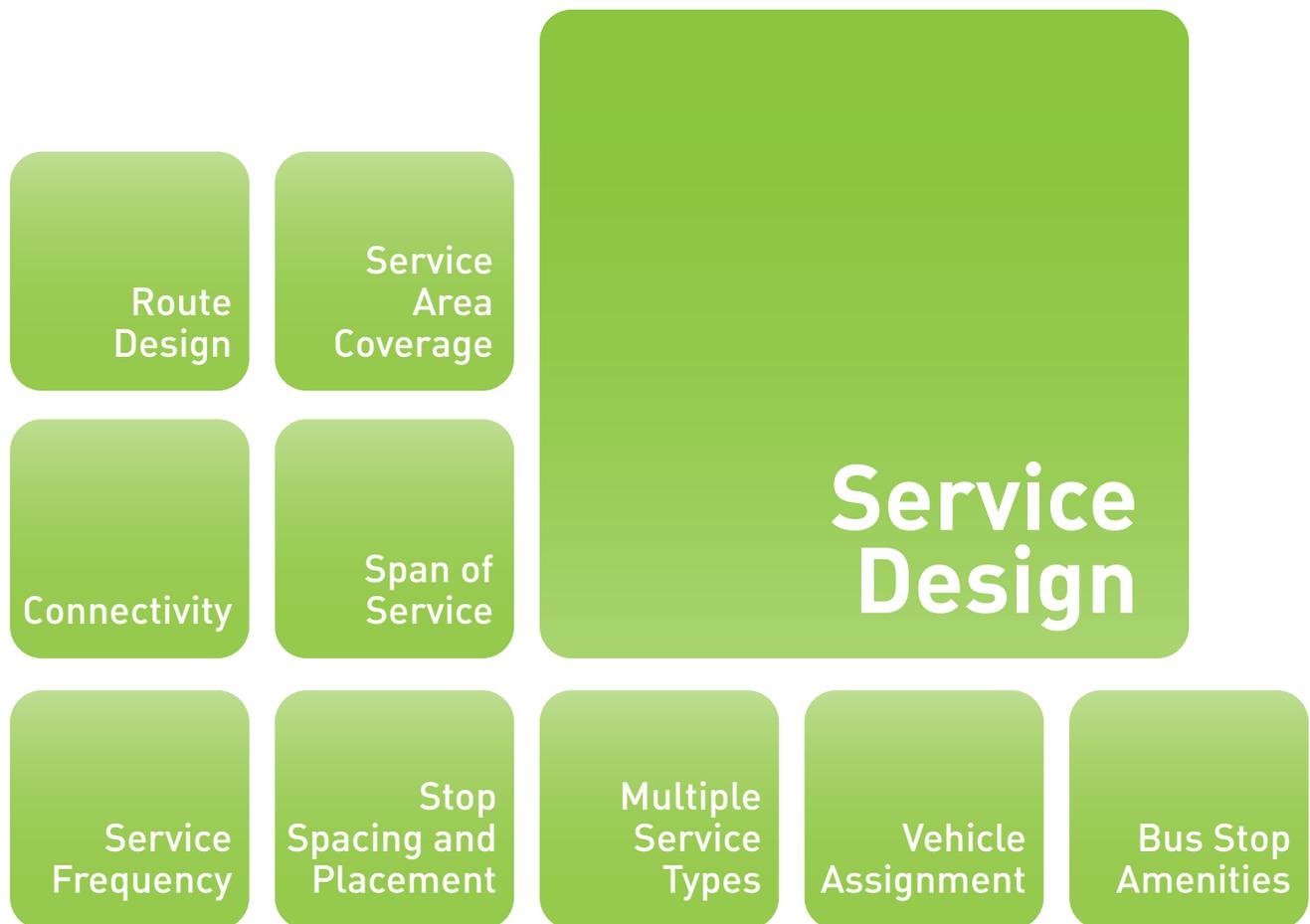
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# 2 Service Design

Service design standards refer to how transit service is designed, implemented, and operated on the street, from route alignment and stop spacing to frequency and span of service. The standards outlined in this section are not intended to be absolutes, but guidelines to develop an efficient, effective transit network.

Figure 2: Service Design

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## 2.1 Service Categories

At present, Big Blue Bus operates 20 fixed-route bus services. Most of these are Local bus routes, which operate on a set schedule and make local stops. Big Blue Bus also operates several Rapid (limited-stop or express) routes with fewer stops and higher speeds. Lastly, Big Blue Bus operates limited Commuter services, which supplement the other services provided during peak times of travel.

Based on current operating patterns, Big Blue Bus service can be grouped into these three categories based on the way the routes operate and their roles in the transit network:

**Table 1: Service Categories**

Category	Network Role	Big Blue Bus Routes
<b>RAPID</b>	Provides high-frequency, limited-stop service between Santa Monica and neighboring destinations of strong regional importance.	R3, R7, R10, R12
<b>LOCAL</b>	Serves the greater Santa Monica area, providing service along major and secondary corridors and serving larger local destinations and intermodal connections.	1, 2, 3, 4, 5, 7, 8, 9, 12, 14, 41 Crosstown, 44 Sunset Ride
<b>COMMUTER</b>	Augments the local network with additional peak hour service to key destinations.	6, 11, 13, R20

Each category of service may have different standards and expectations based on the types of markets served and the operating protocols required. Wherever necessary, the service standards are shown by category.

## 2.2 Service Design Standards

The dynamic nature of development in Santa Monica and western Los Angeles results in changing travel markets and patterns in Big Blue Bus' service area. In order for Big Blue Bus to continue providing high quality transit service, it is important for service standards to monitor the quality of service provided as well as determine where new services may be appropriate or where services need to be adjusted and/or discontinued.

**Route design** – The alignment of each route is a key factor in its ability to successfully serve customers' mobility needs. Route design refers to route directness, connections to key origins and destinations, and how the route interfaces with other transit services.

- **Direct** – Big Blue Bus routes should be designed to serve origins and destinations via direct pathways, minimizing out-of-direction movements. This provides a faster trip to attract more customers and fare revenue, while minimizing the cost to provide service.
- **Arterial** – With the exception of some local services, bus routes should serve major arterial streets, avoiding smaller neighborhood streets.
- **Grid Based** – Big Blue Bus routes should be designed in a grid-based structure, with higher-frequency routes serving major corridors and connecting on-street rather than deviating to serve transfer hubs. A limited number of hubs are exceptions forming the beginning or end of routes and/or serving major destinations, namely Downtown Santa Monica and UCLA, as well as Rimpau Terminal, Expo Culver City, and Green and Purple Line Metro Rail stations.
- **Intermodal Connectivity** – Current Big Blue Bus service is more oriented towards east-west travel, with most major corridors positioned in this way consistent with a majority of travel patterns. With the coming Expo Line Phase 2 (projected to be completed in 2016), which will provide a frequent, high-capacity east-west connection, Big Blue Bus will need to improve

north-south connections to collect and distribute customers coming to/from Expo. North/south routes should focus on major arterials wherever possible, and should be designed to efficiently connect major destinations to Expo such as Santa Monica College, UCLA, major employers, major retail centers, medical facilities, and visitor destinations.

**Service area coverage** – The service area coverage standard generally defines how transit service will be provided in a certain area that meets Big Blue Bus’ New Service Evaluation guidelines for minimum transit demand. This includes defining the maximum allowable walking distance to transit services and how far apart stops should be placed given the type of service that is being proposed or provided currently.

- **Medium Density Route Spacing** – In general, ½ mile spacing between routes allows customers a maximum of ¼ mile walk (approximately five minutes) to access service and is an appropriate standard for a grid-based bus system.
- **High Density Route Spacing** – Within the dense urban core of the Santa Monica area (population and employment densities of 30 residents or jobs per acre and greater – roughly Wilshire Blvd. in the north to Ocean Park Blvd. in the south), service may be spaced as closely as ¼ mile between routes. Several major regional arterials are present in this area which warrant bus service (Wilshire Blvd., Santa Monica Blvd., Colorado Ave., Pico Blvd., Ocean Park Blvd.) and all serve different regional and communities in Los Angeles County to the east.
- **Low Density Route Spacing** – Outside of the dense urban core (in areas with 10 to 30 residents or jobs per acre) service should be spaced no closer than ½ mile between routes except in extraordinary circumstances. Big Blue Bus should avoid unnecessary duplication of LA Metro or Culver City Bus service, except where the corridor supports multiple service types (e.g., Rapid and Local).

- **Rural Route Spacing** – Areas with fewer than 10 residents or jobs per acre rarely provide enough concentrated transit demand to generate ridership and meet Big Blue Bus performance standards, and will only receive service if significant trip generators or attractors are present.

**Connectivity** – In order to maximize ridership and avoid service duplication, it is important that customers are able to transfer and connect to additional service that takes them to their final destination, either at major hubs such as downtown Santa Monica or on-street at major intersections. New services should not only be designed as isolated routes, but also as an important piece of the overall transit network. A new route may enable convenient transfers with existing services or provide connections between current routes and major destinations (“first mile/last mile” connections).

Designing service to enable convenient transfers allows Big Blue Bus to minimize service duplication, since every route does not need to provide a one-seat ride to the customer’s final destination. Within a limited-resource context, minimizing duplication allows for a more effective use of resources.

- Big Blue Bus should seek to avoid duplicating (overlapping) its own services or other services to the maximum extent possible, by focusing on providing frequent service on single routes on a corridor (or Rapid/Local pairs) rather than providing less frequent service on several overlapping routes.
- Convenient transfers should be facilitated by high frequencies (15 minutes or better, minimum; 10 minutes, preferred) on major arterial corridors. Frequency of service is discussed in more detail below.

**Span of Service** – Span of service defines how many hours each day a specific route will operate. A longer span of service allows a route to capture more riders throughout the day for a wider variety of trip purposes, but also increases overall costs.

Span of service standards are more important to describe by the type of market/corridor served than by the category of service, as a Local route serving a major regional corridor may have very different span needs than a Local route serving a smaller, secondary corridor. It is also important that the route spans be coordinated with each other to provide necessary connecting services.

Major Big Blue Bus corridors including Pico, Lincoln, Santa Monica, Wilshire, and Westwood Blvd. should operate as follows:

**Table 2: Major Corridor Span of Service**

Weekday		Weekend	
START TIME	END TIME	START TIME	END TIME
5am-6am	Midnight	6am-7am	Midnight

Later service may be required on certain corridors.

Most other Local corridors should operate as follows:

**Table 3: Other Local Corridor Span of Service**

Weekday		Weekend	
START TIME	END TIME	START TIME	END TIME
5am-6am	9pm	6am-7am	9pm

Later service may be required on certain corridors.

Commuter service spans should be tailored to demand patterns.

Spans of service may need to be adjusted on certain routes depending on the operating hours of connecting services such as Expo and the resulting demand.

During off peak hours, there may be over capacity in areas where routes are close together. For this reason, some routes may have a truncated span of service on all or part of the route during off peak hours in order to save resources and trim capacity. The expectation is that riders will walk the short distance between routes and use the alternate service that is running later or running off peak.

**Service Frequency** – Service frequency defines how long customers must wait for bus service. With higher frequencies, fewer customers are left waiting for buses at any given time, which helps make the service more attractive to potential riders. At the same time, however, higher frequencies can significantly increase costs by requiring more buses and drivers.

Frequent service (which enables customers to use service “spontaneously” without consulting bus schedules) is defined as 15 minute headways or better. The following are minimum frequency standards.

- Rapid routes should operate at **15 minutes or better throughout a majority of the day** (evenings may require less frequent service), while 10 minutes or better may be warranted on major, high-demand corridors. Whenever possible, Rapid services should operate more frequently than Local service on the same corridor, to allow maximum customer convenience and greater access to the faster, more efficient service option.
- Local routes should operate at a minimum of **30 minutes or better throughout the day and week**. Local routes on major corridors (especially those without Rapid options) may warrant much more frequent service (15 or 10 minutes).
- Commuter route frequency should be tailored to demand volumes but should operate 15 minutes or better to allow spontaneous use where supported by ridership.

Whenever possible, headways should be designed as “clock-facing” where service operates every 6, 10, 12, 15, 20, or 30 minutes – headways divisible by 60 – where the same times repeat each hour. This makes service easier for customers to remember and use without consulting schedules. Exceptions are permitted where a route (usually with longer headways) will be operationally inefficient (e.g. require an additional vehicle resource) with a clock-facing headway.

**Stop Spacing and Placement** – This standard involves how far apart bus stops are spaced. Stops spaced further apart allow for higher bus speeds (minimizing travel time for passengers on the bus) but require

customers to walk further to access service. Stop spacing standards differ by service type, with Rapid stops spaced further apart than Local stops.

- **Rapid Bus Stop Spacing** – Rapid bus routes on corridors also served by Local routes should have stops spaced a minimum of ½ mile apart, and should be placed at major destinations, intersections, and transfer points. Rapid stop placement should be determined based on overall spacing as well as ridership.
- **Local Bus Stop Spacing** – For Local services, stop spacing from 1000 feet up to ¼ mile (roughly 1,300 feet) is desirable. Local service on small streets can sustain the most closely-spaced stops (since trip distances are usually short) while Local stops on major arterial streets risk introducing unnecessary delay if stops are spaced closer than 1,000 feet. Existing stops with continuously low usage will be subject to review for consolidation with other stops or removal in order to increase service speed and reliability.
- **Commuter Service Stop Spacing** – Commuter services can either use Local or Rapid-type stopping patterns depending on the type of service and passenger needs.
- **Stop Placement** – Far-side stop placement is recommended wherever possible. Far-side stop placement improves bus speed with and without transit signal priority, and improves pedestrian and bicycle safety (crossing the street behind instead of in front of the bus). It also maintains a larger amount of curb space available for parking than nearside stop placement.

**Corridors With Multiple Service Types** – Big Blue Bus currently operates three Rapid/Local pairs on the same corridor – Lincoln (3/Rapid 3), Pico (7/Rapid 7), and Westwood Blvd. (12/Rapid 12). These corridors are among the highest-ridership and highest-performing in the Big Blue Bus system. In order to determine whether additional corridors may warrant Rapid/Local service, the following criteria should be met:

- **Performance.** Operating multiple service types requires a significant investment in resources and should only be implemented on very high-performing corridors. Per section 3, Service Performance, corridors which perform at 150% of system average or better may be candidates for Rapid/Local service.
- **Major stops.** Corridors which have several high-volume stops interspersed with lower-volume stops are good candidates for Rapid/Local service, as the Rapid will serve a majority of ridership by making only the major stops.
- **Longer-distance travel or significant end-to-end travel.** Both Lincoln and Pico Blvd. are longer-distance corridors where delay reduction has a significant impact. Rapid 12 service along Westwood Blvd. shows significant end-to-end demand between Culver City Expo and UCLA. Shorter corridors with significant local turnover are not good candidates for Rapid/Local service.
- **Corridors without Rapid service operated by another provider.** LA Metro operates Rapid service along Wilshire and Santa Monica Blvds., making them inappropriate for Big Blue Bus competing Rapid Bus service.

## Vehicle Assignment

The Big Blue Bus fleet contains three sub fleets that are assigned by service type as follows:

- Articulated 60-foot motor coaches
  - *The articulated 60-foot coaches are assigned to Rapid service routes that have higher demand and less frequent stops. Given that there are not enough articulated buses to supply all of the assignments for Rapid service, some 40-foot coaches are also assigned to Rapid service. The Rapid assignments with the highest average passenger loads are assigned the 60-foot articulated coaches due to the coach's higher capacity. Within Rapid service, buses are assigned among routes to maintain fleets on each route with an average age that does not exceed the system wide average.*

- 40-foot motor coaches
  - *The 40-foot motor coaches make up over 80% of the Big Blue Bus fleet. These buses are assigned to the majority of the middle performing service as well as to some Rapid service as noted above. Within routes with 40-foot bus assignments, buses are assigned among routes to maintain fleets on each route with an average age that does not exceed the system wide average.*
- 32-foot motor coaches
  - *The 32-foot motor coaches are assigned to routes with low ridership profiles and/or to routes that use local streets. Some 32-foot buses may also be assigned to routes that primarily use 40-foot coaches, specifically at times when ridership is expected to be light, such as nights or weekends. Within routes with mixed 40-foot and 32-foot bus assignments, buses are assigned among routes to maintain fleets on each route with an average age that does not exceed the system wide average.*
  - *The low number of vehicles in the 32-foot fleet (15 as of this writing), and the propensity to replace the whole fleet at once means that there is little opportunity to assign a variety of vehicles in order to maintain fleets on each route with an average age that does not exceed the system wide average. Buses on routes with exclusive use of 32-foot vehicles are currently younger than the system wide average and will age on that route until they are replaced with new vehicles, until such time as the 32-foot fleet is large enough to enforce an average age policy.*

## Bus Stop Amenities

The Big Blue Bus service area contains the City of Santa Monica, where Big Blue Bus has significant influence over bus stop amenities. At these stops,

amenities are allocated based on volume of activity (total number of average daily boardings). Activity levels are classified as follows:

**Table 4: Amenities Based On Ridership**

Average Daily Boardings	Bus Stop Classification	Amenities Provided
<b>49 OR LESS</b>	Low Volume	Public Information kiosk
<b>50-99</b>	Medium Volume	Above plus shelter and seat
<b>100-999</b>	High Volume	Above plus real-time signage
<b>1000 OR MORE</b>	Very High Volume	Above plus multiple shelters or extra large shelter

Note: Due to the rapid changes taking place in how transit customers obtain information, allocation of real time signage remains a fluid issue. Depending on technology developments, Big Blue Bus may cease to provide these signs at stops, or may significantly alter how they are allocated.

Parts of the Big Blue Bus service area that are outside of the City of Santa Monica are allocated bus stop amenities through a contract with a private provider through LA Metro. Big Blue Bus has no control over bus stop amenities at those sites



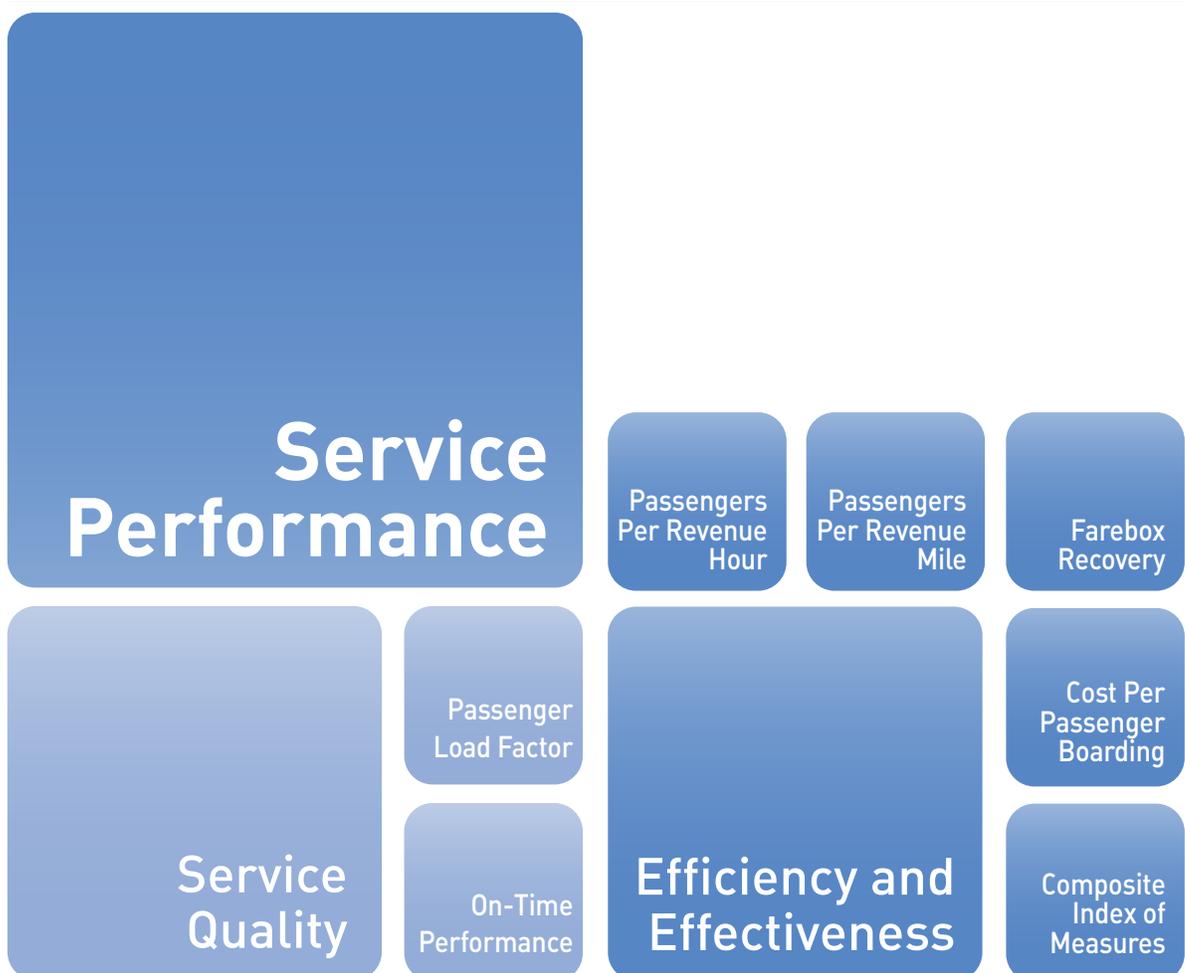
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# 3 Service Performance

Service performance standards are necessary to ensure that all services are fulfilling their roles in the transit network and contributing to the overall financial sustainability of BBB. Performance should be measured regularly in order to identify trends over time, and to allow prompt changes to be enacted if necessary. Performance standards help ensure that Big Blue Bus services are useful to customers as well as cost-effective for the agency.

Figure 3: Service Performance

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## 3.1 Key Performance Indicators

Service performance may be measured using a number of industry best practice key performance indicators (KPIs). These fall into two distinct groups, the first focused on efficiency and effectiveness, the second on service quality:

- Efficiency and Effectiveness:
  - *Passengers per Revenue Hour*
  - *Passengers per Revenue Mile*
  - *Farebox Recovery*
  - *Cost Per Passenger Boarding*
  - *Composite Index of Efficiency and Effectiveness measures*
- Service Quality:
  - *On-Time Performance (service reliability)*
  - *Passenger Load Factor (identifying overloads)*

### 3.1.1 Efficiency and Effectiveness Measures

There are a number of external factors such as gasoline price, cost of parking, and state of the economy that are at once fairly volatile, and also substantially influential regarding our expectations for key performance metrics. For that reason, while Big Blue Bus does set minimum and maximum standards for performance, the service is to be primarily measured against the mean for the system. In this way, the merits of individual routes can be accurately measured, while regulating for the effects of external factors influencing overall ridership.

**Passengers per Revenue Hour (PPH)** – This KPI measures service effectiveness or productivity based on ridership (unlinked boardings) generated for each hour of service operated.

Current Big Blue Bus route-level performance for this metric ranges from approximately 10 passengers per revenue hour to almost 60 passen-

gers per revenue hour on weekdays, and from approximately 10 to 50 passengers per revenue hour on weekends.

The following are the expected **minimum** thresholds required to justify service. There are different minimum expectations for each service category and day of the week. Some seasonal fluctuation in performance is to be expected, as ridership to schools and colleges may be lower during the summer, and recreational ridership may be higher. Per the Service Evaluation Process, service performance should be reviewed quarterly but major service change decisions should be based on annual data.

**Table 5: Minimum PPH Thresholds**

	Expected Minimum Passenger Boardings per Revenue Hour	
CATEGORY	WEEKDAY	WEEKEND
Rapid	40	35
Local	20	15
Commuter	20	-

**Passengers per Revenue Mile (PPM)** – this indicator is a measure of raw passenger generation per mile that the bus operates, which does not account for differences in service speed (unlike Passengers Per Revenue Hour).

Current Big Blue Bus route-level performance for this metric ranges from less than 1 passenger per revenue mile to 8 passengers per revenue mile on weekdays, and from less than 1 passenger per revenue mile to 5 passengers per revenue mile on weekends.

Expected minimum thresholds for passengers for revenue mile are shown below. Since Rapid services provide faster service (more miles in fewer hours), they may not perform as well as Local services in this category and therefore do not have higher thresholds than Local.

**Table 6: Minimum PPM Thresholds**

CATEGORY	Expected Minimum Passenger Boardings per Revenue Mile	
	WEEKDAY	WEEKEND
Rapid	2	1.75
Local	2	1.75
Commuter	2	-

**Farebox Recovery** – This indicator measures the amount of service operating cost that is recouped through farebox revenue, and is expressed as a percentage. The higher the percentage, the higher the amount of cost that is covered by farebox revenue. Routes which carry more riders per the amount of service investment will have a higher farebox recovery. Farebox recovery takes into account the cost of operation, the number of riders, and the average fares that customers pay.

**Table 7: Farebox Recovery Ratio**

CATEGORY	Expected Minimum Farebox Recovery Ratio*	
	WEEKDAY	WEEKEND
Rapid	16%	14%
Local	12%	12%
Commuter	12%	-

\*Values to be updated regularly in accordance with BBB cost structures.

**Cost per Passenger Boarding** – This KPI measures the cost to provide service on a per-passenger basis. Routes which carry more people per the amount of service investment will have a lower cost per passenger boarding. Since operating costs are largely driven by revenue hours, evaluating routes on a cost per passenger boarding basis will yield similar results to the passengers per revenue hour analysis – however, cost per passenger boarding can take into account cost sharing or other funding relationships that may reduce subsidy. If routes do not meet minimum expectations for the other indicators above, they must meet cost per passenger boarding expectations to continue operation.

**Table 8: Maximum Boarding Costs**

CATEGORY	Expected Maximum Cost Passenger Boarding*	
	WEEKDAY	WEEKEND
Rapid	\$4.50	\$5.00
Local	\$5.00	\$6.00
Commuter	\$5.00	-

\*Values to be updated regularly in accordance with BBB cost structures.

**Composite Index of Efficiency and Effectiveness Measures**

– The weakness of individual measures of performance is that some routes may perform poorly on certain measures even though the bus is running at full capacity and performs well on other measures. For instance, Big Blue Bus Line Rapid 10, which runs express (no stops) for more than half the route, could receive a low performing Passengers per Revenue Hour score even when running full because once the bus is loaded, there are no further opportunities to open up new seats and gain more boardings along the route. Depending on the relative number of boardings on other routes, this could conceivably result in a Low Performing score. Each of the four efficiency and effectiveness measures gives valuable insight into performance, and yet, each measure will favor certain routes and route profiles.

The advantage to the Composite Index KPI is that it is a blend of the values of the other four efficiency and effectiveness measures, and gives a more a measured and balanced overall look at the performance of each route against system averages.

The Composite Index KPI is calculated by assessing a ranking value between 1 and 20 to each route for each of the other efficiency and effectiveness measures, and then adding those ranking figures for each route to gain an overall ranking for the route. A lower ranking indicates better performance (routes are ranked with the number one route being the highest performer and the number 20 route being the lowest performer.)

### 3.1.2 Service Quality Measures

**On-Time Performance** – An on-time performance standard defines a minimum threshold that Big Blue Bus should meet regarding the percentage of total daily trips that are recorded as on-time. On-time performance reflects both the quality and reliability of service, which can affect whether or not people choose to use transit.

Big Blue Bus defines “on time” as one minute early to 5 minutes late at each timepoint, disregarding early arrivals at the final timepoint.

The goal of **85% on-time performance system-wide** is a common industry standard, which allows for some level of service variability while maintaining the reasonable expectation of reliability for customers.

**Passenger Load Factor** – Passenger loads refers to how many people are on the bus at any given moment compared to its capacity both seated and standing. If passenger loads are high which results in overcrowded conditions, additional service may need to be required to address the issue.

Service quality issues with crowding are dependent on the amount of time that customers must stand on the bus. If crowding is a relatively brief phenomenon, it does not justify the expense of adding additional service. Conversely, on longer-distance express-type service, it is not advisable to allow any standees due to the amount of time that most customers spend on the vehicle as well as the bus’ higher speeds.

**Table 9: Load Factor**

Category	Passenger Load Factor
Rapid on Freeway	100% of seated capacity
Rapid	150% of seated capacity for two or more miles
Local	150% of seated capacity for two or more miles
Commuter	150% of seated capacity for two or more miles

Overcrowding may be a result of high ridership performance, and should therefore be evaluated in the context of not merely relieving crowded vehicles but providing higher service levels overall. Sustained crowding (e.g. not merely one or two trips per day) of approximately 130% of seated capacity should be evaluated for the need to provide increased frequency.

### 3.1.3 Relative Service Effectiveness Measures and Corrective Action Guidelines

Along with minimum performance standards, routes will be evaluated in comparison with each other for service efficiency and effectiveness. Big Blue Bus will derive the systemwide average for each metric and determine how each route performs compared with the system average. For example, if the system-wide average is 40 passengers per revenue hour, and one route generates 30 passengers per revenue hour, that route performs at 75% of system average.

**Based on percentage of system average, the routes will be evaluated within the following categories:**

- Low-performing service: 50% of system average and below;
- Average-performance service: between 51% and 149% of system average; and
- High-performing service: 150% of system average or better

The sections below include corrective action plans for routes falling into the categories described above. Routes in the low and high categories may warrant more intensive actions, while routes towards the middle are adequately fulfilling their roles in the network. Routes at the cusps of each category may be subject to the actions in the neighboring category based on the best judgment of Big Blue Bus.

### **Low-Performing Service (50 percent or lower of system average)**

If a bus route is found to be “low performing” (ranks at or below 50% of the system average) on three or more of the five efficiency and effectiveness metrics listed in Section 3.1 for two or more consecutive quarters in a row, the service is subject to a Corrective Action Plan.

Routes which rank within this category will be reviewed to determine their potential for improvement. Corrective actions include any and all of the following based on the best judgment of Big Blue Bus. Routes in this category may still meet expected minimum performance standards as identified above – however, there may be room for improvement.

- **Segment Level Analysis:** A segment level analysis of a low-performing service may highlight a specific portion of the route that significantly reduces the overall performance, causing it to perform below the standard for its service class. If a low-performing segment is identified, it can be modified to attempt to raise productivity for the route as a whole. If the results of a segment level analysis turn out to be inconclusive, however, modifications to the entire route should be considered.
- **Operational Analysis:** Often the difference between meeting and failing minimum performance standards is one of vehicle resources. Realigning service to cover only critical segments or eliminating unnecessary delay (e.g. deviations) are ways to reduce travel time and save resources, thereby raising performance levels.
- **Change in Service Levels:** Adjusting the service levels of a low-performing route – by any combination of frequency, span, or day of week changes – may help to tailor the transit product to its market, and subsequently increase productivity.
- **Cost Sharing:** Exploring cost sharing or public-private partnerships can reduce the amount of subsidy required on low-performing services.

This is applicable for routes which do not meet minimum performance standards yet serve a need identified by businesses, schools, attractions, or other organizations that may be willing to assist with funding operations in order to continue service. Routes that have cost-sharing relationships will likely become Average Performing or High Performing in the Cost Per Passenger Boarding metric, but will still need to meet least average performing standards on at least two other metrics in order to avoid further Corrective Action Plans.

- **Targeted Marketing:** Marketing tactics can help to raise the public awareness of a route in need of remedial action. Poor ridership may be a result of a lack of public knowledge of a route, and investing in marketing can reverse this trend. This is especially the case for concentrated market groups like employment centers, shopping districts, schools, hospitals, agencies, and other major destinations.
- **Rider Outreach:** Onboard surveys and rider interviews are methods for gaining valuable information on how a route can be improved. These methods can reveal information about popular destinations that a route may bypass, or other aspects of a service that may be holding back ridership growth.

Using this information, Big Blue Bus will create a Corrective Action Plan for improving performance.

The Corrective Action Plan will be formally implemented in the next feasible service change window given the limitations in place regarding public process, public hearing (if required), and annual service change calendar.

Once a Corrective Action Plan and implemented, the route must meet Average Performing or High Performing standards on at least three of the five Efficiency and Effectiveness metrics for at least one quarter within the first three successive quarters after implementation of the plan or face further action. Once a route reaches at least Average Performance on three of the five efficiency and effectiveness met-

rics for at least one quarter, the process of Corrective Action is deemed concluded, and any subsequent low performance is treated as a new event.

- **Discontinuation:** This is the final option for a low-performing route that does not meet minimum performance standards for at least three successive quarters. It can be applied to a route segment or the route as a whole. If none of the aforementioned Corrective Actions are successful in raising productivity to Average or High Performing in at least three of the five Efficiency and Effectiveness Metrics shown above, discontinuation may be necessary to ensure effective use of resources. Corrective Actions shall be in action for at least three successive quarters before service is discontinued, except in extreme or unforeseen circumstances. The effects on the routes' transit-dependent riders will be considered when discontinuation is an option.

### **Average-Performing Service (51 to 149 percent of score average)**

Routes in this category are adequately fulfilling their roles in the transit network, and no Corrective Action is required. These routes will be monitored on an ongoing basis to determine whether their performance improves, decreases, or remains steady. While no particular action is necessary, ranking in this cat-

egory does not preclude service adjustments at the discretion of Big Blue Bus.

- **Actions:** Routes in this category perform well as a whole. Their average performance may point to conditions where performance is consistent equally throughout their length, or conditions where there may be segments of very high and also low performance. Routes in this category should undergo a trip-by-trip or segment-level analysis to determine whether they are average overall, or include trips or segments which fall into the more extreme categories. Segments which would be considered low or very high performers are subject to the actions detailed in those sections.

### **High-Performing Service (150 percent or higher of score average)**

Routes ranking in this category suggest the need for greater investment, as high performance may signal overloading and passing passengers by due to capacity issues, as well as the presence of significant latent demand.

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#### **Actions for high-performing routes include:**

- **Increase service levels:** In order to maintain a high quality of service, it is important to prevent significant overcrowding on vehicles. Increas-



ing service levels by adjusting the service’s frequency, span, or days of week served can help to alleviate this issue, as well as make service more attractive to a wider pool of potential customers, including those that currently drive. High frequencies provide dependable service with minimal waits, encouraging passengers to arrive randomly without consulting a schedule.

- **Introduce additional service types (Rapid):** High-performing corridors may warrant the upgraded service quality of Rapid bus service with Local underlays. Very high-performing corridors will be analyzed for the need to introduce new Rapid service.

This category of routes constitutes the top-performing tier of the entire Big Blue Bus system and essentially the system’s flagship service. It is very important to maintain a high-quality level of service as well as to continue further investment. It is important to monitor these routes and make investments in key areas that are aimed at further improving overall service.





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# 4 Service Evaluation

The service evaluation process is conducted in order to ensure the continued performance of individual services, as well as the overall network. This evaluation is intended to improve service design and productivity within categories, which is important to ensure that Big Blue Bus offers a consistent system that is easy for customers to use and easy for Big Blue Bus to promote, manage, and administer.

Figure 4: Service Evaluation

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## 4.1 Data Needs for Service Evaluation Process

The performance measures discussed above require the regular collection and updating of the following data sources:

- **Ridership:** Total number of boardings and on-board load by route and day of the week will be collected monthly. This data is available through Big Blue Bus Automatic Passenger Counter (APC) systems. Through regular collection of ridership data, trends over time can be examined.
- **Revenue:** The amount of income generated on a route-by-route basis will be gathered monthly.
- **Resources:** The number of vehicles, revenue miles, and revenue hours per route by day of the week will be collected from Big Blue Bus scheduling information.

- **Costs:** The cost of providing service will be updated on an annual basis for each vehicle type.
- **On-Time Performance:** Departure times at each timepoint (and arrival at final timepoint) are collected via Big Blue Bus Automatic Vehicle Location (AVL) systems.
- **Community Considerations:** The locations of senior, disabled, and lower-income populations are important to consider in transit service planning in order to ensure that these groups are provided with mobility within the region. This information is available via US Census or American Community Survey data. Census tracts with concentrations of minority or low-income populations above the service area average are covered by Title VI regulations. Likewise, the presence of medical facilities, nursing homes, and other community services are given consideration to ensure that these facilities are connected with the communities they serve. This data will be collected through cooperation with local planning and development agencies.
- **Business Arrangements:** Existing or proposed arrangements with employers, educational institutions, and government entities are considered when evaluating route performance. For cost sharing arrangements, the amount of subsidy provided to operate service on a monthly or annual basis (however the contract is structured) will be provided, as well as any conditions on that subsidy. Any cost sharing should be included in the cost per passenger boarding metric to assure that services is represented accurately regarding performance levels.

## 4.2 Service Evaluation Schedule

**Quarterly Route Performance Analysis** – On a quarterly schedule, service performance measures will be reviewed according to the metrics and standards outlined below. See Appendix B for a sample quarterly route performance analysis report.

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### The quarterly report will include the following Key Performance Indicators:

- Passengers per Revenue Hour by Route
- Passengers per Revenue Mile by Route
- Farebox Recovery by Route
- Cost per Passenger Boarding by Route
- Composite Index by Route
- On time performance by Route
- Passenger Load Factor by Route

## 4.3 Public Input & Review

During any substantial changes to service (alignment or significant schedule changes), customer, public, and employee input on recommendations resulting from service evaluation are actively sought. Current Big Blue Bus policy requires a public hearing with the Santa Monica City Council prior to:

- Any permanent <sup>fare media</sup> change ~~that increases fares on the BBB's service.~~
- A twenty-five percent (25%) or more <sup>change</sup> reduction of the number of daily transit revenue vehicles miles of a route; i.e., the total number of miles operated by all vehicles in revenue service for a particular day of the week on an individual route.
- A twenty-five percent (25%) or more <sup>change</sup> reduction of the number of transit route miles of a route; i.e., the total mileage covered during one round trip by a vehicle in revenue service on a particular route.
- Proposed introduction of a <sup>or elimination</sup> new route.

Detailed information on Big Blue Bus public hearing procedures are contained in Big Blue Bus "Public Hearing Procedures for Major Service or Fare Changes", attached as Appendix A. In addition to the public hearing process, Big Blue Bus employs various outreach methods including:

- Publication on website
- Information posted on buses
- Public meetings in various parts of the Big Blue Bus service area
- Notices to public officials, key stakeholders, and community groups
- Targeted surveys to riders of affected services
- E-communications to self-identified Big Blue Bus passengers (those who provide contact information)
- "Ambassador" personnel stationed at key bus stops and transit hubs to discuss service changes with customers

Big Blue Bus will conduct public outreach one month or more prior to a route change, depending on the amount of service impacted. Customers, stakeholders, and the general public are invited to provide comment through the Big Blue Bus website, at public meetings, through surveys, or at public hearings with the Santa Monica City Council. Overall, BBB will follow public outreach policy shown in Appendix A.

## 4.4 New Service Evaluation

As development patterns change and population centers shift – and as transit options to Santa Monica are expanded, as seen with the coming addition of Metro's Expo Line – Big Blue Bus will analyze the need for new services using the criteria listed below. New services or improvements to existing services are evaluated with respect to design standards and consistency with adopted policy principles. Service investment decisions can provide incentives for community support of transit in policy, funding, zoning, and site design.

Planning and implementing new transit service requires an examination of certain characteristics of the proposed service area. The densities and demographic characteristics of a given service area, as well as destinations served and integration with the surrounding transit network, are key parts of transit success. It is important to note that new service im-

plementation is not dependent on any one factor below, but arises from a combination of each of these factors. To determine whether an area warrants new transit service, Big Blue Bus will analyze the following characteristics of a proposed service area:

- **Population and Employment Density:** A minimum level of density (approximately 10 people or jobs per acre) needs to be present in a given area to support regular bus service. In general, higher density areas are more conducive to effective bus service than low density areas due to greater demand and potential ridership. Density of the proposed new service area will be compared to the densities of existing service areas.
- **Transit Inclined Populations:** Certain demographic groups are more inclined to use transit than others such as seniors, the disabled, students, low-income individuals, Millennials and households without automobiles. In assessing an area's demand for transit service it is important to examine the presence of these demographics groups and whether any unmet needs are present. Census tracts with concentrations of minority or low-income populations above the service area average are covered by Title VI regulations. While Title VI areas are not in themselves a warrant for service, they should be considered as part of the decision-making process.
- **Parking shortages, high parking costs:** There are a number of worksite, recreation and shopping destinations in Santa Monica and the surrounding sections of Los Angeles where free or inexpensive parking is difficult to obtain. These sites have a higher propensity for transit ridership than similar sites with ample free parking.
- **Transit Demand Management:** A number of schools and businesses in Santa Monica and surrounding Los Angeles offer subsidized transit passes, and other programs to encourage their constituents to avoid driving single-occupant automobiles. Depending on the program features, these conditions can lead to an increased demand for transit.

- **Key Destinations:** Connecting residents with key destinations such as employment centers, hospitals, schools, shopping, and entertainment is a key factor in designing transit service. Key destinations are those defined as generating at least 150 daily transit boardings.
- **Network Integration:** Any new service should avoid duplicating existing service (see Service Spacing guidelines), and should link into the existing transit network in a logical manner to ensure that connections to other routes and services provide attractive linked journeys. With the arrival of Expo light rail in Santa Monica, first-mile and last-mile connections are expected to be a key component of BBB service.
- **Projected Performance:** In order to ensure continued maintenance or improvement of Big Blue Bus service productivity, new routes should be projected to perform at levels that meet or exceed the system average based on the metrics outlined in the Service Performance section.

New services depend on budget availability and can only be initiated when funding allows, either through resource reallocation, additional fare revenue, or new outside funding. Introduction of new services are subject to a trial period of one year to meet minimum performance standards commensurate with service category using the following process.

- New services will be examined quarterly to assess whether they are meeting the minimum service efficiency and effectiveness metrics.
- If at the conclusion of the first three successive complete quarters after implementation, or any time thereafter, the service is found to be "low performing" (ranks at or below 50% of the system average) on three or more of the five efficiency and effectiveness metrics listed in Section 3.1 for three or more quarters in a row, the service is subject to a corrective action plan and subsequent outcomes as discussed in Section 3.1.3.

## Title VI and Environmental Justice

Big Blue Bus complies with all United States Department of Transportation (USDOT) Title VI guidelines and prepares regularly scheduled Title VI reports. When evaluating potential service or fare changes, Big Blue Bus will evaluate the effects of the changes to discover if there are disproportionate impacts to low-income or minority populations. Title VI prohibits recipients of Federal financial assistance (e.g., states, local governments, transit providers) from discriminating on the basis of race, color, or national origin in their programs or activities.

## 4.5 Conclusion

Big Blue Bus is proud to be a trusted partner in mobility in the dynamic Santa Monica region. By setting clear standards for service design, performance, and evaluation, Big Blue Bus is committing itself to providing the most effective and efficient transit service possible, with full accountability to those it serves. Through the use of these standards, Big Blue Bus ensures that it will continue to provide a transparent and inclusive process in its decision making. Through our interaction with our stakeholders and the community at large, it is our expectation that this document will continue to evolve and adapt to the changing needs of Santa Monica and the surrounding Los Angeles area.





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# 5 Appendices

## Appendix A:

### Santa Monica's Big Blue Bus Public Hearing Procedures For Major Service Or Fare Changes

#### 1. BACKGROUND

Santa Monica's Big Blue Bus (BBB) is required by the Federal Transit Act, as amended through 1992, to establish a policy which defines a process to solicit and consider public comment prior to raising fares or implementing a major change of transit services.

#### 2. BBB POLICY

A. It shall be the BBB's policy that public comments be solicited prior to:

- i. Any permanent ~~change that increases fares on the BBB's service.~~ **fare or fare media change**
- ii. A twenty-five percent (25%) or more ~~reduction~~ **change** of the number of daily transit revenue vehicles miles of a route; i.e., the total number of miles operated by all vehicles in revenue service for a particular day of the week on an individual route.
- iii. A twenty-five percent (25%) or more ~~reduction~~ **change** of the number of transit route miles of a route, i.e., the total mileage covered during one round trip by a vehicle in revenue service on a particular route.
- iv. Proposed introduction ~~of a new route.~~ **or elimination that will be, or has been, operated for more than twelve (12) months**

B. It shall be the BBB's policy that the following shall be exempt from public comment and public hearing:

- i. A minor change in fare or service. Examples would be temporarily reduced, experimental or promotional fares, minor reroutes or minor temporary reroutes due to street construction(s) or minor schedule changes.
- ii. Experimental, seasonal or emergency ~~service or fare changes expected to exist fewer than one hundred and eighty (180) consecutive days in service.~~ **six (6) months** If these changes ultimately continue to remain in effect for more than ~~one hundred and eighty (180) consecutive days,~~ **six (6) months** they will be the subject of public comment and public hearing.

### **3. PUBLIC NOTIFICATION**

When required, the public comment process will begin with the publishing of a legal notice seven calendar days in advance of the public hearing date in the local newspapers of general circulation. This notice will set a specific place, date and time for one or more public hearings. Written comments will also be accepted on the proposed changes seven calendar days beyond initial publishing of the legal notice.

Legal notices will inform the public of the proposed actions that initiated the public-comment process. Press releases will also be prepared and sent to the local media.

### **4. SCHEDULING PUBLIC HEARING(S)**

The public hearing(s) will be scheduled and conducted by the City of Santa Monica City Council at a time, date and place to be designated. The facility utilized for public hearings will be accessible to persons with disabilities. Special arrangements will be made for sight or hearing impaired persons if requested at least three days prior to the meeting.

### **5. PROCEDURE FOR CONDUCTING PUBLIC HEARING**

Forms will be available to attendees to register their presence and desire to speak. Public hearings will begin with a reading of the public notice, purpose and proposed action that necessitated the public hearing. After an explanation of the proposed action is completed, the public will be invited to offer their comments. The City Council will determine the amount of time the public has to comment during the public hearing. After all registered persons have commented, a final opportunity will be offered for any additional public comment. This offering will precede the close of the public hearing.

### **6. DOCUMENTATION OF PUBLIC HEARING**

Official records of BBB public hearings on fare or service adjustments will be generated by:

- A. Affidavits of newspaper publications of public notices.
- B. Press releases conveying information on upcoming public hearings.
- C. Tape recordings and transcripts of proceedings.

### **7. ADDRESSING PUBLIC COMMENTS RECEIVED**

All relevant comments received verbally or in writing at a public hearing, or as otherwise conveyed to BBB prior to the established deadline, will be entered into the public record of the comment process. Subsequent to the public comment period, staff will evaluate and analyze all relevant comments received and prepare a written report for consideration by the Santa Monica City Council.

### **8. CITY COUNCIL**

The City Council will be notified by the City Manager of all written public comment solicitations in advance of all scheduled public hearings on fare and service adjustments. A summary of public feedback received will be provided to the City Council along with staff recommendation for final disposition of the issues. Upon review by the City Council, the City Manager will be directed accordingly to proceed with or amend the recommended service and/or fare adjustments.

## Appendix B:

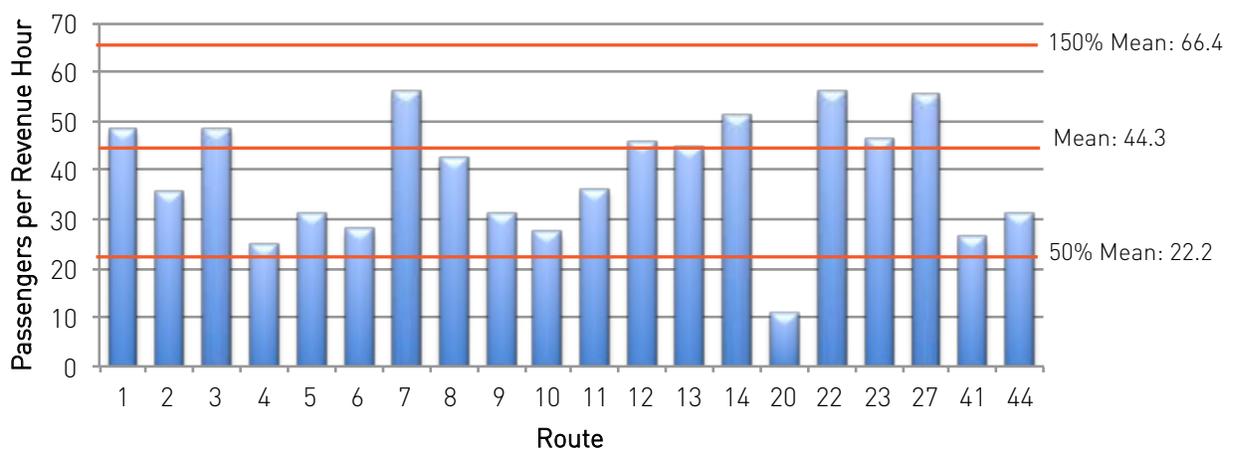
# Sample Quarterly Route Performance Analysis Report

APRIL 1 - JUNE 30, 2013

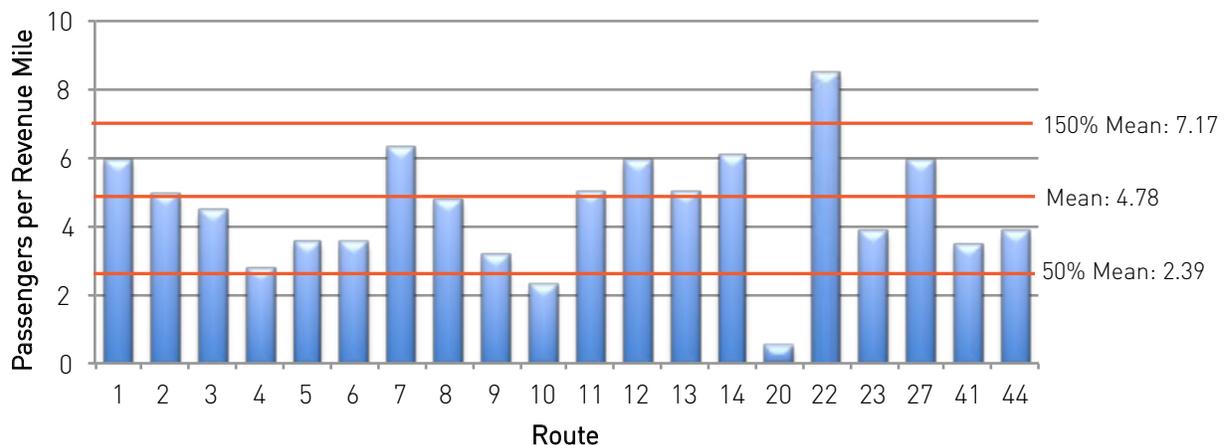
## Introduction

Line 7 continues to be the highest performing route in the Big Blue Bus system, followed by Rapid 12, Rapid 7, Line 14 and Line 3 in that order. Changes put into effect on June 16, 2013 increased service on two of these lines, Line 7 and Rapid 7, changing their base frequencies from every 15 minutes to every 12 minutes on both lines. Additional changes that will go into effect on August 25th, 2013 will add service to the Lincoln corridor by adding midday service on Rapid 3. This is expected to relieve the frequent midday crowding that is currently occurring on Line 3.

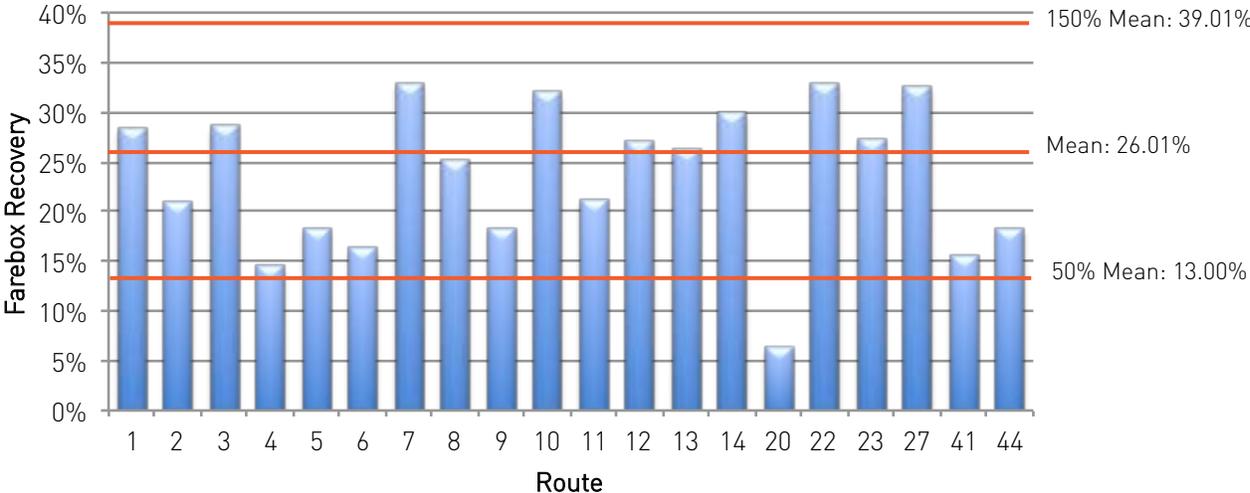
**Figure 5: Passengers per Revenue Hour by Route**



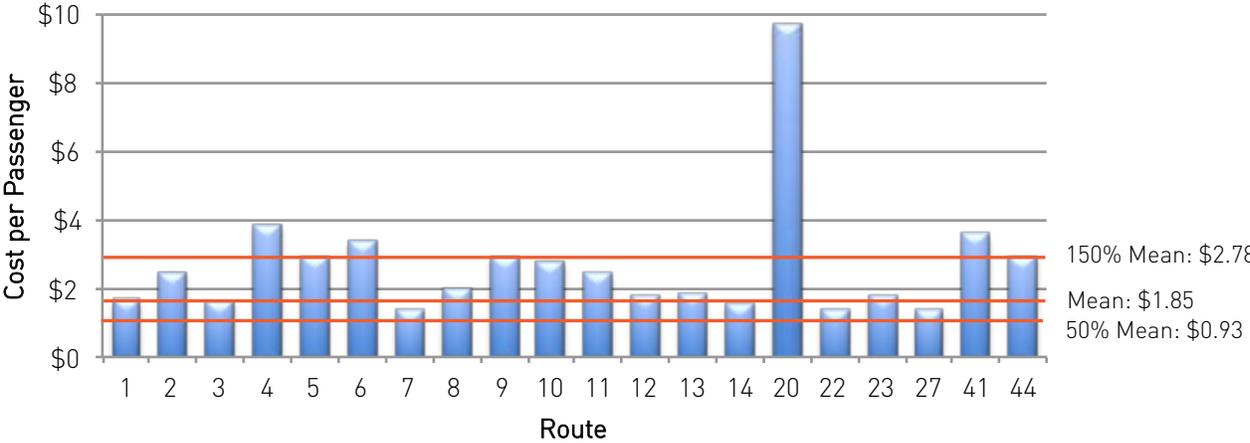
**Figure 6: Passengers per Revenue Mile by Route**



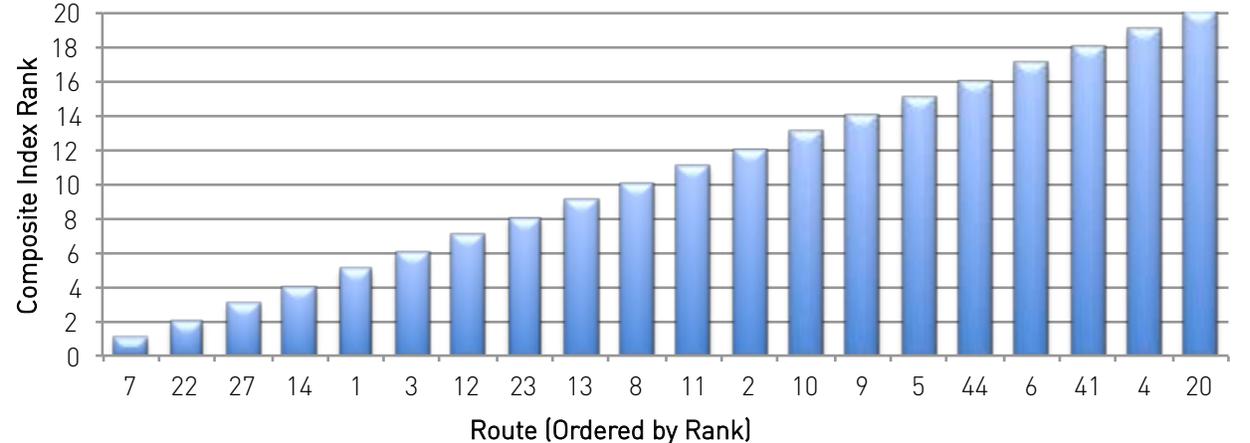
**Figure 7: Farebox Recovery by Route**



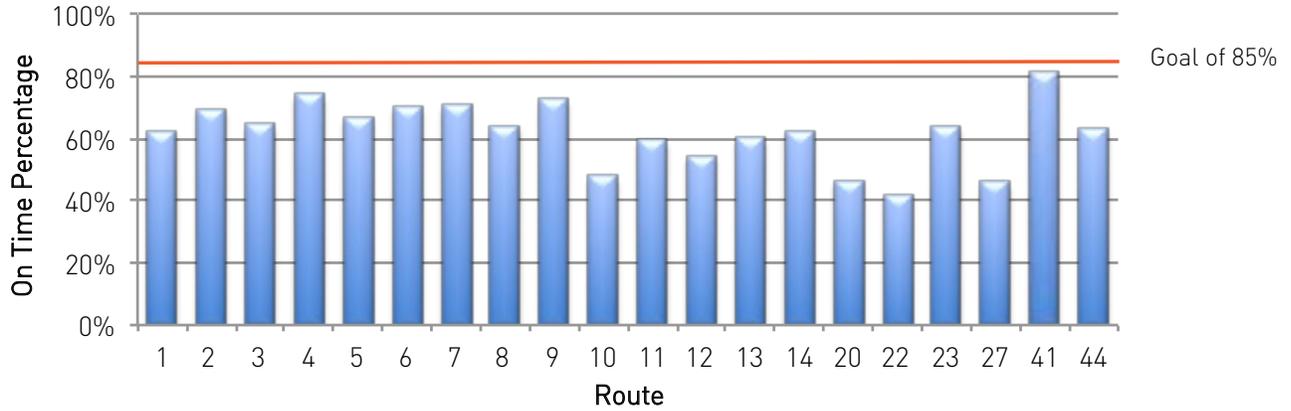
**Figure 8: Cost per Passenger by Route**



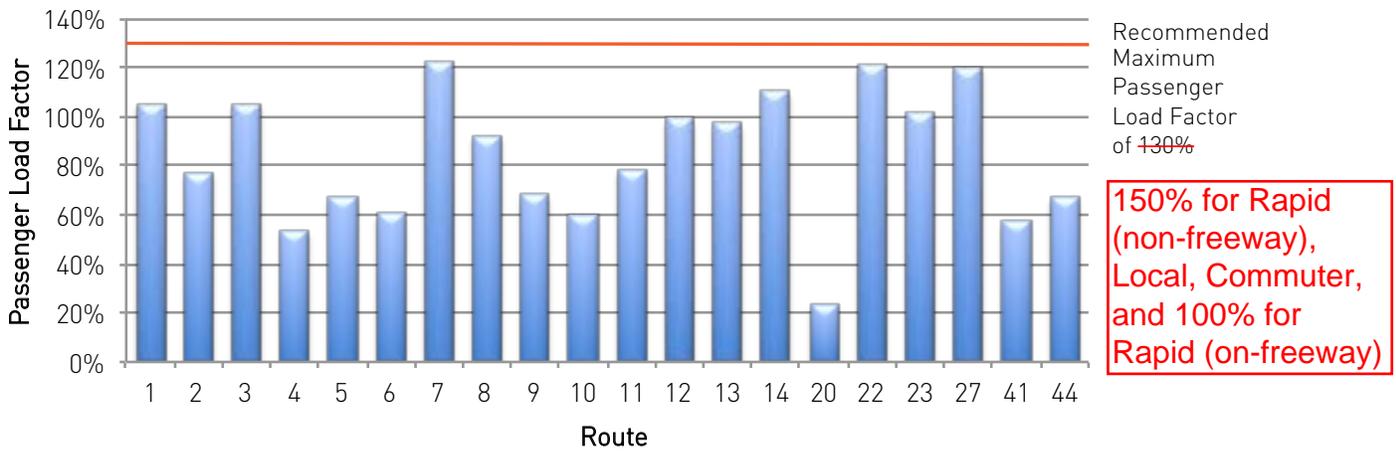
**Figure 9: Composite Index**



**Figure 10: On Time Performance by Route**



**Figure 11: Passenger Load Factor**



**Figure 12: Total Ridership by Route**

