



**Metro**

Metropolitan Transportation Authority

One Gateway Plaza  
Los Angeles, CA 90012-2952

213.922.2000 Tel  
metro.net

**35**

REVISED

OPERATIONS COMMITTEE

NOVEMBER 15, 2007

**SUBJECT: METRO TRANSIT SERVICE POLICY**

**ACTION: ADOPT PROPOSED CHANGES TO THE METRO TRANSIT SERVICE POLICY**

RECOMMENDATION

Adopt proposed changes to the Metro Transit Service Policy.

ISSUE

The Transit Service Policy (TSP) was last revised in September 2005. It is periodically updated to reflect relevant changes in Metro's service provision environment.

BACKGROUND

The TSP guides decision-making during the service change process. The TSP was originally adopted in 1986 and underwent a major revision in 2003 and was last updated in 2005. The September 2005 update focused on specific requirements of the Consent Decree. These included incorporation of load factor data in the performance ranking of individual bus routes, and a series of work sheets to determine the net ridership benefit of past and future service changes.

In October 2006, these provisions of the Consent Decree expired, and Metro is no longer required to evaluate service in this manner. Additionally, there have been changes in Metro service delivery such as the introduction of Rapid Express service, efforts to standardize head sign information and route numbering, and the use of more formalized bus stop guidelines.

The TSP has been reviewed and several changes are recommended. The proposed TSP will change the Route Performance Index (RPI) which is a measure used to evaluate the relative performance of a bus route. It had been the weighted average of four key indicators: boardings per service hour, passenger miles per seat mile, subsidy per passenger, and load factor compliance percentages from the former monitoring program. The proposed TSP does not include detailed route level load factor statistics in the calculation, since Metro is no longer collecting this information at the level of detail required under the Consent Decree. The proposed TSP also recommends using a standardized worksheet for analyzing the

impact of proposed changes in service that is easier to prepare with readily available information, and new sections have been added describing Metro's Title VI service change evaluation and Metro's School Tripper policy. Finally, the appendices have been modified to include minor changes to the Metro Rapid service warrants, as well as new line identification standards, numbering conventions, and bus stop guidelines. Appendix G (Public Hearings) has been removed as it is undergoing a separate review and revision. The former Appendix H is now the revised Appendix G.

The overall changes are minor and are summarized in Attachment 1. A more detailed documentation of the changes is provided in Attachment 2.

### **POLICY IMPLICATIONS**

The recommended changes are minor in nature and consistent with current practices.

### **OPTIONS**

The option is to delay changes to the TSP. This option is not recommended, as the updated TSP reflects relevant changes in Metro's service provision environment.

### **FINANCIAL IMPACT**

The proposed changes to the TSP will not impact Metro's FY 2008 budget.

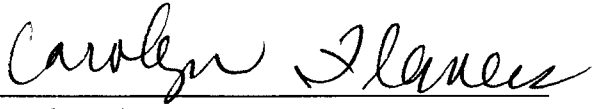
### **NEXT STEPS**

The changes to the policy will become effective immediately upon Board approval.

### **ATTACHMENTS**

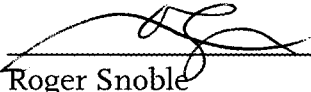
1. Key Changes to the Transit Service Policy
2. Metro Transit Service Policy

Prepared by:                      Steve Fox, Project Manager  
    Edward Clifford, Service Planning Director



---

Carolyn Flowers  
Chief Operations Officer



---

Roger Snoble  
Chief Executive Officer

**ATTACHMENT 1  
METRO TRANSIT SERVICE POLICY KEY CHANGES**

<b>CHANGE</b>	<b>SECTION</b>	<b>DESCRIPTION</b>
<b>Metro Rapid Warrants</b>	Appendix B	<p style="text-align: center;"><i>Amended</i></p> <p>Minor updates allowing more flexibility with regard to the separation of stops, and modifying the span of service and frequency of service guidelines to conform with the New Service Plan requirements.</p>
<b>Bus Stop Guidelines</b>	Appendix C	<p style="text-align: center;"><i>New</i></p> <p>These guidelines are used to locate and size bus zones and layover locations.</p>
<b>Route Productivity Index</b>	Appendix E	<p style="text-align: center;"><i>Amended</i></p> <p>Return to a three variable measure (boardings per hour, subsidy per passenger and passenger miles per seat miles).</p>
<b>Line Identification Standards and Route Numbering Convention</b>	Appendix A	<p style="text-align: center;"><i>New</i></p> <p>Guidelines for head sign designations and the numbering of services.</p>
<b>Impact Analysis Worksheet</b>	Appendix F	<p style="text-align: center;"><i>Amended</i></p> <p>Replace the time-based impact analysis with one that includes a wider range of performance measures, and ridership information.</p>
<b>Title VI Service Change Evaluation</b>	Section 5.3	<p style="text-align: center;"><i>New</i></p> <p>Describes service change evaluation methodology to comply with Title VI requirements.</p>
<b>School Tripper Policy</b>	Section 2.20	<p style="text-align: center;"><i>New</i></p> <p>Describes Metro's School Tripper Policy under FTA requirements.</p>

## SECTION 1: PURPOSE AND BACKGROUND

ATTACHMENT 2

The Metro Transit Service Policy was originally adopted in 1986. In 2003 the policy underwent a major revision and was updated to reflect changes in the operating environment and to support the agency's strategic plan. The revised policy called for regular review and update. This report reflects the latest version of the policy and includes updates that were made during 2005.

This report is organized into six sections:

- Purpose and Background
- Bus Route and Design Guidelines
- Bus Performance Measures
- Rail Policies
- Planning Process
- Conclusion



### 1.1 PURPOSE

The purpose of the policy is to guide decision-making during the service change process and ensure a fair and consistent evaluation of service. It calls for service adjustments that best meet customer needs and expectations within the constraints of the budget constraints and equipment availability. For the public, the policy communicates agency priorities and initiatives.

The guiding principles that provide a framework for the development of the transit policy are:

#### Increasing Ridership

- The network structure shall maximize regional mobility.
- Metro will focus its service investment on providing high quality service to major travel markets within Los Angeles County.
- Corridors served by bus routes that offer service frequencies of 5 minutes or less will be candidates for Metro Rapid, the deployment of high capacity vehicles and bus preferential treatment (e.g. signal programs, bus lanes etc).
- Resources will be allocated in a manner that balances customer expectations with the fiscal responsibilities of the agency.

#### *Transit Policy:*

- *Guides decision-making*
- *Promotes consistency among Service Sectors*
- *Links service changes and strategic plan*
- *Communicates agency priorities*

Improving Service Quality

- Sufficient seating capacity will be offered on Metro Bus and Metro Rail lines to meet the need of Metro 's current and future riders, and ensure that patronage is not discouraged by overcrowded vehicles.
- All bus routes shall provide at least a 30-minute service during weekday rush hour, as resources permit. Routes that cannot support this level of service should be modified or operated by other means.
- There will be regular reviews of the operation to assess customer satisfaction and service delivery.

Using Resources Wisely

- The performance of each bus route in the system will be evaluated annually and bus lines not meeting the performance standards will be modified. Bus lines that do not meet the minimum performance standard after 18 months of operation will be cancelled, subject to Governance Council approval.
- Metro will ~~assist in~~ consider ~~in~~ funding and operating shuttles, circulators and neighborhood-oriented services only when there is a demonstrated need and no other carriers available to provide the service.
- New services will be considered for implementation when there are available resources and if ridership projections indicate the potential to support 30-minute service and to meet the minimum performance standard.
- Metro will review its service and work with the local bus operators to reduce service duplication that results in a sub-optimal use of resources.
- Decisions regarding the provision of service will consider the cost effectiveness, appropriateness and operating roles of other operators, as well as alternative service delivery options.

*Transit Policy Goals:*

- *Increase Ridership*
- *Improve Service Quality*
- *Use Resources Wisely*

**1.2 LINK TO THE AGENCY GOALS AND OBJECTIVES**

The FY 2006 ~~7~~ ~~Metro Strategic Plan~~ Agency Goals and Objectives sets the agency direction for the next five years and establishes a framework for key agency plans and policies. The Transit Service Policy was developed to support Metro's ~~vision, mission and key objectives of the strategic plan goals and objectives.~~



The Transit Service Policy is aligned with the agency's strategic plan and supports the implementation of key goals and objectives, as outlined below:

**Metro Strategic Plan Agency Goals and Objectives FY 2007**

<b>Goal 1</b>	<b>Improve transit system services.</b>
Objective A	Efficiently and effectively operate service sectors.
Objective B	Improve service quality and capacity for bus and rail systems. Increase riderships 5% per year.
<b>Goal 3</b>	<b>Exercise fiscal responsibility.</b>
Objective A	Manage the approved budget. Eliminate operations structural deficit within three years.
Objective B	Implement efficient and effective cost allocation plans.
<b>Goal 4</b>	<b>Provide leadership for the region's mobility agenda.</b>
Objective A	Coordinate implementation of Multi-modal transportation programs with partners agencies. Improve transit connectivity.

**Vision:**  
*Metro...Leading the nation in safety, mobility and customer satisfaction.*

**Mission:**  
*Metro is responsible for the continuous improvement of an efficient and effective transportation system for Los Angeles County.*

**1.3 BACKGROUND**

Metro has the second largest bus fleet in the United States, and the world's largest CNG bus fleet and one of the most heavily patronized light rail lines in the nation. During the current fiscal year, approximately 467 million passengers are expected to board Metro bus and rail lines.

Metro is the principal transit provider in Los Angeles County, serving about 75 percent of all transit trips. Over the next 25 years, the population of Los Angeles County will increase by 2.8 million. As congestion increases and auto speeds decline, more and more people are turning to public transportation. Keeping pace with growing demand is a challenge. Adding to the complexity is the fact that travel patterns are becoming more dispersed and new funding is very limited.

Improving the safety, capacity and quality of Metro Bus and Metro Rail service is a top agency priority. To do this, Metro is focusing on serving major travel markets and implementing a series of progressive strategies to improve service productivity and attract new riders. These strategies include improving service quality, restructuring the bus system, expanding the Metro Rapid program, deploying high capacity buses, providing a universal fare system, expanding signal synchronization for transit, implementing Metro Liner service, and increasing service coordination efforts with the other operators in the region.

- METRO**
- *The bus system includes 185 routes and operates with over 2,100 buses during rush hour.*
  - *Metro has the 2nd largest bus fleet in the United States and the world's largest CNG Fleet.*
  - *Metro Rail has 4 rail lines including a subway and 3 light rail lines, with over 73 miles of track and 65 stations.*
  - *The Metro Bus and Rail systems transport over 1.3 million passengers daily.*

## 1.4 Metro Bus System Restructuring

In the fall of 2003, Metro began a bus system restructuring study known as Metro Connections. The intent of the Metro Connections bus service effort is to move Metro's predominately Downtown Los Angeles-focused grid system to a hybrid grid and center-based bus service delivery, which will better reflect the region's multiple activity centers and destinations. In addition, restructuring seeks to more effectively utilize and integrate the varied strengths of each of the region's many service providers. This service delivery concept will use a network of community transit centers as the focal points of the regional transit system that will be connected by major travel corridors with transit speed and reliability improvements. Service attributes will include:

- High-speed, point-to-point, destination-based service;
- Increased use of the region's high-capacity, high-speed rail and transitway system;
- Improved regional service coverage and connectivity;
- Coordinated, convenient connections between services;
- Provision of physical customer improvements designed to enhance the quality and convenience of the travel experience; and
- Creation of hierarchy of four community transit center types each with its own mix of transit services, level of operational complexity, customer services and amenities, and fit with community goals and plans. Creation of a network of regional transit centers to improve transit access and regional connectivity.

### *Metro Connections:*

- *Matching service to travel patterns*
- *Faster service*
- *Seamless travel*
- *More riders*

The study is being conducted in four phases:

- Phase 1 – Assess Needs
- Phase 2 – Develop Alternative Strategies
- Phase 3 – Identify Detailed Implementation Plans
- Phase 4 – Implement Service

~~Phases 1, and 2, and 3 have been completed. And detailed service plans are now being developed. A draft network plan is scheduled to be completed by FY 07 and a pilot program will be implemented as part of the December 2006 Service Change. Full implementation of the restructuring plan will occur over a two-year period beginning in June 2007. In December 2006 the Metro Connections Pilot Program was implemented as part of the regular service changes. Final implementation of Metro Connections will be phased in between June 2007 and June 2009.~~





## SECTION 2: BUS ROUTE AND DESIGN GUIDELINES

Bus-route and service-design guidelines are used in the development of proposed new services, the evaluation of existing services, and the evaluation of proposed modifications of existing services. The following guidelines are used to maximize the overall usefulness of the system to riders, ensure the consistency of route structure, and provide objective and consistent criteria for the establishment of service. They are used during the planning process to strike a balance between service attractiveness and resource availability.

Metro operates an integrated transit system designed to focus on regional travel markets. It provides effective linkages and seamless connections with the other public transportation services within Los Angeles County.

### 2.1 TYPES OF METRO BUS SERVICE

Metro bus services are classified into ~~five~~ six service categories, which reflect their functional and operational characteristics:

1. Metro Liner – Metro Liner is a new Metro service type. It is a form of Bus Rapid Transit (BRT) service ~~which means that these services~~ that operates predominantly on a dedicated right-of-way. Currently Metro Liner service is offered only in the San Fernando Valley Service Sector and operated along the Chandler Corridor. ~~Metro Liner service is also being planned for the Wilshire corridor.~~ Metro Liner services are operated with silver articulated buses and have route numbers between 900 and ~~999~~ 903.
2. Metro Express – Metro Express offers expedited long distance service, with a limited number of stops. This service type charges a premium fare and generally operates a major portion of its routing on freeways or bus ways. Express services are designated with route numbers between 400 and 599. Express services that service downtown are given a 400-route number, while those that do not go downtown are given a 500-route number.
3. Metro Rapid – Metro Rapid is a form of BRT service that operates on arterial streets expedited bus service that is being introduced on some of the most heavily traveled corridors. It reduces passenger travel times by implementing a number of key attributes such as specially branded buses and stations, signal priority, headway-based schedules and fewer stops.

Currently there are 16 Metro Rapid lines in operation and there are plans to implement 12 additional Metro Rapid lines. Metro Rapids are designated with route numbers between 700 and 799.

4. Metro Rapid Express – Metro Rapid Express is a new service that has all the features of Metro Rapid, but fewer stops. This service is considered only in those Rapid corridors that have higher than average passenger trip distance. This service has route numbers between 904 and 999.
5. Metro Local – Metro Local service includes both purely local routes and limited stop service. This is the primary service provided by Metro. This service includes over 75 percent of the annual ridership. Some local bus routes operate a limited stop service and/or owl service. These services are ~~designed~~ designated with route numbers between 1 and 399.
6. Metro Rail Feeder and Shuttle Services – These are local circulation, special event shuttle and rail feeder services. These bus routes generally operate on secondary streets and focus on short-distance markets. These services are ~~designed~~ designated with route numbers between 600 and 699.

METRO BUS SERVICE TYPES AND FEATURES

FEATURES	BUS SERVICE TYPES					Metro Liner
	Shuttle	Local/Limited	Express	Rapid	Rapid Express	
Right of Way	Local Streets	Major Arterials	Major Arterials and Freeways	Major Arterials	Major Arterials	Dedicated Right of Way
Average Stop Spacing	¼ mile	¼ - ½ mile	1+ mile	.7 mile	1+ mile	1+ mile
Target Travel Market	Neighborhood	Intra Inter-Community	Intra Inter-Community Regional	Intra Inter-Community	Inter-Community	Intra Inter-Community
Vehicle Type	40-foot bus or smaller	40-60 foot bus	40 foot bus	40-60 foot bus	40-60 foot bus	60 foot bus
Color Coded Buses	California Poppy	California Poppy	Blue	Red	Red	Silver
Number of Communities Served	1-2	Multiple	Multiple	Multiple	Multiple	Multiple
Signal Priority	No	No	No	Yes	Yes	Yes
Fare Collection	On board	On board	On Board	On Board	On Board	On Board/Pre Pay
Passenger Amenities	Benches and Shelters	Benches and Shelters	Shelters and Stations	Shelters and Stations	Shelters and Stations	Shelters and Stations
Real-time Passenger Information	No	No	No	Yes	Yes	Yes
Route Number Designations	600-699	1-399	400-599	700-799	904-999	900-999 903

All Metro services use a consistent method of identification in order to help customers understand the services they are boarding. The line is referenced in a destination-based format which helps passengers know where the services travel. In addition, the route numbering indicates the service and general geographic characteristics. Finally the transit vehicles utilized for these services are color coded: "California Poppy" for Metro Local; "Rapid Red" for Metro Rapid and Metro Rapid Express; "Business Blue" for Metro Express; and Silver for Metro Liner and Metro Rail. Appendix A is Metro's Line Identification Standards and the Route Numbering Convention.

2.2 METRO LINER SERVICE DESIGN

Metro Liner service is a form of Bus Rapid Transit (BRT). This service incorporates a series of design features that reduce delays, increase reliability and improve passenger comfort. Examples include:

- **Dedicated Bus Lanes** – This right of way provides fewer traffic conflicts and obstructions and reduces delays and travel time.
- **High-Capacity Vehicles** – State of the art high-capacity vehicles are used on this service to meet the high demand and provide the ultimate in passenger comfort.
-

- Transit-Signal Priority – Signal programs, grade separation, and queue jumpers are employed to further speed the operations and improve service reliability.
- Bus Stations and Shelters – Stations and shelters provide the customer with enhanced comfort and safety.
- Streetscape – Streetscape and other design features such as landscaping, pedestrian count down signals, bicycle racks, and well designed crosswalks make it easier for pedestrians and bicyclists to access the stations.
- Improved Fare Collection – For faster service and convenience, major stations have ticket vending machine (TVMs) which allow passengers to prepay.
- Park And Ride Facilities – Park-and-ride facilities are provided in close proximity to major stops and stations. Shared and joint use parking is also encouraged.
- Advanced Transportation Management Systems – ATMS systems provide an array of technologies to improve service reliability and passenger travel.

### 2.3 METRO RAPID DESIGN CRITERIA

The Metro Rapid program is based on the Curitiba, Brazil urban design and public transportation model. This model uses 11 key design attributes in the development of Bus Rapid Transit service. The initial Metro Rapid services incorporated six of these design features, while the remaining five were to be incorporated during the expansion of the program. Design features included in the initial stages of the program are: a simple route layout, frequent service, headway based schedules, and less frequent stops. Level boarding and alighting, color-coded buses and stations, and bus signal priority are also key design features.



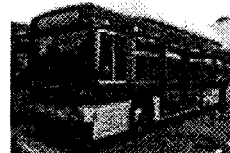
Service warrants guide the design, monitoring and development of the Metro Rapid program. The warrants are specific targets or objectives that are linked to each of the program's key attributes. These warrants are presented in Appendix B.

**Key Attributes**

Key Attributes	Demonstration	Expanded System
1. Simple Route Layout	Yes	Yes
2. Frequent Service	Yes	Yes
3. Less Frequent Stops	Yes	Yes
4. Level Boarding and Alighting	Yes	Yes
5. Color Coded Buses and Stations	Yes	Yes
6. Station Stops	Yes	Yes
7. Bus Signal Priority	Yes	Yes
8. Exclusive Bus Lanes	No	Yes
9. Higher Capacity Buses	No	Yes
10. Multiple Door Boarding and Alighting	No	Yes
11. Fare Prepayment	No	Yes
12. Feeder Network	No	Yes
13. Coordinated Land Use Planning	No	Yes

**2.4 EXPRESS SERVICE DESIGN**

Express bus service usually operates from a collector area directly to a specific destination or in a particular corridor with stops en-route at major transfer points or activity centers. A major portion of the service is operated along a freeway or busway. Express services are designed to provide a high-speed link between suburban areas and urban centers. They require a transit center or parking facility to collect ridership on the home end of the trip.



Whenever practical, commuter-oriented coaches should be operated on these services. These coaches include features such as high back seats, reading lights and storage areas for passenger luggage.

These services may be considered when the following conditions are met:

- Travel time between the proposed route terminals is more than 40 minutes
- Resources are available
- There is a demonstrated need
- The proposed service will not compete with an existing rail line
- Service will be designed to operate with a minimum number of stops
- There is an opportunity to operate the service at a speed of approximately 20 miles per hour or greater, to achieve a time saving greater than the frequency of the underlying bus service, over the entire trip
- Ridership projections or the prepayment of monthly bus passes indicates that minimum performance standards will be met

## 2.5 LIMITED STOP SERVICE

Limited stop service will be provided in local bus corridors where the demand requires service frequencies of 10 minutes or less on the local line prior to implementation of a limited stop service. Limited service makes significantly fewer stops than local service, and the key design objective is to operate at a minimum of 10% faster than local service.

## 2.6 OPERATING AND FUNDING SHUTTLES OR RAIL FEEDER SERVICES

Shuttle and rail feeder services generally operate on secondary streets, carry less than 2,000 passengers a day, and serve short distance trips. Metro will only operate these services when no other operator is available.

In terms of funding for community-based services to be operated by other carriers, some capital funds may be available through the Call For Projects. Operating funding for existing services is available through local return funds or other regional funding programs. New services that meet a regional need will be considered on a case-by-case basis and will require a specific funding agreement with Metro.

## 2.7 ALTERNATIVE SERVICE DELIVERY METHODS

Alternative service delivery options are other methods of providing service other than a standard transit bus directly operated by Metro. These options include van service, taxicabs, flexible destination operations, contracted services, scrip programs and beginning tier/wages operators. When designing new services or assessing marginally performing existing services, each of these delivery options should be considered.

## 2.8 BUS/RAIL INTERFACE GUIDELINES

As the Metro Rail system expands, adjustments are made to the bus system to improve access to rail stations to take advantage of new transfer facilities and to reduce bus and rail service duplication. The following guidelines provide direction to routing and scheduling changes that will be necessary as the Metro Rail system is expanded:

- Cancellation of Parallel Limited and Express Service: Competing limited stop and express service, which parallel the rail corridor, will be discontinued when duplication exists.
- Diverting Service: Bus routes that run parallel to a rail line may be diverted to a station when:



- The walk time from the nearest station is greater than 3 minutes.
- The diversion time in one direction is 5 minutes or less.
- The average three-hour peak load factor is less than 50 percent.
- There is a net travel time benefit for connecting and through traveling riders.

Intersecting bus lines or bus lines that travel in a perpendicular direction to a rail line will be diverted to serve the closest rail station when:

- The diversion time in one direction is 5 minutes or less.
  - The average three-hour peak load factor is less than 75 percent.
  - There is a net travel time benefit for connecting and through traveling riders.
- **Extending Terminating Lines:** Bus routes that end within one mile of a rail station will be extended to terminate at the station. Routes that terminate at distances greater than one mile may be extended if the rerouting will create a valuable link to the rail system or will result in a reduction in travel time for a significant number of riders.
  - **New Bus Routes:** New rail feeder service will be considered as part of the service change process, if a need is demonstrated, funding is available, and it is part of the service change process.
  - **Scheduling Bus Interface:** During peak travel periods, bus arrival and departure times should be governed by the rail arrival and departure times when predominant movement is from bus to rail. During off-peak times, bus routes with frequencies of 20 minutes or greater ending at a rail station should be scheduled to arrive 5 minutes before the rail departure time. When the predominant movement is from rail to bus, terminal buses should be scheduled to depart 5 minutes after the scheduled rail arrival time.

## 2.9 BUS STOP SPACING

Bus stop spacing refers to the average distance between consecutive stops on a bus route. Guidelines for bus stop spacing are established at a level where service is within a reasonable walking distance and stop delays do not significantly reduce travel time. As shown below, the primary determinants for stop spacing are bus service type and population densities. Stop spacing for shuttles should be determined on a case-by-case basis as these services can be operated in a variety of environments and in a number of different ways.



**Bus Stop Spacing Guidelines**

Service Type	Population Density (Persons per Square Mile)			Route Average (Stop spacing per one-way mile)
	Over 20,000	10,000-20,000	Under 10,000	
Metro Liner	1500-4,000 ft.	1500-4000 ft.	2,600-5,200 ft.	1
Express	500-2,600 ft.	1500-4000 ft.	2,600-5,200 ft.	1
Rapid Express	800-1,500 ft.	1,000-4000 ft.	2,600-5,200 ft.	1+
Rapid	800-1,500 ft.	1,000-4000 ft.	2,600-5,200 ft.	0.7
Limited	750-1,000 ft.	750-1,500 ft.	1,000-4,000 ft.	0.5
Local	500-800 ft.	500-1000 ft.	500-1,300 ft.	0.25
Shuttle	TBD	TBD	TBD	TBD

It is Metro's intent to design bus routes to meet maximum spacing levels and overall route averages, unless superceded by such factors as: land barriers or topography which limit access, high passenger demand levels, surrounding attractors and major connections with other public transit services. Additionally, bus stops will be a key consideration in the classification or numbering of bus routes. For example, limited stop services or bus routes with a 300 number designation should have stop spacing approximately twice that of the local service group average. [Appendix C provides additional information on recommended bus stop guidelines used by Metro.](#)

**2.10 DUPLICATION OF SERVICE**

Service duplication occurs when two or more bus routes operated by one or more carriers serve the same roadways in a transit corridor. In some instances duplication is desirable or unavoidable, due to the presence of activity centers or the lack of alternate routing options. However, duplication is not desirable in those instances where it is avoidable and it results in either sub-optimal resource utilization or passenger confusion caused by different fare structures applied to the same set of origin/destination pairs. Transit operations along the El Monte Busway provide good examples of this condition where Metro and Foothill Transit provide duplicative service between the El Monte Station and Downtown Los Angeles. Local and limited stop service operating along the same route should not be considered duplicative.

Under certain operational conditions, (road construction, traffic congestion, etc.) some duplication of a Metro route segment may occur by other operators. If the duplication impacts Metro Ridership, Metro may require restricted operations, such as a closed-door or discharge-only operation by the duplicating agency.



**2.11 FREQUENCY OF SERVICE**

Frequency of service refers to the interval of time, expressed in minutes between consecutive trips on a transit line. All Metro bus routes are scheduled based on demand, using the passenger loading standards in Section 3. The following table defines the maximum headways for each service type.

**Minimum Service Frequency**

Service	Peak	Midday	Evening /Owl	Weekends
Metro Liner	10	20	20	20
Metro Express	30	--	--	--
Metro Rapid Express	30	--	--	--
Metro Rapid	10	20	20	20
Metro Local	30	60	60	60
Metro Rail Feeder/Shuttle	30	60	60	60

An overall Metro service improvement goal is to ensure that all Metro bus lines provide a minimum of 30-minute peak-hour service along the trunk portion of the route. Currently, about 37 Metro bus lines operate with peak trunk headways that are greater than 30 minutes. These lines are listed in Appendix BD. As part of the service change process, these lines are reviewed for potential headway improvements as resource availability permits. Lines that cannot support 30-minute service may be modified, cancelled, or operated by other means, subject to the approval of the Sector Governance Council.

**2.12 HIGH-CAPACITY VEHICLES**

High-capacity vehicles are vehicles that have 45 seats or more. Conventional transit buses offer seating for about 40 passengers. Ideally, high-capacity vehicles are used on lines with high ridership demand where there is an opportunity to reduce vehicle requirements and service hours, thereby reducing overall operating costs. However, their deployment should not increase service intervals to the point where riders notice degradation in service quality. For this reason, bus lines with peak frequencies of five minutes or less are ideal candidates for this type of vehicle. In evaluating services for higher capacity vehicles other factors must be considered, including: facility compatibility, street design and potential impacts to services where schedules have been interlined.

**2.13 BUS LANES**

A bus lane is a lane on a street or highway reserved primarily or exclusively for buses, either all day or for specified periods of time. Other traffic is typically limited to emergency vehicles and in some

cases taxis may be allowed. Automobiles may be given limited access, such as for making left or right turns.

Bus lanes are a key attribute of Metro Rapid and an important strategy for improving traffic congestion, mobility and air quality. They make transit usage more attractive by reducing transit travel times, increasing service reliability, and improving safety. Bus lanes are most effective in those areas where there are either very high bus vehicle volumes or passenger volumes, and where operational efficiencies can be achieved. They are considered beneficial to the customer in situations where the average trip time can be reduced by at least fifteen percent. This translates into a travel time savings of approximately 40 seconds per mile using the average bus speed of 12 mph and the average trip length of 20 minutes.

With the recent success of the Wilshire Boulevard Bus Lane Project and the on-going Metro Connections Study, opportunities to expand the bus lane program are being actively pursued. The bus lane guidelines, as shown below, ~~require~~ suggest that a project to meet either the peak-hour passenger or bus volume thresholds and the trip time savings. In addition to these guidelines, factors such as traffic and parking impacts, overall travel time savings, and street design considerations are also considered.

**Bus Lane Guidelines**

Treatment	Minimum One-Way Peak-hour Bus Volumes	Minimum One-Way Peak-hour Passenger Volumes	Minimum Average Trip Time Savings
Curbside bus lanes	25	1,000	15%

**2.14 NEW SERVICE GUIDELINES**

Proposals for new service come from a variety of sources including customers, employees, technical studies, and from reviewing system performance and the development process. These proposals are considered during the development of service change programs, based on customer need and resource availability. As part of the evaluation process, opportunities to satisfy the request with existing Metro service or that of other local operators are also explored. New services are only implemented where projections indicate that ridership can support at least 30-minute peak-hour headways and can meet the minimum productivity standard.

After one year of operation, new services are included in the annual service review and are expected to meet the minimum productivity standard by their second year of operation.

**2.15 ROUTE SPACING**

Route spacing refers to the average distance between two or more parallel bus routes. This is a measure of service accessibility. Bus service is designed to link transit oriented communities with educational, shopping, employment, recreational and health care centers. In core-developed areas, routes should be spaced approximately a half-mile apart. In residential areas routes should be spaced approximately one-mile apart, and in undeveloped areas, the distance between parallel routes will be determined by demand and by street pattern. Metro bus and rail services and services operated by other operators are considered when measuring compliance with these standards.

**Bus Route Spacing Guidelines**

Development Characteristics	Distance Between Parallel Routes
Urban	Half-mile
Suburban	One-mile
Low Density Residential/Undeveloped	As needed/Pursue alternative delivery methods

Note: Includes Metro bus and rail service, as well as services of other operators.

**2.16 SERVICE TYPE DETERMINATION**

In public transportation, there are a variety of service solutions available. These range from paratransit service to heavy rail. Paratransit service is generally any public transportation service operated with a vehicle smaller than a 30-foot transit bus. It can include Dial-A-Rides, Shuttles, Circulators and subsidized taxi programs.

Determining the most appropriate transit service in a corridor depends on a number of factors, including level of demand, resource availability, site or corridor characteristics, environmental considerations and community acceptance. The table on the following page shows desirable characteristics that are considered during the initial review of proposals to upgrade existing operations. The demand thresholds include the combined ridership levels for all services operating in the corridor.

~~**2.16 PLANNING WARRANTS**~~

~~Planning warrants are minimum demand thresholds that are used to identify the most effective transit solution for a particular corridor.~~

~~In public transportation, there are a variety of service solutions available. These range from paratransit service to heavy rail. Paratransit~~

service is generally any public transportation service operated with a vehicle smaller than a 30-foot transit bus. It can include Dial-A-Rides, Shuttles, Circulators and subsidized taxi programs.

Determining the most appropriate transit service in a corridor depends on a number of factors, including level of demand, resource availability, site or corridor characteristics, environmental considerations and community acceptance. The planning warrants, shown on the following page, are guidelines that are used during the initial review of new service proposals, such as the expansion of the rail or Metro Rapid programs and when considering proposals to upgrade existing operations. The planning warrants use minimum demand thresholds and corridor characteristics to help identify the appropriate service type and to select candidate corridors for major investment. The demand thresholds include the combined ridership levels for all services operating in the corridor.



SERVICE TYPE CONSIDERATIONS

SERVICE	DESCRIPTION	DESIREABLE CHARACTERISTICS
<i>RAIL</i>		
Heavy Rail	Operating 100 percent within an exclusive right of way.	2,500 boardings per route mile <u>or</u> over 50,000 boardings per day;  Ability to construct a fully grade-separated facility.
Light Rail	Operating in mixed flow traffic or within an exclusive right of way.	1,000 boardings per route mile <u>or</u> over 25,000 boardings per day.  Ability to construct a guide way within or adjacent to the corridor.
<i>BUS</i>		
Expedited Transit Bus	A regular or articulated bus operating in a fixed guide way or a limited stop service in mixed flow with signal priority treatment.	300 or more boardings during peak-hour and in peak direction of travel.  Daily average of more than 500 boardings per route mile <u>or</u> over 10,000 total daily boardings.  Ability to implement operating speed improvements in the corridor.
Standard Transit Bus	A 30-40 foot bus operating fixed route/fixed schedule in either local or express mode.	80 or more passengers during peak-hour and in a single direction of travel.  Total daily boardings greater than 2,000.
Paratransit Service	Service operated with a van, sedan, mini-bus or other vehicle smaller than a 40-foot transit bus (Dial-A-Ride, Shuttles, Circulators and subsidized taxi, etc.).	Services that do not meet the standard transit bus warrants are only operated by Metro when there is a demonstrated need and no other operator is available.



**2.17 SPAN OF SERVICE**

Span of service refers to the hours that service is available on a given day and defines the minimum period of time that service will operate at any point in the system. This provides customers with the confidence that direct and connecting service will be provided.

Some of the criteria used to determine the span of service on a bus route include: existing ridership and productivity levels, the span of service on connecting and alternative services with expanded service; resource availability; customer requests; and the hours of operation of major job sites or activity centers along the alignment.

**Span of Service**

Service	Weekday	Weekends
Metro Liner	5am - 9pm	6am - 9pm
Metro Express	Peak-hours Only	N/A
<u>Metro Rapid Express</u>	<u>Peak-hours Only</u>	<u>N/A</u>
Metro Rapid	5am - 9pm	6am - 8pm
Metro Local	5am - 11pm	6am - 9pm
Metro Rail Feeder/ Shuttle	5am - 9pm	6am - 9pm

The above table summarizes the approximate span of service for each service type. The hours of operation on individual bus routes or rail lines are ultimately based on demand and resource availability. For example 18 of the busiest local bus routes operate 24 hours a day and selected express services operate all day and on weekends.

**2.18 SPECIAL EVENT SERVICE**

Special event services are bus routes that are designed to take passengers to a specific venue and are not part of the regular scheduled operation.

Metro will provide service under contract to other entities only if the provision of these services does not interfere with Metro’s ability to meet its regularly scheduled service obligations and fits within the scope of the agency’s regular operation in terms of route structure, fares and span of service. Special events service will be provided on a full cost recovery basis and in conformance with the agency’s charter bus policy which is presented in the following section.

## 2.19 CHARTER BUS POLICY

### Charter Service Definition

Charter Service is the use of buses, vans or facilities (rail system) to provide a group of persons under a single contract at a fixed charge with the exclusive use of the vehicle or service to travel together under an itinerary either specified in advance or modified after having left the place of origin. Generally, for service not to be considered charter, it must meet the following tests: be available to the general public, operate within the system's normal scope (existing routings, fit within normal hours of operation and established fare structure), have a published timetable, and customers must pay their own fare.

### Charter Service Policy

As a grantee of Federal funds, Metro is prohibited from using its federally-funded equipment and facilities to provide charter service except on an incidental basis and when one or more of applicable exceptions discussed below apply:

- Charter service shall be incidental to the mass transportation service and shall be provided only during times of the day when vehicles are not needed for regularly scheduled service.
- Charter service will only be considered when one of the following exceptions applies:
  - There are no willing or able private charter operators.
  - For special events to the extent that private operators are not capable of providing the service.
  - When there is a formal agreement regarding the provision of charter services between the recipient and all private charter operators that have been determined to be willing and able.
  - For government or certain non-profit organizations, if the trip involves a significant number of handicapped persons, or if the organization is a qualified social service agency, or if it receives public welfare assistance funds whose implementation may require transportation services.
- All requests for Charter Service must be approved by the Chief Executive Officer and it may require a waiver from the Federal Transit Administration. Petitions for a waiver should be requested in writing 90 days in advance of the event, whenever possible.

The rates for charter service shall equal to or exceed the annual fully allocated cost, including depreciation, of providing charter bus operations, and Metro shall deduct the mileage and hours from the useful life of the buses.



- The operation of charter service must also comply with relevant state laws, including Section 30630.5 of the California Public Utilities Code.

## 2.20 SCHOOL TRIPPER SERVICE

School trippers are extra sections of service operated to protect against overcrowding on bus routes serving schools. Metro's policy on school trippers is based on FTA regulations (49 CFR Part 605). These regulations are directed at protecting the private sector against unfair competition and ensuring that FTA funding is focused on providing services that meet the needs of the "general public".

"Tripper" service may be operated if it meets the following criteria:

- o There is sufficient demand to warrant the operation of a tripper
- o There are sufficient resources to warrant operation of a tripper
- o The service will not result in a significant increase in travel time for regular customers
- o The trippers are operated as part of the regularly scheduled public transportation service
- o Buses are clearly marked as open to the public
- o Service uses various fare collection systems or subsidies
- o Buses have no special designations (e.g., school special etc.)
- o Buses use regular bus stops that are accessible to the general public
- o Service is noted on published schedules

All routes traveled by tripper buses must be within the regular service area as indicated in published schedules. Schedules listing tripper routes should be on the regular published schedules or on separately published schedules that are available to the public with all other schedules. School tripper service should operate and look like all other regular service.





### SECTION 3: BUS PERFORMANCE MEASURES

Performance measures are used to evaluate Metro bus service. They address customer satisfaction, passenger loading and productivity.

#### 3.1 MYSTERY RIDER PROGRAM

An ongoing "Mystery Rider" survey has been developed to help evaluate product and service delivery, reward high quality performance, and identify service quality issues. The program uses a team of anonymous "mystery riders" who use the system and rate service from the customer's perspective. The survey provides a detailed evaluation of operator controlled issues (such as courtesy and safety) as well as maintenance issues (such as cleanliness and climate systems). The surveys will help to target service initiatives and training programs to improve customer satisfaction. Feedback from the surveys is provided to Sector management for appropriate action, along with incentive rewards for operators and divisions scoring highly in the survey.



#### 3.1 PASSENGER LOADING

Passenger loading is a measure of seating capacity on a bus or rail car. It is typically expressed as a percentage of the total passengers on board a vehicle compared to the seats available. These standards are set at a level to offer sufficient seating capacity on Metro Bus and Metro Rail lines to meet the need of Metro's current and future riders, and ensure overcrowded vehicles do not discourage patronage.

Passenger Loading Standard

Service	Standard
Metro Bus	120%

The table above shows the current passenger loading standard for Metro Bus service.

#### 3.2 PRODUCTIVITY GUIDELINES AND ANNUAL LINE REVIEW

Productivity guidelines are used to ensure that Metro services are effective and provide a reasonable return on investment. These measures are applied to all Metro bus routes in operation for more than a year.

These measures are used to flag problem services that are not performing up to expectations. Specific corrective actions are decided during the service change process. Corrective actions could include

marketing, service restructuring, serving the demand with an alternative service, or elimination of service. The chart on the following page outlines the performance review process and the application of the minimum productivity standard for Metro bus service.

The evaluation process focuses on four factors:

Utilization of Resources – Passenger boardings per service hour is used as a measure to determine how effectively resources are being used. This measure is determined by dividing the total number of boardings on the line by the service hours operated. Routes having a higher number of boardings per hour represent a better utilization of resources such as buses, operators and fuel.

Utilization of Capacity – Passenger miles per seat miles is the measure used to evaluate how well the seating capacity of the system is being used. Passenger miles are calculated by multiplying the average distance traveled per passenger by the number of passengers using the service. Seat miles are calculated by determining the number of seats per vehicle by the number of service miles operated. The higher resulting number indicates greater utilization of system capacity.

Fiscal Responsibility – Subsidy per passenger is the measure for fiscal responsibility. Subsidy refers to the amount of public funding required to cover the difference between the cost of operation and the passenger revenues collected. Higher subsidy services require more public funding support.

~~Passenger Comfort – Load factor compliance to ensure that number of passengers on board do not exceed 120% of seating capacity in any 20 minute window during rush hours and 60 minute window during non-rush hours.~~

During the evaluation process, a route performance index is developed and used to objectively measure the performance of each route in the system relative to other routes in the same category. The following categories are used during the performance evaluation process:

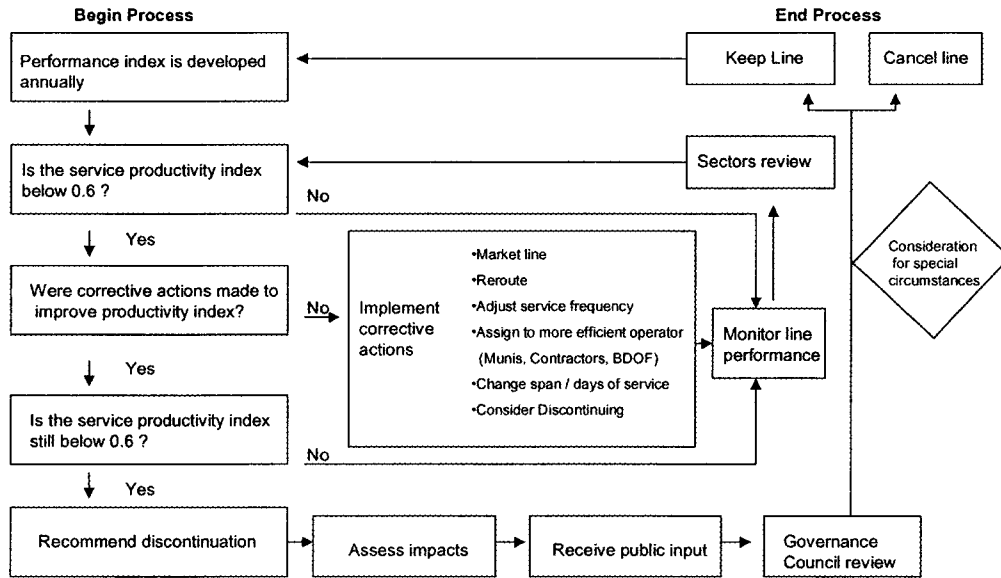
- Metro Liner
- Metro Express
- Metro Rapid Express
- Metro Rapid
- Metro Local
- Metro Rail/Feeder Shuttles

Specific indices are developed for each measure and category of service performance (Appendix D). Line with an index of 1.0 perform at the category average, while lines with an index of less than 1.0 perform below the average. Routes with a performance index lower than 0.6 are defined as performing poorly and targeted for corrective action.

Lines that have been subjected to corrective actions and do not meet the 0.60 productivity index after six additional months of operation may be cancelled, subject to Sector Governance Council approval, unless a funding agreement with a city or other agency is in place to offset the poor performance of the service. Such agreements need to be for a period of one year or more and in an amount sufficient to bring the farebox recovery ratio of the poorly performing service up to the service type (Metro Local, Metro Express, etc.) average.

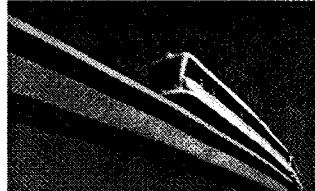


**ANNUAL ROUTE PERFORMANCE INDEX REVIEW PROCESS**



**SECTION 4: RAIL SERVICE POLICIES**

The Metro Rail system serves as the backbone of the public transportation system in the greater Los Angeles region. Service is provided on five separate lines to 65 stations, operating over 70 route miles in heavily congested travel corridors. The lines provide connections to many key multi-modal transportation hubs and account for 250,000 weekday boardings, (over 70 million annual boardings in Fiscal Year 2006). The Red, Purple (heavy rail subway) and Green Lines (light rail) operate entirely within dedicated right-of-ways, while the Blue and Gold Lines (both light rail) operate primarily on grade separated alignments and surface streets, with numerous vehicles and pedestrian crossings.



The system will continue to expand over the next several years with completion of the Gold Line Eastside Extension and the Exposition Line to Culver City. As a result, ridership levels will not stabilize for many years. Current planning efforts are focused on matching service levels with demand. Key rail policies address the frequency of service, span of service and passenger loading.

**4.1 FREQUENCY OF SERVICE**

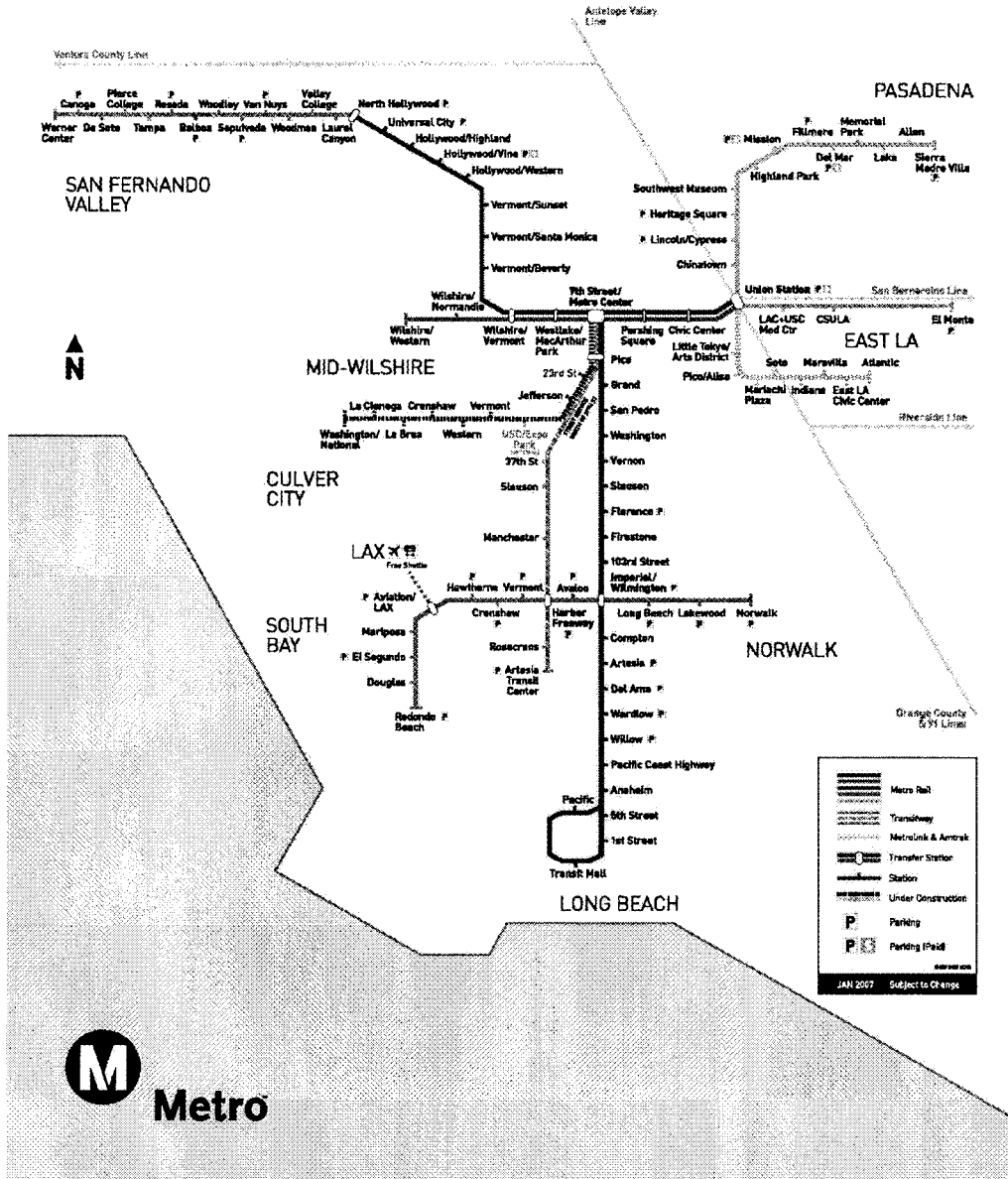
The frequency of service refers to the interval of time, expressed in minutes, between consecutive trips on a transit line. The frequency of service on rail lines is based on policy and demand. Service frequencies are set in a manner that ensures a reasonable, attractive level of service is provided throughout the day and to provide sufficient capacity to adequately meet ridership demand. The table below defines the maximum (longest) headways for each service period operated by Metro along the trunk portion of a line. Service along branches may be less frequent.

**Recommended Maximum Frequency**

Service	AM/PM Peak	Midday (9am-3pm)	Evening (6pm-9pm)	Night (9pm-2am)	Weekends
Light Rail (Blue Line, Green Line, Gold Line)	12	15	20	20	20
Heavy Rail (Red Line, Purple Line)	10	12	12	20	20

# Go Metro

metro.net



**4.2 SPAN OF SERVICE**

Span of service refers to the hours of the day and days of the week that service is operated. For the rail system, the span of service is determined based on the hours of key activity centers located along the alignment and ridership demand. A key factor in determining the span of service on individual lines is system connectivity. Evening schedules are designed to provide connections at the 7<sup>th</sup> St./Metro /Julian Dixon Station, Union Station and Imperial/Wilmington/Rosa Parks Station. The approximate span of service for light and heavy rail service is summarized below.

**Approximate Span of Service**

Service	Weekdays	Weekends
Light Rail (Blue Line, Green Line, Gold Line)	3:50 am - 2:00 am	3:50 am - 2:00 am
Heavy Rail (Red Line, Purple Line)	4:30 am - 1:30 am	4:30 am - 1:30 am

**4.3 PASSENGER LOADING**

Passenger loading is a measure of seating capacity. It is typically expressed as a percentage of the total passengers compared to the seats available. These standards are set at a level to offer sufficient seating capacity on the Metro Rail lines to meet the need of Metro’s current and future riders, and ensure overcrowded vehicles do not discourage patronage.

**Passenger Load Standards**

Service	Standard
Light Rail	190%
Heavy Rail	230%

The above table shows the current passenger loading standards for peak periods only for each service type. The standards are for peak period service, and vary to reflect differences in seating and available space for standees by vehicle type.

**4.4 PRODUCTIVITY GUIDELINES AND ANNUAL LINE REVIEW**

Productivity guidelines are used to ensure that Metro Rail services are effective and provide a reasonable return on investment. Section 3.3 contains a detailed discussion of how the productivity index is developed and analyzed for Metro bus service. Metro Rail follows the

same process using three factors: utilization of resources, utilization of capacity, and fiscal responsibility. Metro Rail lines with a performance index lower than 0.6 are defined as performing poorly and targeted for corrective action. Corrective actions could include marketing, adjusting service levels, increasing bus service to rail stations, or other changes to increase ridership or improve operational efficiency.

**SECTION 5: SERVICE CHANGE PROCESS**

Metro traditionally implements service changes to its bus service system twice a year. Each service change takes about one year to plan and implement.

**Service Change Timeline**

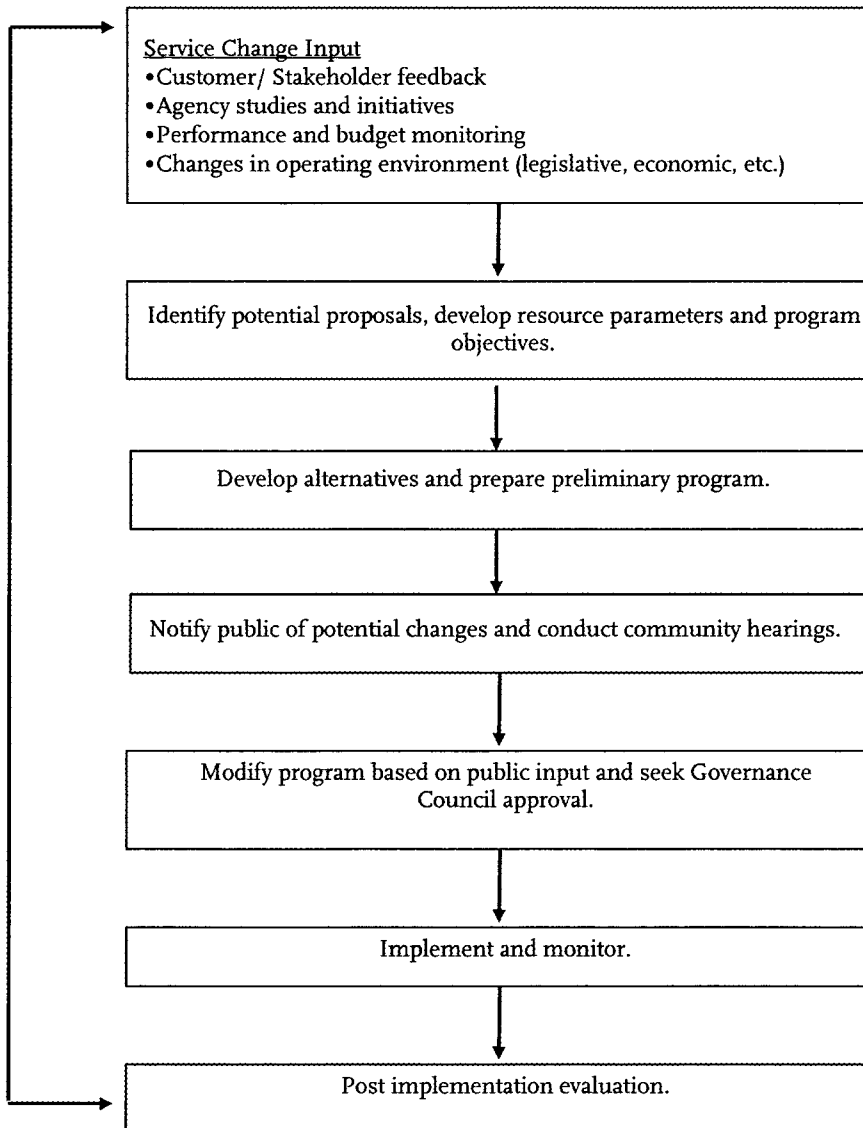
Key Activities	Required Lead Time (Months Prior to Implementation)
Initiate Planning Process	12
Develop Preliminary Recommendations	7-8
Public Review and Input	4-7
Impact Analysis for Proposed Changes	4-7
Finalize Program	4-5
Program Approval	3-4
Develop New Service Schedules	3-5
Print Public Time Tables and Operator Assignments	1-2
<b>Implement Service Change</b>	

The service change programs are developed based on input generated by a wide variety of sources. Sources include customer and employee input, service restructuring studies, requests from other local operators and performance monitoring results. The evaluation process includes public review of the proposals, a technical evaluation of ridership and resource impacts, environmental considerations, coordination with key stakeholders in the regional bus system, and review and approval by the Sector Governance Councils and/or Board of Directors. Once a program is approved, the public is notified of the upcoming changes and new public timetables and bus operator work assignments are developed.

Changes to the rail system occur less frequently. They generally relate to the opening of a new line or adjustments to the frequency or hours of operation for existing service. Changes in rail and bus service follow the same planning and implementation process.



SERVICE CHANGE PROCESS



### 5.1 INTERNAL REVIEW AND OVERSIGHT OF THE SERVICE CHANGE PROCESS

The Sector Governance Councils oversee the planning and implementation of service within their area, while coordination of the overall Service Change Program is an agency function. Service Sector Governance Council by laws require service changes to Tier 1 and Metro Rapid bus routes be reviewed and approved by the Metro Board of Directors. Tier 1 bus routes generally operate along the major corridors in the County. The responsibilities of the Governance Councils include: approval of the sector budget within designated funding levels; calling and conducting public hearings for sector bus lines; approval and evaluation of sector programs; implementation of service changes; review and development of policy recommendations to the Metro Board; and ensuring compliance with Metro policies procedures and legal agreements.

Metro has an internal review team, known as the Service Development Team, which provides oversight during the service change process. The committee includes the Chief Executive Officer (CEO), the Chief Operations Officer (COO), the Sector General Managers, the General Manager of Rail Operations and other key executive staff. The committee establishes targets and objectives for each service change program; helps to prioritize proposals; and provides a forum for coordination among the sectors, especially when there are proposals involving major bus lines serving two or more sectors. When there are service issues that cannot be resolved among the sectors, the Service Development Team will become involved. The Service Development Team also oversees the development of fare and service policies and other agency initiatives that will have a major impact on transit services.

### 5.2 IMPACT ANALYSIS FOR PROPOSED CHANGES

Prior to approval, proposed service changes undergo a technical evaluation. The purpose of the evaluation is two-fold: 1) to define and evaluate the impact on riders; and 2) to develop appropriate mitigation measures. Factors considered are service performance, availability of alternatives and special mitigation strategies. As part of this evaluation process, resource impacts including in-service hours and vehicles are also tracked to ensure compliance with budget parameters. Appendix F shows an example Service Change Impact Analysis Worksheet.

### 5.3 TITLE VI REVIEW PROCESS FOR MAJOR SERVICE CHANGES

Title VI of the 1964 Civil Rights Act states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be



subjected to discrimination under any program or activity receiving Federal financial assistance." Title VI bars intentional discrimination as well as disparate impact discrimination (i.e., a neutral policy or practice that has a disparate impact on protected groups).

Chapter V part 4 of the Federal Transit Administration Circular 4702.1A, requires transit agencies serving large urbanized areas to evaluate significant system-wide service and fare changes at the planning and programming stages to determine whether proposed changes would have a discriminatory impact. For service changes, this requirement applies to "major service changes" only and the recipient should establish guidelines or thresholds for what it considers a "major service change" to be.

Metro must ensure that there is Title VI consideration whenever there is a change in service that could impact minority communities. Metro must describe significant service changes relating to hours or days of operation, headways or fares, etc., and provide an analysis of the effect that any proposed changes may have on minority, low english proficiency (LEP), and low-income communities. This policy provides a delineation of that service review. Service changes covered by this policy are those indicated as "Major Adjustments of Transit Service" under Board Policy (Appendix G) (Chapter 2-50 Public Hearings in the Administration Code). Major service adjustments are generally those that constitute an aggregate change of 25 percent or more in route miles or hours when compared on a daily basis. This includes system wide route restructuring, or adding and deleting service.

All major service changes will be screened to determine if they have a disproportionate impact on minority, poor and LEP communities. The routing of those services for which major changes are recommended, will be overlaid on top of GIS demographic information to determine if the route serves a large share of the target population(s). If it does, then the impacts of the change will be determined, and if they are significant, mitigation may be recommended, alternative services identified, and or the change could be withdrawn. If the route does not serve a large share of the target populations, no further review will be required.

#### 5.4 PUBLIC INVOLVEMENT AND NOTIFICATION

Customer input and feedback are vital to the planning process. Throughout the process, and especially during the period leading up to the public hearing, staff conducts outreach activities to engage key stakeholders in the review process. These groups include: Councils of Governments, the Metro Citizen's Advisory Council, special advocacy groups and regional Metro subcommittees (Technical Advisory Committee, Bus Operations Subcommittee, and the Local Transit System Subcommittee). In addition to these formal groups, staff



frequently meets with schools, neighborhood groups and business groups to discuss specific proposals or issues of concern.

As summarized in the table below, a number of efforts are made to notify the public and elected officials of pending changes in Metro bus and rail service. In advance of public meetings on Metro service changes, legal notices are published in several newspapers, and written notification and descriptions of the proposed changes are sent to elected officials, other local transit operators and key stakeholder groups. In accordance with METRO's LEP and Title VI Language Outreach Plan, special efforts are made to ensure that notification is made to minority and low English proficiency groups. Also, information is posted on the Metro website and there is an on-board system-wide distribution of public hearing notices. There are also related press releases.

**Timeline For Key Public Notification Activities**

Activity	Months Prior to the Service Change
Service Development Team reviews preliminary proposals.	7
Service Sectors set dates of public meetings, publish hearing notices in local newspapers and provide written notification to LEP, minority communities elected officials, other operators and key stakeholder groups.	5-6
Service Sectors provide information on proposed changes to the Metro Bus Operators Subcommittee.	5
Communication Department posts information proposed changes on Metro's website.	5
Sectors distribute hearing notices on-board vehicles.	At least two weeks prior to public hearings
Sectors conduct public hearings.	4
Sector Governance Councils approve final program.	3
Communication Department prepares press releases on final program and program brochures are distributed on-board Metro vehicles.	1
New Timetables are distributed and available on-board Metro vehicles.	At least three weeks prior to changes

Public hearings are conducted when there are major changes to service or changes to the fare policy in accordance to Chapter 2-50 Public Hearings in the Board Administrative Code (Appendix G). The hearing process provides the public with an opportunity to comment on major service change proposals. Proposed service changes that require Governance

Council approval and that operate a significant level of service into an adjacent Service Sector shall be reviewed by the impacted Service Sector prior to Governance Council approval. After the public meetings, staff reviews all the feedback and develops final recommendations. After a service change program is approved, a second round of public notification begins. This includes distributing brochures on bus lines that will be affected by the service change and advance distribution of new timetables. When key changes are being implemented, field representatives known as Transit Ambassadors are often deployed to major boarding locations in the system to distribute information and answer customer questions. When new lines are being implemented there

are often targeted promotional campaigns, which include radio and print media, as well as promotional fares.

paratransit service and are eligible to receive funds from the Formula Allocation Process (FAP). The LTSS is comprised of representatives

### 5.5 IMPLEMENTING MINOR CHANGES ON AN INTERIM BASIS

Minor service changes are generally route modifications that can be accommodated without impacting the vehicle or operator requirements of the service. Each Sector can make minor route modifications (not requiring a public hearing) not to exceed an annual cost based on the annual CEO signature authority. These limits are based on the CEO's signature authority. ~~Minor changes to service are reported to the Board of Directors on a quarterly basis.~~

### 5.6 COORDINATION WITH OTHER OPERATORS

In addition to the service provided by Metro, 40 other local operators provide fixed-route service and there are more than 100 other local return and non-profit agencies that provide community based transportation services. As the regional planning agency for Los Angeles County, Metro plays a lead coordination role. Metro Service Sectors are responsible for coordinating with the other operators within their area, especially when changes in service are being considered. Additionally, there are other more formal means of coordination.

The Bus Operations Subcommittee (BOS) and the Local Transit Systems Subcommittee (LTSS) were established to serve as a forum for interagency service coordination within Los Angeles County. These groups meet monthly at Metro headquarters. The BOS is comprised of representatives from entities that provide fixed route bus and



from entities that provide fixed route or paratransit service funded with local return dollars or Proposition A incentive funds.

In April 2001 the Metro Board of Directors approved the Municipal Operations Service Improvement Program. As part of this program, \$15 million of Proposition C funds were programmed from 2002 through 2006. The funds were established to help reduce Metro operating costs in corridors where there is overlapping service and to reduce overcrowding. During FY06, the Metro Board of Directors approved a two-year extension of this program.

As part of the public hearing outreach period of the Metro service Change process, the Sector General Managers are responsible for coordinating with the local operators and municipalities within their area. This includes providing an opportunity to participate in the planning process (service changes, Metro Connections, rail feeder plans, bus/rail interface plans, system restructuring), and providing advance notification of service proposals, which may affect the local operators or communities within their Sector. Similarly, the local operators are to provide Metro with advance notification of proposals that may affect Metro Bus operators or ridership.



## SECTION 6: CONCLUSION

The Metro Transit Service Policy will be used to guide decision-making during the service change process and the development of other longer term plans, such as the transition to Metro Connections. This policy supercedes any other agency service policies.

The application of the policy will be supported by service monitoring which will provide updated information on the performance of individual bus lines, the overall bus and rail system and customer satisfaction. Specific system objectives will also be monitored, including the number of bus lines operating with peak-hour headways greater than 30 minutes, the number of bus lines conforming with the minimum productivity indices, and passenger loads relative to seating capacity.

The Metro Transit Service Policy ~~transit policy~~ reflects current practices and agency direction. However, the environment is constantly changing and the policy will be reviewed annually. Any changes to the policy will require the approval of the Metro Board of Directors.

## APPENDIX A: LINE IDENTIFICATION STANDARDS AND ROUTE NUMBERING CONVENTION

### LINE IDENTIFICATION STANDARDS:

#### Introduction

The purpose of establishing transit service line identification standards is to create a customer-oriented and user-friendly communication system for referencing service. By improving how service is identified and customer understanding of where service operates, usability of Metro transit service will be enhanced and, therefore, possibly increase ridership.

The line identification standards shall be adhered to when identifying Metro Bus and Metro Rail lines by name. The standards shall be implemented across all internal and external mediums including, but not limited to, bus stop signs, vehicle headsigns, timetables, the Metro Transit Trip Planner, HASTUS and ATMS. Following is a description of the standards and how and when they should be implemented.

#### General standards

- Transit service lines will be identified using a combination of line number, destinations (both end points) and the corridor(s) the line travels along, with the exception of Metro Rail and Metro Liner service which will use the established operational name (ex. Metro Red Line, Metro Purple Line and Metro Orange Line).
- Acceptable destination names include a city, community, major landmark, transit center or rail station. Street intersections are no longer to be used as a destination.
- The destination points will be listed in a West to East or North to South order, consistent with how the line would be read on a map.
- Lines that have Downtown Los Angeles as one of the line's end points will list Downtown Los Angeles first.
- The name of the line will also list at least one major corridor on which it travels.
- Name abbreviations, street extensions and other topics will be dictated by the Metro Signage Guidelines.

#### Printed materials and electronic customer information

- The line will be presented using the full name, listing both the destinations and major corridor(s).
- The printed materials include but are not limited to timetables, service change announcements, brochures, system maps and line reports.
- Electronic customer information includes the line information presented on metro.net and underlying electronic databases such as HASTUS.
- The Metro Transit Trip Planner will present the line similar to what will be shown on the vehicle headsign so the customer can easily locate the appropriate line at the stop.

#### Bus stop signage

- The line will be presented using the destination point that the vehicle is traveling to in each direction.
- If room is available, the main corridor(s) will also be listed as well as special route conditions including but not limited to rush-hour service and weekday-only service.
- Short-line trip destinations will not be shown on bus stop signs.





Vehicle headsigns

- Headsigns will only list the destination in which the vehicle is traveling towards, in one frame.
- For short-line trips, the destination shown will be the destination of that trip and not of the entire line.
- When the line is not in service, the sign will read either "Not in Service" or, depending on space availability, "No Service" in one frame. The line number will not appear.

Automatic voice announcements

- The line will be identified in automatic external voice announcements using the destination point that the vehicle is traveling to in each direction.
- For short-line trips, the destination noted will be the destination of that trip and not of the entire line.

Process for assigning line identifiers

- Each Service Sector will develop a proposed list of names for each line in their areas.
- Communications will review the sector proposals to ensure consistency with the standards as well as across sector boundaries.
- It is expected that the standards will be easily applied to the majority of lines, however, it is also understood that exceptions will have to be made for some lines due to unfamiliar end points or corridors. In these limited cases, Sector staff and Communications staff must be in consensus regarding these changes before deciding to deviate from the standards.



ROUTE NUMBERING CONVENTION:

<b>Local</b>	Local-CBD	1-99	Serves downtown Los Angeles -- numbered counterclockwise from NW quadrant
	Local-FW non-CBD	100-149	Primarily FW operation in areas S of LACBD -- numbers increase with distance from LACBD
	Local-FW non-CBD	150-199	Primarily FW operation in areas N of LACBD -- numbers increase with distance from LACBD
	Local-NS non-CBD	200-249	Primarily NS operation in areas W of LACBD -- numbers increase with distance from LACBD
	Local-NS non-CBD	250-299	Primarily NS operation in areas E of LACBD -- numbers increase with distance from LACBD
<b>Limited</b>	Limited	300-399	Usually a branch of a Local line
<b>Express</b>	Express-CBD	400-499	Serves downtown Los Angeles -- numbered counterclockwise from NW quadrant
	Express- non-CBD	500-599	Does not serve LACBD
<b>Shuttles &amp; Circulators</b>	Local Circulator	601-624	Generally circuitous routing within service area
	Shuttle	625-649	Generally point-to-point routing within service area
	Special Events Service	650-659	Scheduled service operating point-to-point
	Rail Feeder	660-699	Serves a rail line within service area
<b>Rapid Bus</b>	Rapid	700-799	Usually operated in combination with an underlying Local line
<b>Rail</b>	Rail	800-899	
<b>Metroliner</b>	Metroliner	900-903	Bus Rapid Transit (BRT) Service
<b>Rapid Express</b>	Rapid Express	904-999	Rapid Bus with limited stops



APPENDIX B: METRO RAPID PROGRAM SERVICE WARRANTS

**PROGRAM PRINCIPLE:** Improve Operating Speed and Frequency.

**PROGRAM GOAL:** Minimum operating speed improvement is 20% over existing limited-stop service or 25% over existing local service.

Program Element	Program Component	Program Objective
Corridor Alignment	PLANNING DEPARTMENT RESPONSIBILITIES	
	Maximize patronage and minimize costs	Identify core segment of corridor for Metro Rapid operation to maximize patronage (500 passengers per route mile or greater) and minimize operating costs (the net increase in corridor-revenue-vehicle-hours).
	Linear corridor alignment	Minimize corridor turning movements to maximize safe and reliable operating speeds, improve customer understanding and confidence in service structure, and provide reliable service operations.
	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Alignment modification	Changes to the alignment that affect one-way revenue route miles or which impact planned or existing infrastructure (stations and TPS) require a technical memorandum analyzing impacts on customers, line performance, operating costs, and capital costs.
	Addition of shortlines and branches	Proposed shortlines and branches must occur at a point where less than 30% of the maximum passenger load remains so as to avoid passenger pass-ups on through-trips. Shortlines or branches must occur every other trip to avoid confusion and bunching due to erratic loading of passengers. All shortlines and branches require a technical memorandum analyzing impacts on customers, line performance, operating costs, and capital costs.
Addition of express trips	Consideration of express service can be undertaken only as a separate route and where justified in a technical memorandum analyzing impacts on customers, line performance, operating costs, and capital costs.	
Maintenance of operating speed	Maintenance of the Program Goal is required. Corridor vehicle run times will be monitored. Improvements in operating speed are encouraged through improved stop placement, signal priority software, elimination of unproductive stops, introduction of bypass lanes, and improved BOCC and TOS management.	



Program Element	Program Component	Program Objective
Stop Location	<p>Station spacing average no less than 0.70 miles</p> <p>Far-side station location</p> <p>Full separation from local stop</p>	<p><b>PLANNING DEPARTMENT RESPONSIBILITIES</b></p> <p>Station spacing will average no less than 0.70 miles per corridor and be based on existing ridership and connections with other bus and rail service. Station locations must be planned to accommodate either 45-foot or 60-foot buses.</p> <p>Far-side stop locations are required to realize TPS and must be planned at all intersections for both Metro Rapid and Local service. The only exceptions are where far-side stop locations are not possible within a reasonable walk from the intersection or where nearside locations facilitate access for greater than 75% of the boardings, e.g., intersecting Metro Rail station portals. Near-side stations can range from 90 to 120 feet depending on the equipment type for a one-seat zone; require 120 feet of feed curb in all cases.</p> <p>Shared Metro Rapid and local bus stop locations must be avoided to reduce delay, minimize bus congestion at the stop, and eliminate passenger confusion with "next trip" displays. Circumstances that may warrant stop consolidation include the following: a) Stops are outside the core segment of the line where core is defined as greater than 30% of the maximum passenger load; b) Metro Rapid and Local combined headways are greater than 10 minutes in the peak period; or c) Extended stop zone is not available based on what is available from the municipality subject to review by Regional Transit Planning, RTP.</p>
Addition of new stop		<p><b>OPERATIONS DEPARTMENT RESPONSIBILITIES</b></p> <p>Stops may be added only if they exceed 2550 daily all-day boardings and alightings (100 boardings if within one mile of line terminal) and only where the Time Delay Index<sup>1</sup> of existing on-board passengers to the additional riders expected at the new stop is (a) less than 3 for the addition of a new stop that is less than 0.5 miles from an existing stop; (ba) less than 5 for the addition of a new stop that is between 0.5 and 0.7 miles; (cb) less than 7.5 for the addition of a new stop that is between 0.7 and 1.0 miles; or (de) less than 10 for the addition of a new stop that is over 1 mile from an existing stop. Stops less than 0.5 miles from an existing stop must have a Time Delay Index less than 3 and can only be added in extraordinary circumstances. Added stops require a technical memorandum that analyzes the impacts on customers, line performance, operating costs, and capital costs. Station construction costs associated with stops added beyond those approved in the September 2002 Metro Rapid Board report will be paid by the Managing Sector.</p>

<sup>1</sup> The Time Delay Index is the product of 1) the per-trip average on-board passengers arriving at the proposed new stop, multiplied by 2) the per-trip average delay expected at the new stop (defined as the average boardings and alightings per trip at the new stop multiplied by one second each plus 30 seconds delay to compensate for vehicle arrival and departure speeds, and divided by 60 seconds to account for person-minutes); divided by 3) the average expected boardings and alightings at the new stop and 25 percent of the boardings and alightings at stops within one-quarter mile (0.25 mile). The recommended IDI thresholds are based on a comprehensive analysis of available running-time, speed improvement, and ridership data for the 14 Metro Rapid corridors currently in operation with the sole exception of Western Metro Rapid Program, Service Warrant, June 13, 25, 2006

**Deleted:** expected people to board

**Deleted:** Profile 50

**Deleted:** Van Nuys, Florence, and Wilshire-Whittier Metro Rapid corridors



Program Element	Program Component	Program Objective
	Elimination of stop	Stops may be have construction deferred or be eliminated only if (a) after the first <del>twelve six</del> months the Time Delay Index is greater than 15; or (b), where use of the station results in operating speed, reliability, or safety problems. A technical memorandum is required that analyzes the impacts on customers, line performance, operating costs, and capital costs.
	Relocation of station	Stations may be relocated only when required by a city or the County and where the station relocation does not negatively impact ridership. If possible, relocations should be made prior to the construction of the permanent station facility. A technical memorandum is required that analyzes the impacts on customers, line performance, operating costs, and capital costs.



Program Element	Program Component	Program Objective
<p><b>Station Facility</b></p>		<p>PLANNING DEPARTMENT RESPONSIBILITIES</p>
	<p>Full Metro Rapid station with canopy</p>	<p>All stations will have the "branded" Metro Rapid canopy facility with flagpole, kiosk, and "next trip" display unless it is physically impossible without extreme cost. For terminal stations and stops on turnaround loops that only discharge passengers, the full station facility will not be provided; a Metro Rapid "discharge only" sign on a channel post will be provided.</p>
	<p>Double canopies will be installed only at high demand stops</p>	<p>Double canopies will be located only at high demand stops, such as high ridership Metro Rail station portals or where high ridership bus lines meet.</p>
	<p>All stations will be designed to accommodate either 45-foot or 60-foot buses</p>	<p>Far-side stations require a total clear space (red curb) of 120 feet unconstrained or 100 feet constrained. The largest vehicle required for the Metro Rapid Program is the 60-foot articulated bus.</p>
	<p>Station Maintenance Monitoring</p>	<p>OPERATIONS DEPARTMENT RESPONSIBILITIES</p> <p>All stations will be maintained by the city or County responsible for the station and kept in good repair with regular cleaning and emptying of trash receptacles such that a positive, properly maintained image is projected and problems with adjacent land owners are minimized.</p>
		<p>PLANNING DEPARTMENT RESPONSIBILITIES</p>
	<p>All signalized intersections should provide bus signal priority for Metro Rapid</p>	<p>Signal priority should include terminal movements to reduce operating costs.</p>
	<p>Identification of by-pass lane needs</p>	<p>At points of significant delay due to traffic congestion, an analysis will be developed of the feasibility of establishing by-pass lanes for Metro Rapid service.</p>
<p><b>Transit Priority</b></p>	<p>Monitor effectiveness of transit priority measures</p>	<p>The effectiveness of the transit priority measures will be periodically analyzed and recommendations will be developed for potential further improvements where warranted.</p>
		<p>OPERATIONS DEPARTMENT RESPONSIBILITIES</p>
	<p>Signal priority at intersections along major deadhead movements is desired</p>	<p>Metro Rapid not-in-service vehicle movements should be operated off the route-of-line to avoid invalid requests for bus signal priority and false "next trip" information on the station displays. Consideration should be given to consolidating several Metro Rapid not-in-service routes along the same streets to benefit from signal priority.</p>



Program Element	Program Component	Program Objective
<p><b>Vehicles and Vehicle Planning</b></p>	<p>Metro Rapid lines are assigned one vehicle size, i.e., 40-ft, 45-ft, or 60-ft articulated</p>	<p><b>PLANNING DEPARTMENT RESPONSIBILITIES</b></p> <p>The planned service frequency will be based on deployment of a particular size bus and these vehicles will need to be assigned to the particular line and operating Division. Only one size vehicle should be scheduled and operated on each line in order to avoid passenger overcrowding and service bunching.</p>
	<p>Vehicles must be in Metro Rapid livery</p>	<p><b>OPERATIONS DEPARTMENT RESPONSIBILITIES</b></p> <p>Metro Rapid vehicles may be operated only on Metro Rapid routes. On the rare occasion that a red bus is unavailable for pullout, a local bus may be substituted to ensure pullout. Operation of "branded" Metro Rapid buses is integral to the operating speed, simplicity of service, and customer experience.</p>
<p><b>Service Frequencies</b></p>	<p>Weekday peak frequency</p>	<p><b>OPERATIONS DEPARTMENT RESPONSIBILITIES</b></p> <p>The minimum weekday peak frequency is 10 minutes or less. Large capacity vehicles must be considered based on capacity needs, without violating the 10-minute frequency threshold; comparison of overall daily operating cost will determine which vehicle is the best choice at this minimum service level.</p>
	<p>Weekday off-peak frequency</p>	<p>The preferred minimum weekday off-peak frequency is 12 minutes or less. Minimum frequency is subject to funding availability and may be relaxed to 16 or no more than 20 minutes in unique, cost-constrained funding situations, or not operated at all during the off-peak.</p>
	<p>Local service frequency at start-up 75-100% of planned Metro Rapid</p>	<p>Initial local service levels (trips) must be set at 75-100% of Metro Rapid service levels based on individual corridor needs; adjustments can be initiated during the shakeup after a one-year trial period once actual ridership splits are known.</p>
	<p>Q Cost-neutral operating expense</p>	<p>Annual corridor revenue hours at start-up will be scheduled within 1% of pre-Metro Rapid corridor revenue hours consistent with Consent Decree mandates. Initial service levels are specified in the New Service Plan. Service levels thereafter may be adjusted based on passenger demand after a year of operation.</p>
		<p><b>OPERATIONS DEPARTMENT RESPONSIBILITIES</b></p>
<p><b>Service Span</b></p>	<p>Seven-day service span is desirable</p>	<p><b>OPERATIONS DEPARTMENT RESPONSIBILITIES</b></p> <p>Corridors will be operated consistent with the September 2002 Metro Rapid Board Report. Weekday service span will be at least from 5:00 a.m. to 9:00 p.m., consistent with Consent Decree mandates. Metro Rapid span of service is 5:00 a.m. to 9:00 p.m. on weekdays. Metro Rapid service should operate on weekends when warranted by passenger demand. Five Metro Rapid corridors may be exempted from operation within the service span and frequency criteria if approved by the Metro Board. Implementation should target corridors that sustain significant weekday ridership demand over the weekend to allow for seven-day service provision. Metro Rapid corridors that cannot be supported by passenger demand will be reviewed for restructuring. Service span is to be adjusted based on passenger demand, once actual ridership is known.</p>



Program Element	Program Component	Program Objective
Schedule Development	Terminal departure timepoints	<p>OPERATIONS DEPARTMENT RESPONSIBILITIES</p> <p>Operating schedules and running boards must be developed for free running time by operators with schedule adherence timepoints for terminal departure only; no other timepoints will be shown on the operator running board.</p>
Operating Protocols	Headway interval-managed service operation	<p>OPERATIONS DEPARTMENT RESPONSIBILITIES</p> <p>Metro Rapid service allows for dynamic optimization of operating speeds through the utilization of free running time operation following after scheduled departure times from terminals, departures, vehicle spacing and on-time departure from terminals must be managed in real-time real-time by the BOCC and/or assigned TOSs.</p>





**APPENDIX C: BUS STOP GUIDELINES**

Transit Cooperative Research Program

SPONSORED BY

The Federal Transit Administration

# TCRP Report 19

Guidelines for the Location and  
Design of Bus Stops

Transportation Research Board  
National Research Board



3

BUS STOP ZONE DESIGN TYPES-Curb-Side Bus Stop Zone Dimensions

A bus stop zone is the portion of a roadway marked or signed for use by buses when loading or unloading passengers. The lengths of bus stop zones vary among different transit agencies. In general, bus stop zones for far-side and near-side stops are a minimum of 90 and 100 feet, respectively, and midblock stops are a minimum of 150 feet. Far-side stops after a turn typically have a minimum 90-foot zone, however, a longer zone will result in greater ease for a bus driver to position the bus. Bus stop zones are increased by 20 feet for articulated buses. Representative dimensions for bus stop zones are illustrated in Figure 3.

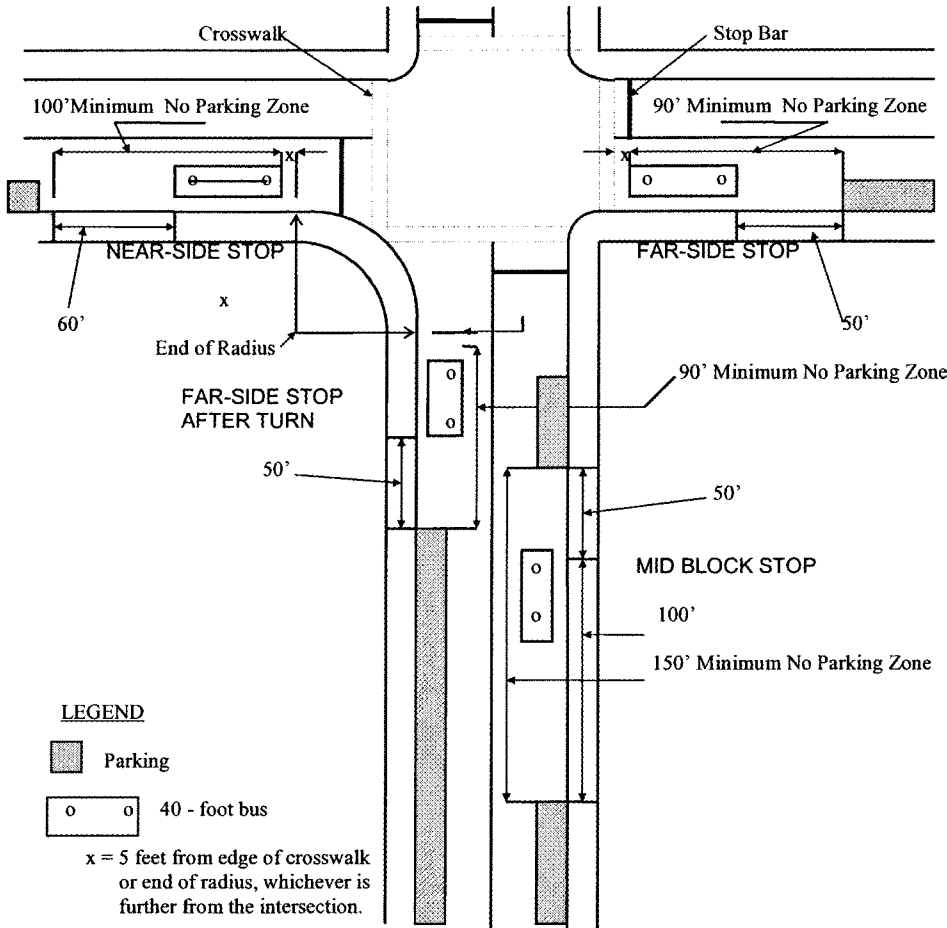
More than one bus may be at a stop at a given time. The number of bus-loading positions required at a given location depends on 1) the rate of bus arrivals and 2) passenger service time at the stop. Table 3 presents suggested bus stop capacity requirements based on a range of bus flow rates and passenger service times. For example, if the service time at a stop is 30 seconds and there are 60 buses expected in the peak-hour, two bus loading positions are needed. The arrival rate is based on a Poisson (random) arrival rate and a 5 percent chance the bus zone will be exceeded.

**Table 3. Recommended Bus Stop Bay Requirements.**

Peak-Hour Bus Flow	Capacity Required (Bays) When Service Time at Stop Is				
	10 Seconds	20 Seconds	30 Seconds	40 Seconds	60 Seconds
15	1	1	1	1	1
30	1	1	1	1	2
45	1	1	2	2	2
60	1	1	2	2	3
75	1	2	2	3	3
90	1	2	2	3	4
105	1	2	3	3	4
120	1	2	3	3	5
150	2	3	3	4	5
180	2	3	4	5	6

**STREET-SIDE FACTORS Chapter**

BUS STOP ZONE DESIGN TYPES-Curb-Side Bus Stop Zone Dimensions



Notes:

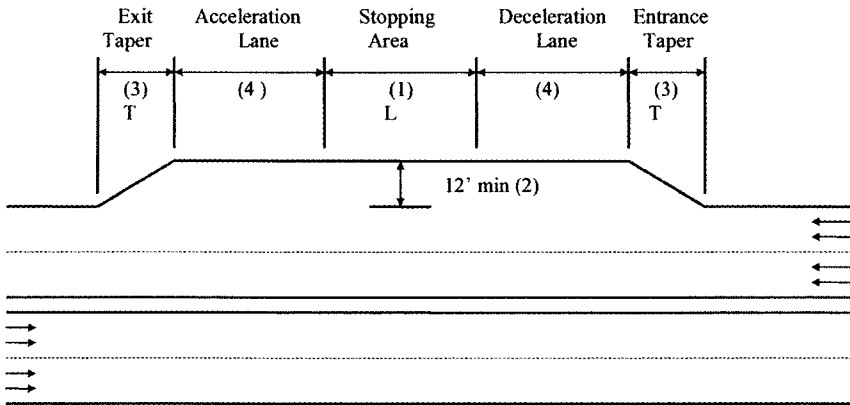
- 1) Add 20 feet to bus stop zones for an articulated bus.
- 2) Increase bus stop zone by 50 feet for each additional standard 40-foot bus or 70 feet for each additional 60-foot articulated bus expected to be at the stop simultaneously. See Table 3 for the suggested bus stop capacity requirements based on a range of bus flow rates and passenger service times.

**Figure 3. Typical Dimensions for On-Street Bus Stops**

STREET-SIDE FACTORS Chapter

BUS STOP ZONE DESIGN TYPES--Bus Bay Dimensions

3



Notes:

- 1) Stopping area length consists of 50 feet for each standard 40-foot bus and 70 feet for each 60-foot articulated bus expected to be at the stop simultaneously. See Table 3 for the suggested bus stop capacity requirements based on a range of bus flow rates and passenger service times.
- 2) Bus bay width is desirably 12 feet. For traffic speeds under 30 mph, a 10-foot minimum bay width is acceptable. These dimensions do not include gutter width.
- 3) Suggested taper lengths are listed in table below. Desirable taper length is equal to the major road through speed multiplied by the width of the turnout bay. A taper of 5:1 is a desirable minimum for an entrance taper to an arterial street bus bay while the merging or re-entry taper should not be sharper than 3:1.
- 4) Minimum design for a busy bay does not include acceleration or deceleration lanes. Recommended acceleration and deceleration lengths are listed in the table below.

Through Speed (mph)	Entering Speed <sup>a</sup> (mph)	Length of Acceleration Lane (Feet)	Length of Deceleration Lane <sup>b</sup> (Feet)	Length of Taper (Feet)
35	25	250	184	170
40	30	400	265	190
45	35	700	360	210
50	40	975	470	230
55	45	1400	595	250
60	50	1900	735	270

<sup>a</sup> Bus speed at end of taper, desirable for buses to be within 10 mph of travel lane vehicle speed at the end of the taper.

<sup>b</sup> Based on 2.5 mph/sec deceleration rate.

Figure 5. Typical Bus Bay Dimensions.

Policy # 22

4 of 6

STREET-SIDE FACTORS Chapter

BUS STOP ZONE DESIGN TYPES—Partial Open Bus Bay

3

Another alternative to the bus bay design is a partial open bus bay (or a partial sidewalk extension). This alternative allows buses to use the intersection approach in entering the bay and provides a partial sidewalk extension to reduce pedestrian street-crossing distance. It also prevents right-turning vehicles from using the bus bay for acceleration movements. Figure 7 illustrates the design for a partial open bus bay.

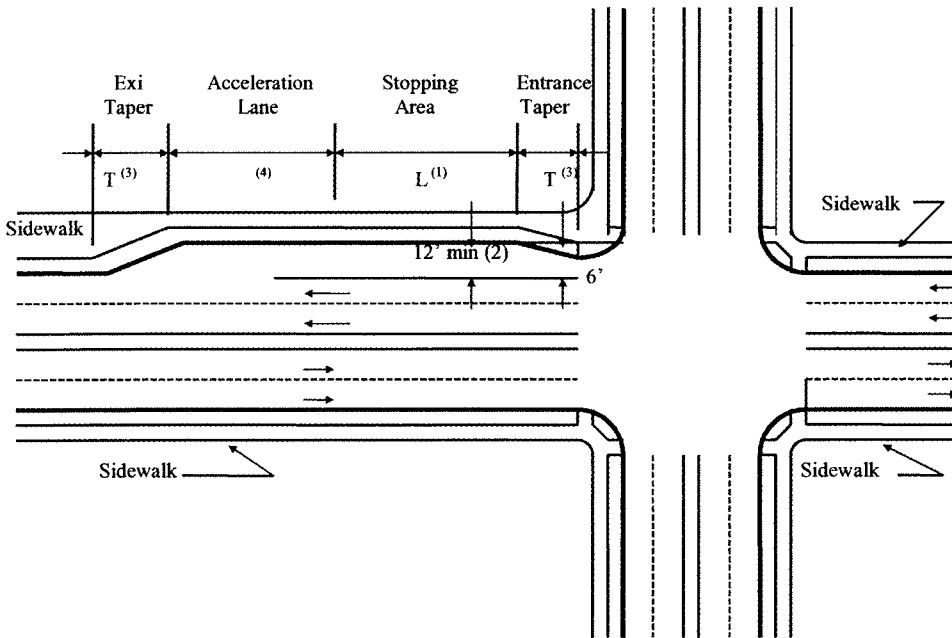


Figure 7. Partial Open Bus Bay  
Policy # 22  
5 of 6

STREET-SIDE FACTORS Chapter

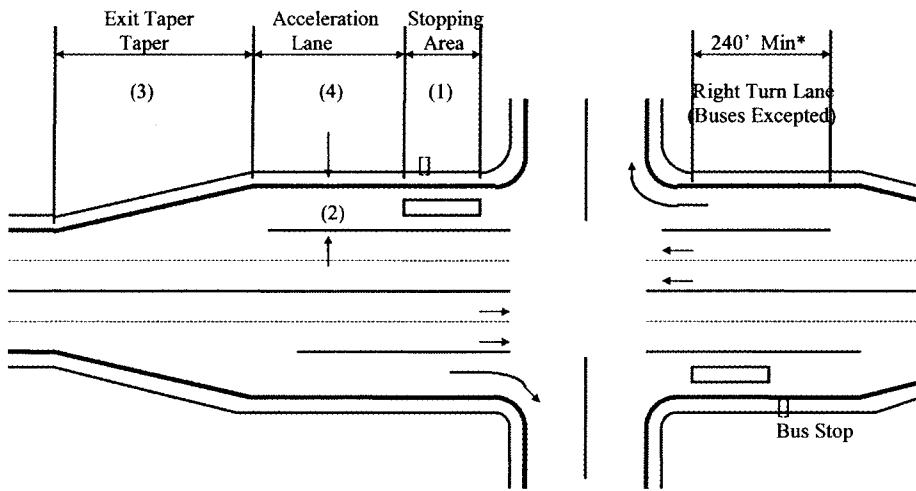
BUS STOP ZONE DESIGN TYPES—Queue Jumper Bus Bay

According to the transit agencies that use the queue jumper bus bays, these bays should be considered at arterial street intersections when the following factors are present:

- High-frequency bus routes have an average headway of 15 minutes or less;
- Traffic volumes exceed 250 vehicles per hour in the curb lane during the peak-hour;
- The intersection operates at a level of service “D” or worse (see the Transportation Research Board’s *Highway Capacity Manual* for techniques on evaluating the operations at an intersection); and
- Land acquisitions are feasible and costs are affordable.

An exclusive bus lane, in addition to the right-turn lane, should be considered when right-turn volumes exceed 400 vehicles per hour during the peak-hour.

\* Extend lane as necessary to bypass traffic queue



Notes for Comments 1,2,3, and 4 are on page 29.

Figure 9. Queue Jumper Bus Bay Layout.

## APPENDIX D: BUS ROUTES WITH PEAK-HOUR TRUNK HEADWAYS GREATER THAN 30 MINUTES

(EFFECTIVE: December 18, 2005)

Line	Description	Headway Range (Minutes)
65	Washington Blvd.--Indiana St.--Gage Ave.	45
119/126	108 <sup>th</sup> St.--Yukon Ave.--Manhattan Beach Blvd.	60
124	El Segundo Blvd.	35-50
127	Compton Blvd.--Bellflower Blvd.	60
128	Alondra Blvd.	30-50
154	Burbank Blvd.--Oxnard St.	30-60
158	Devonshire St.--Woodman Ave.	30-45
161	Thousand Oaks--Canoga Park	15-55
167	Plummer St.--Coldwater Canyon Ave.	30-45
168	Lassen St.--Paxton St.	60
169	Saticoy St.--Sunland Blvd.	60
170	Hellman Ave.--El Monte via South El Monte	70
176	Glassell Park--Highland Park--Alhambra--El Monte	50-52
201	Silverlake Blvd.	40
205	San Pedro--Willowbrook	30-35
209	Van Ness Ave.--Arlington Ave.	35-40
220	Robertson Blvd.--Culver Blvd.--LAX	50-60
225/226	Palos Verdes Peninsula--San Pedro	45-50
254	103rd St. Station--Gage Ave.--Lorena St.	60
255	County Hospital--Rowan Ave.	60
256	Eastern Ave.--Ave. 64--North Hill Ave.	30-45
266	Rosemead Blvd.--Lakewood Blvd.	25-40
267/264	Temple City Blvd.--Del Mar Blvd.--Lincoln Ave.--Altadena Dr.--Duarte	30-40
268	Washington Blvd.--Baldwin Ave.	25-47
270	Monrovia--El Monte--Norwalk	44-45
275	Whittier--Cerritos	60
439	LA--LAX--Redondo Beach	35
444	LA--Torrance--Rancho Palos Verdes	30-35
445	LA--San Pedro via Harbor Transitway	30-50
607	North Inglewood Community Shuttle	35
608	Grenshaw Connection	60
645	Mulholland Dr.--Valley Circle Bl.	20-60
684	Brea Mall--Pomona Transit Center	44-45



**(EFFECTIVE: December 17, 2006)**

Line	Description	Headway Range (Minutes)
65	Los Angeles - City Terrace via Washington Bl, Indiana St & Gage Av	45
119/126	Manhattan Beach - Willowbrook via Manhattan Bch Bl, Yukon Av, 120th St, Hawthorne Bl, 103rd St	60
124	El Segundo - Willowbrook via El Segundo Bl	35-50
127	Downey - Compton via Bellflower Bl, Somerset Bl, Compton Bl	60
128	Compton - La Mirada via Alondra Bl	30-50
154	Tarzana - Burbank via Burbank Bl & Oxnard St	30-60
155	Burbank - Universal City via Alameda Av, Victory Bl & Olive St	60
158	Chatsworth - Sherman Oaks via Devonshire St. & Woodman Av.	30-45
161	Thousand Oaks - Agoura Hills - Warner Center	47-55
167	Chatsworth - Studio City via Plummer St & Coldwater Cyn Av	30-45
168	Chatsworth - Pacoima via Lassen St & Paxton St	60
169	West Hills - Sunland via Saticoy St and Sunland Bl	60
170	El Monte - Montebello via Rush St & Walnut Grove Av	90
176	El Monte - Glassell Park via Mission	50-52
201	Glendale - Koreatown via Silver Lake	35-50
205	San Pedro - Willowbrook via Western Av, Vermont Av & Wilmington Av	30-35
209	Athens - Wilshire Center via Van Ness Ave & Arlington Ave	30-40
220	West Hollywood - Culver City via Robertson Bl	40
242/243	Porter Ranch - Woodland Hills via Tampa Av. & Winnetka Av.	15-35
244/245	Woodland Hills - Chatsworth via Topanga Canyon Bl & De Soto Av	35-45
254	Watts - Boyle Heights via Maie Av, Boyle Av & Lorena St	30-60
256	Commerce - Altadena via Eastern Av & Hill Av	30-45
264	Duarte - Altadena via Duarte Rd & Altadena Dr	60
266	Lakewood - Pasadena via Rosemead Bl & Lakewood Bl	15-35
268	La Cañada - El Monte via Baldwin Av & Washington Bl	25-47
270	Norwalk - Monrovia via Workmanmill Rd & Peck Rd	40-60
275	Cerritos - Whittier via Artesia Bl, Valley View Av & Carmenita Rd	60
439	Aviation Station - Downtown LA/Union Station via LAX, Westchester, Culver City & Los Angeles	40-55
444	Rancho Palos Verdes - Downtown LA via Hawthorne Bl-Harbor /I-110 Fwy	10-45
445	San Pedro - Union Station via Pacific Av, First St, Harbor Beacon Park Ride Lot & Harbor Transitway	40
607	North Inglewood Community Shuttle	40
608	Crenshaw Connection	60
645	Woodland Hills - West Hills via Valley Circle Bl. & Mulholland Dr.	20-60
684	Pomona - Brea via Holt Bl & Diamond Bar Bl	40-45



## APPENDIX E: ROUTE PERFORMANCE INDEX

The route performance index is designed to provide an objective measure of a bus route's performance relative to other similar types of service. The index is based on system ridership and financial targets from the FY 2007 Operating Budget. The following categories are used during the performance evaluation process:

- Metro Express
- Metro Rapid
- Metro Local
- Metro Rail/Feeder Shuttles

The evaluation process focuses on four factors:

- **Utilization of Resources** – Boardings per service hour is used as a measure to determine how effectively resources are being used. This measure is determined by dividing the total number of boardings on the line by the service hours operated. Routes having a higher number of passengers per hour represent a better utilization of resources such as buses, operators and fuel.
- **Utilization of Capacity** - Passenger miles per seat miles is the measure used to evaluate how well the seating capacity of the system is being used. Passenger miles are calculated by multiplying the average distance traveled per passenger by the number of passengers using the service. Seat miles are calculated by determining the number of seats per vehicle and multiplying by the number of vehicles on the route and then by the number of service miles operated. The higher the resulting number, the greater the utilization of system capacity.
- **Fiscal Responsibility** - Subsidy per passenger is the measure for fiscal responsibility. Subsidy refers to the amount of public funding required to cover the difference between the cost of operation and the passenger revenues collected. Higher subsidy services require more public funding support.
- ~~**Passenger Comfort** – Load factor compliance ratio to indicate percent of observed time interval with load ratio less than or equal to 1.20.~~

The index for passengers per service hour and passenger miles per seat miles are normalized measures where the performance of the individual route is divided by the standard set for the category. The subsidy per passenger measure is an inverse relationship and is therefore calculated by dividing the category standard by the individual routes performance.

The following formula is used to develop the route performance index:

$$\text{Route Performance Index} = [(BSH_i / BSH) + (PMSM_i / PMSM) + (SUB / SUB_i)] + (LF_i / LF) / 4.3$$

### Explanation of Variables

BSH	Category average for boardings per service hour performance measure
PMSM	Category average for passenger miles per seat miles performance measure
SUB	Category average for subsidy per passenger performance measure
LF	<del>Category average for load factor conformance measure</del>



- BSH<sub>i</sub> Individual boardings per service hour measure for route during evaluation period
- PMSM<sub>i</sub> Individual passenger miles per seat miles measure for route during evaluation period
- SUB<sub>i</sub> Individual subsidy per passenger measure for route during evaluation period The route performance index is calculated and reported annually. The performance measurement standards for each route category are to be set annually relative to the percentage improvement of overall system performance relative to the previous years performance. This percentage improvement will be based on the performance objectives outlined in the Metro Operating Budget.

~~LF<sub>i</sub> Individual load factor conformance measure~~

The method for establishing the Route Performance Index standard for each category includes the following:

- Obtaining the budget performance measurement targets for FY 2004-7, and
- Increasing the average category performance measurement by the percentage increase established for that measure.

The mathematical explanation for this process is as follows:

$$BSH_y = F_H \{ (1/n) \Sigma (BSH_i) \} \quad PMSM_y = F_C \{ (1/n) \Sigma (PMSM_i) \} \quad SUB_y = F_S \{ (1/n) \Sigma (SUB_i) \} \quad \text{LF}_y = F_x \{ (1/n) \Sigma ($$

**Explanation of Variables**

- BSH<sub>y</sub> Individual boardings per service hour performance measure for route for previous year
- PMSM<sub>y</sub> Individual passenger miles per seat mile performance measure for route during previous year
- SUB<sub>y</sub> Individual subsidy per passenger performance measure for route during previous year
- ~~LF<sub>y</sub> Individual load factor conformance measure during previous year~~
- Σ Summation of all data items
- F<sub>H</sub> Passenger boardings per service hour adjustment relative to annual budget performance measurement goal
- F<sub>C</sub> Passenger miles per seat miles adjustment factor relative to annual budget performance measurement goals
- F<sub>S</sub> Subsidy per passenger adjustment factor relative to annual budget performance measurement goals
- ~~F<sub>x</sub> Individual load factor conformance measure relative to 120% loading standard.~~

The result of this calculation would be the standard for the category for the remainder of the fiscal year.



**Index For Selected Bus Routes**

To better illustrate how the index would vary according to the performance of an individual route, the performance index for three local bus routes was calculated using operating statistics from FY 2006. These bus routes include Line 207 Western Ave. which is one of the most heavily patronized bus lines in the system; Line 2 Sunset Blvd., which is a line that performs very close to the group average for local bus routes, and Line ~~225/226 San Pedro - Palos Verdes Dr. 170 El Monte - Montebello~~ which is a low ridership bus route.

The resulting performance indices are shown in the following table. Line 207 Western Avenue has an index of ~~1.5~~ 1.59, more than two times the .60 minimum performance index. The performance index for Line 2 Sunset Boulevard is 0.97, about 50 percent above the minimum performance standard. Line ~~225/226 San Pedro - Palos Verdes Dr. 170 El Monte - Montebello~~ has a productivity index of ~~0.38~~ 0.36, which is well below the minimum performance standard, and according to the transit policy, this service required corrective action.

**ROUTE PERFORMANCE INDEX FOR SELECTED LOCAL BUS ROUTE**

Line Number	Name of Line	Service Type	Subsidy per Psgr.	Boardings per Revenue Hr.	Psgr. Miles Per Seat Miles	Load Factor Conformance e-rate	Performance Index
207	WESTERN AVE.	Local	\$0.79	85	0.46	97.60%	1.59
2	SUNSET BLVD. - BEVERLY DR.	Local	\$1.75	50	0.42	98.70%	0.97
170	EL MONTE - MONTEBELLO	Local	\$4.17	25	0.10	100.0%	0.36



APPENDIX F: SERVICE CHANGE EVALUATION WORK SHEET



**SERVICE CHANGE EVALUATION WORKSHEET**

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
HEADWAY	Travelttime, Wait Time	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**

(# of Boardings on Trips within 20-min(peak) or 60-min(off-peak) window) x (-5 x Change in Avg Headway in window)  
 Impacts should be expressed as a positive value if a trip is added; a negative value if a trip is removed  
 If Headway change results from adding/removing a short turn, then use ridership on affected line segment  
 If the headway change involves a rail line and there is alternative bus service available, then use the combined headway change for both service.

DX  
X-255

SA  
X-62

SU  
X-58

Annualized Change in  
Passenger Minutes





**SERVICE CHANGE EVALUATION WORKSHEET**

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
REROUTE	Travelttime, Access Time	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**

(# of Passengers on affected line segment during time periods impacted) x (Change in Avg Trip Length in min.)  
 + (1/2 of # of Boardings on affected line segment during time periods impacted) x (Change in Access Time)  
 Change in Access Time based on 5 min. for 1/4 mile and prorated to actual distance to deviated route segment

If route deviation is greater than 1/4 mile from original routing, then substitute one of the following for the second part of above calculation:  
 If alternative service is available within 1/4 mile of original routing, then use  
 + (1/2 of # of Boardings on affected line segment during time periods impacted) x (Change in Access Time to alternate route)  
 + (# of Boardings on affected line segment during time periods impacted) x (Change in Wait Time, if any)  
 Change in Wait Time calculated as 1/2 of (prior headway less alternate headway)

If the alternative service is Muni service then include the change of the boarding cash fare. The conversion rate for converting money into time is 37.5 cents per minute.  
 + (1/2 of # of Boardings on affected line segment during time periods impacted) x (Change in Access Time to alternate route)  
 + change in the cash boarding fare.

If no alternative service available within 1/4 mile of original routing, then use  
 + (# of Boardings on affected line segment during time periods impacted) x (Avg Trip Length + 1/2 Headway + 2.5 min.)

DX  
X-255

SA  
X-62

SU  
X-58

Annualized Change in Passenger Minutes





**SERVICE CHANGE EVALUATION WORKSHEET**

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
ROUTE or SEGMENT	Traveltime, Wait Time, Access Time	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**

Add Route or Segment:  
 (Projected Riders) x (Avg Trip Length in min.)

Remove Route or Segment:  
 No alternate service within 1/4 mile:  
 (Boardings on route or segment) x (Avg Trip Length in min.)

Alternate service within 1/4 mile:  
 (Boardings on route or segment) x (Change in Wait Time + Change in Access Time)  
 Change in Wait Time is 1/2 of difference in headways  
 Change in Access Time is 1/2 of distance between routes prorated based on 5 min. for 1/4 mile

If the alternate service is a Muni service, then include the change in the cash boarding fare.  
 The conversion rate for converting money into minutes is 37.5 cents per minute.  
 The expanded formula is:  
 (Boardings on route or segment) x (Change in Wait Time + Change in Access Time + Change in Cash Boarding Fare)

DX  
X-265

SA  
X-62

SU  
X-68

Annualized Change in Passenger Minutes





**SERVICE CHANGE EVALUATION WORKSHEET**

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
SERVICE TYPE	Traveltime, Wait Time	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**

Adding a Service Type:  
 $(1/2 \text{ of Original Type riders}) \times (\text{Change in Original Type Wait Time})$  [negative value]  
 $+ (1/2 \text{ of Original Type riders}) \times (\text{Change in Avg Trip Length in min. less Change in Wait Time for New Type})$  [positive value]

Removing a Service Type:  
 $(\text{Removed Type riders}) \times (\text{Change in Wait Time less Change in Avg Trip Length in min.})$   
 where Change in Wait Time is positive value and Change in Avg Trip Length is negative value

	DX X-255	
	SA X-62	
	SU X-68	

Annualized Change in  
Passenger Minutes





**SERVICE CHANGE EVALUATION WORKSHEET**

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
SPAN OF SERVICE	Travelttime	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**

(# of Boardings per Trip) x (# of Trips Added/Removed) x (Avg Trip Length in minutes)  
 For existing service (being removed), use current ridership [Express as negative value]  
 If alternate service available within 1/4 mile, then use Access Time and Wait Time instead of Avg Trip Length for affected passengers  
 Assume Wait Time is 1/2 Headway (in min) of destination service  
 Assume Access Time is 5 min. for 1/4 mile and pro-rate accordingly  
 If the alternative service is a Muni service, then include the change in the cash boarding fare.  
 Use 37.5 cents per minute in order to convert money into minutes.  
 For proposed service (being added), use projected ridership — or — assume .75 x avg boardings per trip for adjacent time period(s)

DX  
X-265

SA  
X-62

SU  
X-58

Annualized Change in Passenger Minutes







**SERVICE CHANGE EVALUATION WORKSHEET**

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
TRANSFER	Wait Time, Access Time	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**

Occurs when a line is split or combined; also may occur when a duplicated segment is removed  
 (# of Passengers on affected line segment during time periods impacted) x ((Access Time) + (Wait Time))

When lines are combined, Access Time and Wait Time are removed and impact will have a positive value  
 When line is split, or duplicate segment is removed, impact will have a negative value  
 If point of line break is a shared stop, use 2 min. for Access Time, otherwise use prorated share of 5 min. for up to 1/4 mile (with a 2 min. minimum)  
 If the line duplication results in patrons having to transfer onto a Muni line, then the change in cash boarding fare needs to be included. The conversion factor for converting the money into time is 37.5 cents per minutes.  
 If transfers are timed, use 0 min. for Wait Time, otherwise use 1/2 of Headway of destination line

DX  
X-265

SA  
X-52

SU  
X-68

Annualized Change in Passenger Minutes





**SERVICE CHANGE EVALUATION WORKSHEET**

**ROUTE:**

**IMPLEMENTATION DATE:**

**ANALYST:**

**SECTOR:**

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
TRAVELTIME	Traveltime	<input type="checkbox"/> Ridership: <input type="checkbox"/> Schedule:

**DESCRIPTION OF CHANGE:**  
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)  
 (Note alternate service(s), if applicable)

**DETERMINATION OF IMPACTS:**  
 (# of Passengers on affected line segment during time periods impacted) x (Change in Avg Trip Length in minutes)  
 Impacts should be expressed as a positive value if running time is reduced; a negative value if running time is increased

DX  
X-255

SA  
X-62

SU  
X-68

Annualized Change in Passenger Minutes



APPENDIX F: SERVICE CHANGE ANALYSIS WORKSHEET

SAMPLE

METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS																	
Ridership and performance data from 4th Qtr FY06																	
Line	Line Name	Line Type	Proposal	Existing Line Total Ridership			Estimated Ridership Impacts			Line Performance Data			Revenue Service Hours				
				Week-day	Sat.	Sun.	Annual	Week-day	Sat.	Sun.	Nature of Impacts	Perf. omance Index*	Pages./ Rev. Hr.	Subsidy/ Boarding	Annual RSH	Proposed Annual RSH	Net Change In Cost
60090	Long Beach-downtown Los Angeles-via Long Beach Bl & Santa Fe Av	Local	Reassess line due to start-up of new Rapid Bus Line 100. The current Rapid Bus Line Station and downtown Los Angeles Service south of Avenue B is proposed to be replaced by Long Beach Transit Line 51.0M service from Long Beach to Santa Fe Av or Long Beach Transit Line 500. Ter 1 (discontinued)	30,277	22,843	18,309	9,954,301	557	572	519	Transit Performance Index	1.11	03	128	157,618		\$0
Source: 4th Qtr. FY06 Line Performance Index																	
Note: * 1,000 is the avg. Performance Index value for each line type (Local, Express, Shuttle, Rapid). Line below 0.60 are considered poor performing lines.																	
EXISTING SERVICE LEVELS AND ROUTE LENGTH METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS																	
Line	Line Name	Line Type	Proposal	Average Service Levels (mils)			Proposed Average Service Levels (mils)										
				Week-day Peak	Weekday-Mid-Week	Sat. Sun	Week-day Peak	Weekday-Mid-Week	Sat. Sun								
60090	Long Beach-downtown Los Angeles-via Long Beach Bl & Santa Fe Av	Local	Reassess line due to start-up of new Rapid Bus Line 100. The current Rapid Bus Line Station and downtown Los Angeles Service south of Avenue B is proposed to be replaced by Long Beach Transit Line 51.0M service from Long Beach to Santa Fe Av or Long Beach Transit Line 500. Ter 1 (discontinued)	4	5	5	9.0	22.9	4	5	5	9.0					



SAMPLE

**METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS**

Ridership and performance data from 4th Qtr FY06

Line	Line Name	Line Type	Proposal	Existing Line Total Ridership			Estimated Ridership Impacts			Line Performance Data			Revenue Service Hours			
				Week- day	Sat.	Sun.	Week- day	Sat.	Sun.	Perf- ormance Index*	Pgrs./ Rev. Hr.	Subsidiy / Boarding	Annual RSH	Proposed Annual RSH with new Line	Net Change In Annual RSH	Net Change In Cost
80/81	J.A. Symar via Foothill Bl	Local Tier 2	Shorten northern terminal at Foothill and service in Sunland; remainder of route proposed to be served by new Line 290	7,074	4,313	3,078	784	417	-	0.840	39	2.38	55,539	0	\$0	
92	L.A. Burbank via Glendale Bl	Local Tier 2	Shorten northern terminal at Downtown Burbank Station; remainder of route proposed to be served by new Line 292	8,564	5,397	4,713	869	675	578	0.78**	37**	2.48**	292	0	\$0	
164	Burbank Bl-Overland St	Local Tier 2	Cancel midday and Saturday service; Reallocate resources to relieve overcrowding on major corridors	4,192	2,540	399,013	-	-	-	0.53	22	4.71	19,987	7,931	-6,056	-4,423,834
152				10,744	6,937	4,193,024	-	-	-	1.00	55	1.55	76,865	-	-	-
155	Universal City Station- Downtown Burbank Station via Alameda Av	Local Tier 3	Cancel late night and weekend service; Reallocate resources to relieve overcrowding on major corridors (Part of Line 152, prior to 12-17-06)	see above	see above	see above	17	417	248	N/A	10	N/A	8,287	4,131	-4,156	-3,290,820
168	Lessen St-Station Bl	Local Tier 3	Cancel service; Reallocate resources to relieve overcrowding on major corridors	347	8,440	4,621	347	-	-	0.530	21	4.91	4,157	0	-4,157	-3,290,885
224				13,738	8,440	4,621	4,108,083	-	-	1.10	62	1.30	66,416	50,087	-16,329	-3,584,431
183	Magnolia Bl-Kenneth Rd- Cherry Chase Dr.	Local Tier 2	Shorten eastbound terminal at Alameda Avenue and San Fernando Road in Glendale and reroute service via San Fernando Rd and Verbuigo Avenue to Downtown Burbank or Downtown Burbank Station (Branch of 294)	see above	see above	see above	544	306	283	N/A	20	N/A	see above	see above	see above	\$0
230				8,850	3,328	2,339	2,004,801	-	-	0.85	46	1.97	43,804	38,228	-5,576	-3,980,341
239	White Oak Av-Zobah Av- Rialto St	Local Tier 2	Cancel midday and weekend service; Reallocate resources to relieve overcrowding on major corridors	see above	see above	see above	382	472	304	N/A	24	N/A	see above	see above	see above	\$0
New Line 290	Sylmar-Sunland via Foothill Bl	Local Tier 3	Proposed new line operating between Olive View Medical Center and Mt. Wilson loop in Sunland, replacing the northern segment of former Line 80/81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$0
New Line 292	Sylmar-Burbank via Glendale Bl	Local Tier 3	Proposed new line operating between Sylmar/San Fernando Medical Station and Downtown Burbank Station, reducing segment of Line 92 operating north of Downtown Burbank (Branch of Line 159)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$0
158	Phonema Dry-Downtown LA Owl	Shuttle Tier 2	Shorten over at Santa Monica and Highland Av. (Branch of Line 158)	3,797	1,984	1,527	1,144,688	-	-	0.58	28	3.87	43,572	41,382	-2,190	-3,163,307
659				see above	see above	see above	122	106	92	N/A	18	N/A	-	-	-	\$0
Study Express Line	Tri-City Transit Link	Express Line	North Hollywood Road/Orange Line Station and Pasadena Gold Line with two in-route stops, one in Burbank (Media District) and the other in Glendale (off of 154th-Innenway)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$0

Source: 4th Qtr FY06 Line Performance Index

\*\*Source: FY06 Line Performance Index

\* 1.000 is the avg. Performance Index value for each line type (Local, Express, Shuttle, Rapid) Line below 0.80 are considered poor performing lines



SAMPLE

METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS

EXISTING SERVICE LEVELS AND ROUTE LENGTH  
METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS

Line	Line Name	Line Type	Proposal	Average Service Levels (min.)				Route Length (miles)	Proposed Average Service Levels (min.)			
				Weekday - Peak	Weekday - Mid-Day	Sat	Sun		Weekday - Peak	Weekday - Mid-Day	Sat	Sun
8091	L.A. Subway via Fashion Bk.	Local Tier 2	Shorten northern terminal at Fashion and Fenwick in Santa Fe. Remainder of route proposed to be served by new Line 292.	7-12	30	30	30	30.3	10	30	30	30
92	L.A. - Burbank via Glendale Bk.	Local Tier 2	Station. Remainder of route proposed to be served by new Line 292.	12	20	20	20	25.8	12	15	20	20
154	Burbank Bk. - Chard St.	Local Tier 2	Cancel midday and Saturday service. Reallocate resources to relieve overcrowding on major corridors.	30	60	60	NA	17.9	30	NA	NA	NA
155	Downtown City Station via Alameda Av.	Local Tier 3	Cancel late night and weekend service. Reallocate resources to relieve overcrowding on major corridors.	60	60	60	60	6.9	60	60	NA	NA
168	Lassen St. - Patton St.	Local Tier 3	Cancel service. Reallocate resources to relieve overcrowding on major corridors.	60	NA	NA	NA	15.2	NA	NA	NA	NA
183	Magolda Bk. - Kenneth Rd. - Cherry Chase Dr.	Local Tier 2	Shorten eastbound terminal at Alameda Avenue and San Fernando Road in Glendale and reroute service via San Fernando Rd and Verdugo Avenue to Downtown Burbank or Downtown Burbank Station.	30-60	30-60	30-60	30-60	21.0	30	30	30	60
238	White Oak Av. - Zebush Av.	Local Tier 2	Cancel service and weekend service. Reallocate resources to relieve overcrowding on major corridors.	45	60	60	60	14.3	45	NA	NA	NA
658	Panorama City - Downtown L.A. Owl	Shuttle Tier 2	Shorten owl at Santa Monica and Highland Av.	60 (Weekday, Saturday, and Sunday, late PM, early AM only)	60	60	60	24.1	60 (Wednesday, Saturday, and Sunday, late PM, early AM only)	60	NA	NA



SAMPLE

**METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS**  
Ridership and performance data from 4th Qtr FY06

Line	Line Name	Line Type	Proposal	Existing Line Total Ridership			Estimated Ridership Impacts			Line Performance Data				Net Change in Annual RSH	Net Change in Cost		
				Week-day	Sat.	Sun.	Week-day	Sat.	Sun.	Nature of Impacts	Perf. Index*	Subsidy/ Boarding	Annual RSH			Proposed Annual RSH	
170	El Monte - Montebello	Local	Cancel line & replace with extension of Line 287 and Glassell Park. Metro will refer its 35 foot RTS Buses which are 25 years old. Standard size buses can not safely operate on the Streets in the Mt. Washington area.	400	0	0	102,000	70	0	0	Walk 1/4 mile	0.512	\$4.34	3,774	0	-3,774	-\$264,180
176	El Monte - Glassell Park	Local		1,235	0	0	314,804	115	0	0	No replacement Service	0.810	\$3.67	11,450	11,400	-50	-\$3,465
287	El Monte Sta. - Sierra Madre Villa Sta.	Local	Extend to Montebello Town Center	1,400	700	600	428,200	490	0	0	Est. increase in ridership due to better freq.	TBD	TBD	19,600	21,000	7,400	\$518,000
280/281	Altadena - North Long Beach	Local	Cancel route south of Altadena & Alondra due to lower ridership and duplication with Long Beach Transit routes.	18,300	11,000	8,608	5,751,935	840	570	420	Transfer	1.01	\$1.52	103,769	98,000	-5,769	-\$403,851
684	Pomona - Brea Mall	Local		615	281	178	181,793	450	195	195	Transfer	0.46	\$7.91	13,194	0	-13,184	-\$822,873
686	Arroyo Pkwy. - N. Allen Av. Shuttle	Shuttle	Cancel line due to low ridership	1,050	570	387	318,634	190	130	65	No replacement Service	0.66	\$4.58	14,054	14,054	0	\$0
687	Los Robles Av. - Fair Oaks Av. Shuttle	Shuttle	Combine with Line 687 & modify route to serve a higher demand corridor.	1,196	827	495	376,791	190	120	85	Walk 1/8 mi.	0.74	\$3.73	13,901	13,901	0	\$0
751	Soto St. Rapid Bus	Rapid	Cancel route south of Long Beach Bl. & Palm Pl. due to duplication with new Rapid Line 760.	8,380	3,409	0	2,309,178	871	0	0	Transfer	1.06	\$1.45	40,280	38,000	-4,290	-\$300,321

Note: Cost is based on marginal rate of 70/mph

**EXISTING SERVICE LEVELS AND ROUTE LENGTH METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS**

Line	Line Name	Line Type	Proposal	Average Service Levels (min.)			Route Length (miles)
				Wkday - Peak	Wkday - Mid-Day	Sat Sun	
170	El Monte - Montebello	Local	Cancel line & replace with extension of Line 287	90	90	NA	10.1
176	El Monte - Glassell Park	Local	Discontinue service between Highland Park Station and Glassell Park.	60	60	NA	17.3
287	El Monte Sta. - Sierra Madre Villa Sta.	Local	Extend to Montebello Town Center	20	45	60	11.0
280/281	Altadena - North Long Beach	Local	Cancel route south of Altadena & Alondra	7.5	15	15	29.7
684	Pomona - Brea Mall	Local	Cancel line due to low ridership	60	60	60	17.8
686	Arroyo Pkwy. - N. Allen Av. Shuttle	Shuttle	Combine with Line 687 & modify route	20	35	30	8.0
687	Los Robles Av. - Fair Oaks Av. Shuttle	Shuttle	see above	20	30	30	5.8
751	Soto St. Rapid Bus	Rapid	Cancel route south of Long Beach Bl. & Palm Pl.	10	13	20	13.1

Proposed Average Service Levels (min.)			
Wkday - Peak	Wkday - Mid-Day	Sat	Sun
NA	NA	NA	NA
60	60	NA	NA
20	45	45	60
7.5	15	15	15
NA	NA	NA	NA
20	35	30	30
20	30	30	30
10	13	20	NA



SAMPLE

Line	Line Name	Line Type	Proposed	Existing Line Total Ridership				Estimated Ridership Impacts				Line Performance Data				Net Change in Annual RSH	Net Change in Cost
				Week-day	Sat.	Annual	Week-day	Sat.	Annual	Perf. omence Index*	Pgrs./ Rev. Hr.	Subsidy / Boarding	Annual RSH	Proposed Annual RSH			
115	Manchester - Frazzese	Local Tier 1	Cancel service west of Sepulveda Bl. and replace with rerouted Line 625 (Green Line Shuttle World Way West)	18,279	9,931	6,995	680	365.4	257	Transfer	1.16	67	1.18	83,290	81,616	-1,674	-\$117,173
119/126	108th St. - Manhattan Beach Bl.	Local	Cancel service. Alternatives include Line 117 (Century Bl) and Line 120 (Imperial Hwy)	424	N/A	108,079	270	N/A	N/A	Transfer	0.45	18	5.99	6,069	0	-6,069	-\$424,830
120/121	Imperial Highway	Local	Make permanent current demonstration project to restructure service as two separate routes	5,380	2,517	1,592,882	N/A	N/A	N/A	N/A	0.83	45	2.03	35,579	35,579	0	\$0
124	El Segundo Bl.	Local	Cancel service. Alternatives include Line 125 (Rosecrans Av) and the Metro Green Line	1,095	N/A	289,056	1,060	N/A	N/A	Transfer	0.60	32	3.12	8,810	0	-8,810	-\$816,700
202	Wilkinson - Compton	Local	Cancel service. Alternatives include the Metro Blue Line, the Hahn Trolley, Compton Renaissance, and Line 205 (Wilmington Av)	633	N/A	135,915	470	N/A	N/A	Transfer & Reduced Travel Time	0.49	20	5.32	6,960	0	-6,960	-\$486,185
214	Harbor Green Line via Broadway/Metro St	Local	Cancel service on Broadway. Continue service on Main St and extend to Western Av and Imperial Hwy via El Segundo Bl.	505	N/A	128,775	210	N/A	N/A	Transfer	0.51	18	3.14	7,013	7,013	0	\$0
305	Crossdown Bus	Limited Tier 2	Cancel service north of Pico Bl. Alternatives include Line 500 (W. Hollywood-San Pedro) and Line 2302 (Sunset Bl)	2,468	1,523	780,933	1,190	710	592	Transfer	0.59	25	4.12	31,399	19,949	-11,450	-\$801,465
442	Hawthorne - Inglewood - Los Angeles Express	Express	Cancel service. Alternatives include Line 315 (Metro Center - Harbor) Line 400 (Pawnee Metro) and the Harbor Transfer	210	N/A	53,546	220	N/A	N/A	Transfer & Increased Travel Time	0.65	14	7.72	9,800	0	-9,800	-\$265,965
445	Los Angeles - San Pedro Express	Express	Consider converting some peak hour trips to faster service via Line 455X	1,180	754	378,750	100	N/A	N/A	Reduced Travel Time	0.88	21	4.86	17,659	15,123	-2,536	-\$198,495
455X	7th/Metro - Harbor Beacon Park-Rite Super Express	Express Tier 2	Consider new peak hour service with one stop at Harbor Metro Green Line Station	N/A	N/A	N/A	200	N/A	N/A	Reduced Travel Time	N/A	N/A	N/A	2,966	2,966	0	\$207,620
622	Late Night Service	Shuttle Tier 3	Cancel service	21 per night	N/A	8,787	3	N/A	N/A	No access to public transportation	0.39	8	11.64	1,570	0	-1,570	-\$108,865
625	Green Line Shuttle World Way West	Shuttle Tier 3	Extend to Playa del Rey to replace Line 115 west of Sepulveda Bl.	399	-	101,745	690	351	243	New Riders	0.50	11	5.90	9,639	18,849	7,210	\$504,700
710	Crenshaw - Vine Metro Rapid	Rapid Tier 1	Cancel service north of Wilshire Bl. on Rosemead Av. and Vine St. and reroute to new northern terminal at Wilshire/Venison Metro Red Line	9,318	4,694	2,615,428	1,650	815	N/A	Transfer	1.07	55.62	1.92	47,024	45,317	-1,707	-\$329,511
740X	Hawthorne	Rapid Tier 1	Implement new Rapid Express service between South Bay Transit Center and Patsouras Transit Plaza	N/A	N/A	N/A	Approx. 500	N/A	N/A	Reduced Travel Time	N/A	N/A	N/A	1,658	1,658	0	\$116,060

Source: 4th Qtr. FY 06 Line Performance Index

Note: Cost is based on marginal rate of 70¢/veh

\* 1.000 is the avg. Performance Index value for each line type (Local, Express, Shuttle, Rapid). Line below 0.80 are considered poor performing lines.



SAMPLE

METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS														
EXISTING SERVICE LEVELS AND ROUTE LENGTH														
METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS														
Line	Line Name	Line Type	Proposed	Average Service Levels (min.)			Proposed Average Service Levels (min.)			Route Length (miles)	Weekday - Peak	Weekday - Mid-Day	Sat	Sun
				Weekday - Peak	Weekday - Mid-Day	Sat	Sun	Weekday - Peak	Weekday - Mid-Day					
115	Manchester - Firestone	Local	Cancel service west of Sepulveda Bl. and replace with extended Line 625 (Green Line Shuttle World View West)	6	15	15	20	23.0	6	15	15	20	NA	
119/120	100th St. - Manhattan Beach Bl.	Local	Cancel service. Alternatives include Line 117 (Century Bl) and Line 120 (Imperial Hwy)	60	NA	NA	NA	20.8	NA	NA	NA	NA	NA	
120/121	Imperial Highway	Local	Make permanent current demonstration project to restructure service as two separate routes	25	30	30	30	10.2	25	30	30	30	30	
124	E Sepulveda Bl.	Local	Cancel service Alternatives include Line 125 (Rosemead Av) and the Metro Green Line	20	30	30	30	19.5	NA	NA	NA	NA	NA	
202	Wilbrook - Compton	Local	Blue Line, the Heint Trolley, Compton Renaissance, and Line 205 (Wilmington Av)	30	NA	NA	NA	18.1	NA	NA	NA	NA	NA	
214	Wilmington Center - Harbor Green Line via Broadway/Main St	Local	Cancel service on Broadway. Continue service on Main St via Western Av and Imperial Hwy via E Sepulveda Bl.	20	NA	NA	NA	10.7	20	NA	NA	NA	NA	
305	Crosstown Bus	Limited	Cancel service north of Pico Bl. Alternatives include Line 550 (W. Hollywood-San Pedro) and Line 2202 (Sunset Bl)	30	45	60	60	24.6	30	45	60	60	60	
442	Hawthorne - Inglewood - Los Angeles Express	Express	Cancel service. Alternatives include Line 315 (Manchester Limited), Line 740 (Hawthorne Metro Rapid) and the Harbor Transitway	20	NA	NA	NA	15.9	NA	NA	NA	NA	NA	
445	Los Angeles - San Pedro Express	Express	Consider converting some peak hour trips to faster service via Line 455X	30	60	60	60	28.2	30	60	60	60	60	
622	Late Night Service	Shuttle	Cancel service	60 (Weekday, Saturday, and Sunday, late PM, early AM only)	NA	NA	NA	20.5	NA	NA	NA	NA	NA	
625	Green Line Shuttle World View West	Shuttle	Green Line Shuttle World View West	20	NA	NA	NA	18.9	20	NA	NA	NA	60	
710	Crenshaw - Vine Metro Rapid	Rapid	Cancel service north of Wilshire Bl. on Rosemead Av. and Vine St. and route to new northern terminal at Wilshire-Vestavia Metro Red Line Station. Alternative services to Hollywood via Line 210 (Vine-Crenshaw Local) or Line 757 (Western Metro Rapid)	10	20	20	20	18.2	10	20	20	20	NA	





SAMPLE

### METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS

Ridership and performance data from 4th Qtr FY06

Line	Line Name	Line Type	Proposed	Existing Line Total Ridership			Estimated Ridership Impacts			Line Performance Data			Revenue Service Hours					
				Week-day	Sat.	Sun.	Week-day	Sat.	Sun.	Perf. omniares Index*	Subsidy / Boarding	Annual RSH	Proposed Annual RSH	Net Change in Annual RSH	Net Change in Cost			
4-304	Santa Monica Blvd.	Local	Replace Line 304 with new Rapid Line service available via Santa Monica Line 1.	35,490	28,151	22,938	-21,746	-18,230	-15,009	0.89	54	1.58	218,038	123,860	-92,418	\$9,771,438		
10/11/48	Wilshire Ave. - Virgil Ave. - Vermont Ave. - Temple St. - Santa Fe Ave. - St. San Pedro St.	Local	Discontinue Line 11. Alternative service available via Metro Lines 10 and 11 to simplify service.	18,471	9,751	9,301	383	109	0	Transfer	0.83	51	1.08	84,240	84,240	0	\$0	
16-316	W. 3rd St.	Local	Extend Line 316 limited stop service area to La Brea Ave. Shorten route of Lines 16 & 316 in downtown L.A. at 8th St. and Maple Ave. Alternative service available on 5th/6th Streets between Maple and Central Avenues via Metro Lines 16 & 316. Alternative service on 3rd/4th Sts. via Metro Lines 16 & 316.	30,886	22,388	17,189	10,051,146	821	824	801	Transfer	1.20	71	1.06	136,146	130,827	-5,319	\$372,309
20-21	Wilshire Blvd. - UCLA - Santa Monica	Local	Implement new Rapid service on Santa Monica Line 2. Alternative service on Westwood Blvd. via Metro Lines 17, 2, 3, 5, 7, 12, 13, 14, 15, and 16.	22,454	14,213	12,163	7,185,900	1,940	970	829	Transfer	0.88	47	1.90	142,958	133,677	-9,281	\$829,874
7-20	New 704 Santa Monica Blvd. Metro Rapid	Rapid	Implement short turns in Westwood and Vermont Ave. - Temple St. - Santa Fe Ave. - St. San Pedro St.	N/A	N/A	N/A	N/A	19,889	18,806	14,222	Passenger shift from 4-304	N/A	N/A	N/A	92,449	92,449	\$6,471,430	
7-20	Wilshire - Wilshire	Rapid	Implement new Rapid Express service between Wilshire/Vermont Road Line station and downtown	48,104	31,700	26,088	15,451,106	N/A	N/A	N/A	0.91	57.01	1.71	258,107	206,686	-52,421	\$3,689,498	
TBD	Wilshire Express	Rapid	Implement new Rapid Express service between Wilshire/Vermont Road Line station and downtown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$2,811,700	

Source: 4th Qtr FY06 Line Performance Index

### EXISTING SERVICE LEVELS AND ROUTE LENGTH METRO SERVICE SECTOR SERVICE CHANGE ANALYSIS

Line	Line Name	Line Type	Proposed	Average Service Levels (min)			Route Length (miles)	Proposed Average Service Levels (min)			
				Week-day Peak	Week-day Mid-Day	Week-day Sat		Week-day Peak	Week-day Mid-Day	Week-day Sat	
4-304	Santa Monica Blvd	Local	Replace Line 304 service with new Rapid Line	4	6	6	20.0	4	6	6	7.5
10/11/48	Wilshire - Wilshire	Local	Discontinue Line 304	6	15	10	28.7	6	16	10	15
16-316	W. 3rd St.	Local	Extend Line 316 limited stop service area to La Brea Ave. Shorten route of Lines 16 & 316 in downtown L.A. at 8th St. and Maple Ave.	3	7.5	7	13.0	3	7.5	7	9
20-21	Wilshire Blvd. - UCLA - Santa Monica	Local	Shorten Line 20 service at Wilshire Blvd. and Westwood Blvd. via Metro Lines 17, 2, 3, 5, 7, 12, 13, 14, 15, and 16.	5	10	10	17.1	5	10	10	10
704	Santa Monica Rapid	Rapid	Implement new Rapid service on Santa Monica Blvd.	N/A	N/A	N/A	N/A	6	14	12	15
720	Wilshire - Wilshire	Rapid	Implement short turns in Westwood and Vermont Ave. - Temple St. - Santa Fe Ave. - St. San Pedro St. and Wilshire/Vermont Metro Rapid Line Station.	2	8	6	22.8	3-4	6	6	9
TBD	Wilshire Express	Rapid	Implement new Rapid Express service between Wilshire/Vermont Metro Rapid Line Station.	N/A	N/A	N/A	N/A	6 in peak direction	N/A	N/A	N/A

\* 1,000 is the avg. Performance Index value for each line type (Local, Express, Short Turn, Rapid). Line Indexes 0.80 are considered poor performing lines.



## APPENDIX G: PUBLIC HEARING GUIDELINES

### MTA Board Adopted Public Hearing Guidelines

- ~~I. Measures to Determine Major Service Changes That Require a Public Hearing~~
- ~~A. More than 25% of the transit route miles;~~
  - ~~B. More than 25% of the transit revenue vehicle miles;~~
  - ~~C. A new transit route is proposed;~~
  - ~~D. Experimental service changes may be instituted for 180 days or less without prior notification. A public hearing must be held during that time if the experiment is to remain in effect for more than 180 days;~~
  - ~~E. If a number of changes on a route in an operator's fiscal year add up to the percentages noted in A and B above, a hearing must be held prior to the last change;~~
  - ~~F. Standard seasonal variations in transit service are exempt from public hearing requirements unless the number, timing or type of service changes meets above criteria;~~
  - ~~G. Emergency service changes may be instituted for 180 days or less without prior notification. A public hearing must be held during that time if the emergency service is to remain in effect for more than 180 days;~~
  - ~~H. It will not be a major service change if service is replaced without interruption at a level that would not otherwise constitute a major change.~~
- ~~II. Measures for Fare Changes~~
- ~~A. When there is any change in transit fares.~~

### Public Review Procedures

- ~~I. Procedures for Major Service Changes~~
- ~~A. Public Hearing mandatory;~~
  - ~~B. Publish legal notice describing proposed change in service/fares 30 days in advance of the hearing date.~~
  - ~~C. Notice must appear in newspaper of general circulation, and specific neighborhood ethnic papers servicing areas affected by the change.~~
  - ~~D. Place public hearing brochures on transit vehicles and at Customer Service Centers.~~
  - ~~E. Consideration must be given to views and comments expressed by the public in such hearings.~~
  - ~~F. A general assessment must be given to the effect on energy conservation, social, economic, and environmental impacts.~~
  - ~~G. Provide written response to all public testimony.~~
- ~~II. Procedures for Fare Changes~~
- ~~A. Same procedures as shown for major service changes.~~



---

## APPENDIX G H: GLOSSARY OF TERMS

Bus Signal Priority – A system of traffic controls in which buses are given special priority under certain conditions over other forms of transportation.

Community Based Service – These are local or neighborhood oriented services that generally operate with smaller vehicles, serve short distance travel needs, and carry less than 2,000 passengers per day.

Headway Based Schedule – A flexible service schedule where buses depart terminals on a set scheduled headway interval and are expected to maintain those intervals along the entire length of the route without any intermediary timepoints. ~~departure times are based on maintaining a certain interval between departures rather than fixed schedule times.~~

High Capacity Vehicle – Any bus that provides seating for more than 40 passengers. Includes double deck, 45-foot and articulated buses.

Paratransit Service – Service provided with a vehicle smaller than a 40-foot bus. This would include services such as DASH, ACCESS, and Dial-A-Ride services.

Passenger Loading – A measure used to evaluate seating utilization on a transit vehicle. It is usually expressed as the ratio of passengers to seats.

Passenger Mile – Cumulative sum of the distances traveled by each passenger in revenue service.

Service Duplication – When two or more services operate along the same streets, during the same hours of the day and serve common origins and destinations.

Service Warrants – Flexible guidelines used to determine when there is sufficient demand to support a specific type of transit service.

Shopper Survey – A physical interaction survey of operations to ensure conformance to quality, service, and safety standards. Results reported for employee performance, property condition, general liabilities, and product or service quality.

Span of Service - The days and hours when service is available.

Special Event Service – These are services that not part of the regular scheduled daily service to the general public and are oriented toward serving a special venue, on selected days.

Subsidy – The portion of the cost of operation that is not offset by passenger revenues. This can be expressed based on passenger boardings, service hours, passenger miles or other units of operation.

Trunk Service – This is the portion of a bus route or rail line that offers the most frequent service.

