



**GATEWAY CITES GOVERNANCE COUNCIL
DECEMBER 8, 2005**

SUBJECT: NEW BUS STOP ON RAPID BUS LINE 705

**ACTION: APPROVE NEW RAPID BUS STOP AT 18TH STREET AND MAKE
PERMANENT EXPERIMENTAL RAPID BUS STOP AT THIRD STREET**

RECOMMENDATION

1. Approve implementation of new rapid bus stop on La Cienega Blvd at 18th Street ; and
2. Make permanent experimental rapid bus stop established on La Cienega Blvd at Third St in December 2004

BACKGROUND

Metro Rapid Line 705 (Vernon Ave-La Cienega Blvd) was implemented in June 2004 along the route of local Line 105. Together these lines now serve the transit needs of riders and residents living and traveling along the Vernon, Crenshaw and La Cienega Corridors. The rapid line provides limited-stop service along these corridors while the local bus stops virtually every block. Attachment A illustrates the route of Rapid Bus Line 705.

Line 705 operates Monday thru Friday about every 12 minutes during the peaks and 20 minutes at other times. The route is 14.5 miles long and serves 20 bus stops. About 7,000 passengers ride the service each weekday, which equates to about 350 boardings per stop. By contrast, the underlying local service on Line 105 operates every 15 minutes during the peak and 30 minutes at other times. The local route is 21.8 miles long and serves 89 bus stops. About 12,000 passengers ride on weekdays, which averages about 135 boardings per stop.

Since its inception, staff has received on-going requests from the public and operators of the line to add new stops to the rapid bus portion of the route. Initial adjustments were made in December 2004 when a new rapid stop was established on an experimental basis on La Cienega Blvd. at Third St. This change was contingent upon removing an existing rapid stop elsewhere along the alignment. In this case, an existing rapid bus stop at 18th St. was removed and Third St. was substituted in its place. This trade-off was necessary to ally concerns about adding too many stops, which may delay the speed of the rapid bus.

In August 2004, the MTA Board of Directors approved guidelines to better manage and monitor the implementation of the Rapid Bus Program. Attachment B shows the guidelines in question.

Known as “Metro Rapid Program Service Warrants”, these guidelines outline standards for station facilities, corridor alignment, service frequencies and stop locations to name a few. To establish a new rapid bus stop, for example, a set of rigorous standards must be met as shown below:

- The existing local bus stop at the candidate location must have at least 250 daily boardings in any direction;
- The average distance between rapid stops on the line must be no less than .7 (tenths) of a mile; and
- The stop location must pass the “Time Delay Index” rating with a score of less than “5” if the new stop is between 0.5 and 0.7 miles from an existing rapid bus stop.

The TDI was designed to maintain the speed of rapid bus by requiring all new rapid stops to meet a high boarding standard, one we would argue is unrealistic. The use of a uniform standard for all rapid bus lines has created a situation where the majority of rapid bus lines, which carry on average about 9,000 weekday passengers, must compete with the larger lines, such as the Wilshire-Whittier line (Line 720) that carries nearly 50,000 passengers per day. This makes the implementation of needed modifications too small and moderate size rapid bus lines very difficult to achieve given their lower ridership shed. Based on the Time Delay Index (TDI) outlined in the Service Warrants, the 18th St. bus stop generates a value of 8, which is above the threshold of “5” required under the Index. Attachment C shows the TDI calculation for Line 705 and the underlying Local Line 105.

Staff recommends that the former rapid bus stop at 18th St. be reinstated despite its failed performance under the Index. This action is necessary in order to address on-going requests from the public and operators to re-establish rapid bus service in the area. The nearest rapid bus stops to 18th St. are currently located at Pico Blvd. and at Venice and Cadillac St., about .6 and .7 miles to the north and south, respectively. About 150 passengers currently board the local bus at 18th St. on an average weekday. Although the number of boardings is below the 250 boardings required under the Service Warrants, it is not unlike other existing rapid stops served by the 705 line or other lines in its class. Moreover, this location was originally a rapid stop when Line 705 was established and was removed not because of performance issues, but to allow the Third St experiment to go forward.

Staff also recommends that the Third St. rapid bus stop experiment be made permanent. Ridership at this stop is currently averaging about 200 boardings per weekday and we are optimistic that number will continue to increase.

NEXT STEPS

Several service sectors are scheduled to submit similar reports to their respective governance councils in the next month or two. The San Gabriel Valley Council recently approved a staff recommendation to establish a new rapid stop on Line 780 after considering a staff report that identified problems with the current Service Warrants. Later this month or next the Westside-Central Governance Council is also scheduled to consider approval of new stops to a rapid bus line in that sector. Upon approval from the affected governance councils, a joint staff report will

be prepared by the participating service sectors, and submitted to the MTA Board of Directors in January or February of next year for additional consideration and approval.

ATTACHMENTS

Attachment A: Map Line 705

Attachment B: Metro Rapid Service Warrants

Attachment C: Time Delay Index Calculation

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Attachment A



Vernon-La Cienega Metro Rapid

Effective June 2004



- Vernon-La Cienega Metro Rapid and Stops
- Other Rapid Lines



Countywide Planning & Development
March 2004

**Metro Rapid Program
Service Warrants**

PROGRAM PRINCIPAL: 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 (no 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.

Metro Rapid Program Service Warrants

Program Element	Program Component	Program Objective
Stop Location	PLANNING DEPARTMENT RESPONSIBILITIES	
	Station spacing average no less than 0.70 miles	Stop 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. Stop locations must be planned to accommodate either 45-foot or 60-foot buses.
	Far-side station location	Far-side stop locations are required to realize TPS and must be planned at all intersections. 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 require 120 feet of red curb in all cases.
	Full separation from local stop	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.
	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Addition of new stop	Stops may be added only if they exceed 250 daily boardings (100 boardings if within one mile of line terminal) and only where the Time Delay Index ¹ of existing on-board passengers to the additional riders expected at the new stop is (a) less than 5 for the addition of a new stop that is between 0.5 and 0.7 miles from an existing stop; (b) less than 7.5 for the addition of a new stop that is between 0.7 and 1.0 miles; or (c) 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.
	Elimination of stop	Stops may be eliminated only if (a) after the first six 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.

¹ The Time Delay Index is the average on-board passengers arriving at the proposed new stop multiplied by the average delay at the new stop (average expected people to board per trip at the new stop multiplied by one second each plus 30 seconds delay to compensate for vehicle arrival and departure speeds) divided by the average expected boardings at the new stop. The recommended thresholds are based on analysis of available Profile 50 data for the Van Nuys, Florence, and Wilshire-Whittier Metro Rapid corridors.

Metro Rapid Program Service Warrants

Program Element	Program Component	Program Objective
Station Facility	PLANNING DEPARTMENT RESPONSIBILITIES	
	Full Metro Rapid station with canopy	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.
	Double canopies will be installed only at high demand stops	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.
	All stations will be designed to accommodate either 45-foot or 60-foot buses	Farside 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.
	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Station Maintenance Monitoring	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.
Transit Priority	PLANNING DEPARTMENT RESPONSIBILITIES	
	All signalized intersections should provide bus signal priority for Metro Rapid	Signal priority should include terminal movements to reduce operating costs.
	Identification of by-pass lane needs	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.
	Monitor effectiveness of transit priority measures	The effectiveness of the transit priority measures will be periodically analyzed and recommendations will be developed for potential further improvements where warranted.
	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Signal priority at intersections along major deadhead movements is desired	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.

Metro Rapid Program Service Warrants

Program Element	Program Component	Program Objective
Vehicles and Vehicle Planning	PLANNING DEPARTMENT RESPONSIBILITIES	
	Metro Rapid lines are assigned one vehicle size, i.e., 40-ft, 45-ft, or 60-ft articulated	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.
	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Vehicles must be in Metro Rapid livery	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 "red and white" Metro Rapid buses is integral to the operating speed, simplicity of service, and customer experience.
Service Frequencies	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Weekday peak frequency	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.
	Weekday off-peak frequency	The minimum weekday off-peak frequency is 12 minutes or less. Minimum frequency is subject to funding availability and may be relaxed to 15 or 20 minutes in unique, cost-constrained funding situations, or not operated at all during the off-peak; owl service with underlying local owl service may also operate at a frequency up to 20 minutes
	Local service frequency at start-up 75-100% of planned Metro Rapid	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 next shakeup once actual ridership splits are known.
	Cost-neutral operating expense	Consistent with the September 2002 Metro Rapid Board Report, annual corridor revenue hours at start-up will be scheduled within 1% of pre-Metro Rapid corridor revenue hours. Service frequencies may be adjusted thereafter based on passenger demand.
Service Span	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Seven-day service span is desirable	Corridors will be operated consistent with the September 2002 Metro Rapid Board Report. Service span is to be adjusted based on passenger demand, once actual ridership is known.

**Metro Rapid Program
Service Warrants**

Program Element	Program Component	Program Objective
Schedule Development	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Terminal departure timepoints	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.
Operating Protocols	OPERATIONS DEPARTMENT RESPONSIBILITIES	
	Headway interval-managed service operation	Metro Rapid service allows for dynamic optimization of operating speeds through free running time operation following scheduled terminal departures; vehicle spacing must be managed in real time by the BOCC and/or assigned TOSs.

METRO RAPID WARRANTS TIME DELAY INDEX CALCULATION

Metro Rapid Line #

705

 ← Enter Metro Rapid bus line number
 Metro Local Bus Line #

105

 ← Enter Metro Local bus line number
 Stop Location:

La Cienega Blvd & 18t St

 ← Enter Stop location

METRO RAPID SERVICE WARRANTS

- Corridor must meet maintenance of operating speed requirement
- Stops may be added only if existing daily boardings exceed 250 in either direction
- Technical impact analysis memorandum is required, as described in the warrants

EXISTING DATA

- Existing Line 105 daily boardings at La Cienega Blvd & 18t St

NB		SB	
On	Off	On	Off
87	15	59	113

← Enter boardings for Metro Local line

Note: These are all day boardings, including periods of the day that Line 705 is not operating

- Existing Line 705 "on board" at La Cienega Blvd & 18t St

NB	SB
651	582
52	52
13	11

← Enter passengers "on-board" for Metro Rapid line

← Enter number of trips for Metro Rapid line

Average passengers on-board per trip

CALCULATIONS

- New Metro Rapid boardings per trip

NB = 0.8 Based on Line 105 daily boardings of 87 and assuming that every other trip is a Line 705 trip, and that some of those boardings take place outside of the Line 705 spread of service, it is determined that 0.8 new Metro Rapid boardings per trip would use Metro Rapid Line 705

SB = 0.6 Based on Line 105 daily boardings of 59 and assuming that every other trip is a Line 705 trip, and that some of those boardings take place outside of the Line 705 spread of service, it is determined that 0.6 new Metro Rapid boardings per trip would use Metro Rapid Line 705

- Determine added passenger delay by multiplying the average new Metro Rapid boardings by 1 second and adding 30 seconds delay for vehicle arrival and departure

NB: 0.8 x 1 = 0.8 , plus 30 = 30.8 seconds

SB: 0.6 x 1 = 0.6 , plus 30 = 30.6 seconds

- Calculate the TDI by multiplying the average passengers on-board Line 705 per trip by the passenger delay (converted to minutes), and dividing by the new Metro Rapid boardings per trip

NB: 13 x 0.51 = 6.7 , divided by 0.8 = 7.9 TDI

SB: 11 x 0.51 = 5.6 , divided by 0.6 = 9.7 TDI

RECOMMENDATIONS

Based on the above TDI calculations, the proposed stop at La Cienega Blvd & 18t St **does/does not** meet the Stop Location Warrant for either direction and, therefore, is/is not recommended