



**METRO SAN GABRIEL VALLEY GOVERNANCE COUNCIL
NOVEMBER 8, 2005**

SUBJECT: PROPOSED ADDITION OF NEW RAPID BUS STOP ON CENTRAL AVENUE AT COLORADO STREET IN THE CITY OF GLENDALE ON LINE 780 (PASADENA-GLENDALE-HOLLYWOOD RAPID BUS)

ACTION: APPROVE

BACKGROUND

Metro Rapid Line 780 was initiated in December 2004. This 16.5 mile long Rapid Line has 16 paired bus stops and attracts about 6,300 passengers per day. This results in an average of about 180 boarding passengers per bus stop. By comparison, the underlying local bus service, Line 180/181 is 18 miles long with 138 bus stops and carries an average of 12,000 passengers per weekday. This is an average of about 85 boarding riders per bus stop.

SGV Staff has been receiving increasing requests from riders and bus operators to add one stop to Line 780 in Glendale on Central at Colorado. As shown on the attached map, this is at the southern end of the Glendale Galleria.

DISCUSSION

The MTA Board of Directors has approved "Metro Rapid Program Service Warrants" in August 2004. This document, Attachment B, establishes standards that all Rapid Bus lines are to adhere to. Included in the warrants are standards for adding or removing bus stops. To establish a new stop, a set of rigorous standards must be met. These include the following:

- The existing local bus stop at the candidate location must have at least 250 daily boardings
- The average distance between Rapid stops on the line must be no less than .7 miles
- 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 stop

The proposed new stop on Line 780 is ½ mile south of the existing stop on Broadway at Brand Boulevard, and ¾ mile north of the stop on Los Feliz Boulevard at San Fernando Rd. The passenger boarding counts for Line 180/181 at the Central and Colorado stop averages about 185 per day. While this number of passenger boardings is below the Rapid Warrant of 250, it is above the average for each existing bus stop on Line 780.

The "Time Delay Index" (TDI) for this stop is generates a value of 29. This is significantly above the minimum value of 5 required to add a Rapid stop. However, even when the number of existing passengers boarding at the target stop is increased 100 times from 185 to 18,500, the TDI only decreases to 21.

The TDI was designed to maintain the speed of Rapid Bus by making the additions of bus stop meet a high standard. However, the use of a uniform standard for all Rapid Bus lines has created a situation where the majority of Rapid Bus lines, must compete with the very largest lines, such as the Wilshire – Whittier line that carries neatly 50,000 passengers per day. This makes the implementation of needed modifications to moderate size Rapid Bus Lines very difficult to achieve.

IMPLEMENTATION

The Gateway Cities and Westside/Central Sectors are also in the process of proposing a new stop to one of their existing moderate sized Rapid Bus lines. If approved by their Governance Councils, a joint report will be prepared for consideration to the MTA Board of Directors in February 2006. This report would request a waiver from the exiting Rapid Service Warrants so that the proposed new rapid stops could be implemented.

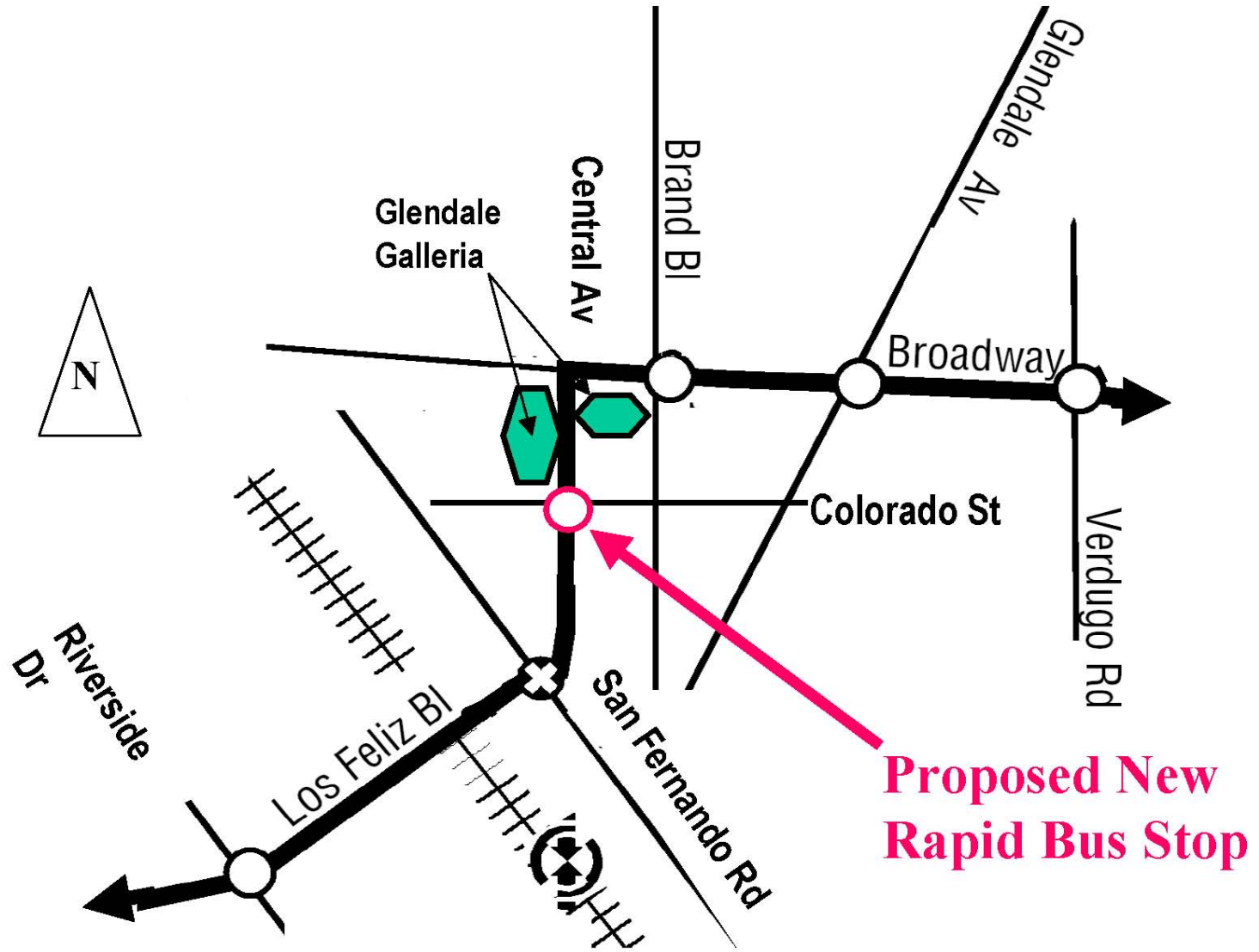
If the SGV Governance Council approves, SGV staff will participate in the preparation of that report which will recommend the implementation of a new Rapid Bus stop on Line 780 on Central Avenue at Colorado Street in the City of Glendale.

Prepared By:

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Attachment

LINE 780 NEW RAPID STOP RECOMMENDATION



**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 TIME DELAY INDEX CALCULATION

Metro Rapid Line # 780 Enter Metro Rapid bus line number
 Local Bus Line # 180/181 Enter Local bus line number
 Stop: Central & Colorado Enter Stop location

METRO RAPID SERVICE WARRANTS

- Corridor must meet maintenance of operating speed requirement
- Stops may be added only if they exceed 250 daily boardings
- Stops less than 0.5 mile from an existing stop must have a TDI less than 3
- Technical impact analysis is required: customer, line performance, operating and capital cost

EXISTING DATA

- Existing Line 180/181 DX boardings at Central & Colorado

NB		SB	
On	Off	On	Off
40	155.4	145.6	27.9

Enter boardings info for Local line

Note: These are all day boardings, including periods Line 780 is not operating

- Existing Line 780 "on board" at Central & Colorado

NB	SB
1286.4	1246.1
60	59
21	21

Enter passengers on-board info for Metro Rapid line

Enter number of trips info for Metro Rapid line

Average passenger on-board

CALCULATIONS

- Determine new boardings at the proposed new stop

NB = 20 Based on Line 180/181 DX boardings of 40 and assuming that every other trip is a Line 780 trip, and that some of those boardings take place outside of the Line 780 spread of service, it is determined that 20 (.5of the Line) 180/181 boardings) would use Metro Rapid Line 780

SB = 73 Based on Line 180/181 DX boardings of 146 & assuming that every other trip is a Line 780 trip, and that some of those boardings take place outside of the Line 780 spread of service, it is determined that 73 (.5of the Line) 180/181 boardings) would use Metro Rapid Line 780

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

NB: 20 x 1 = 20 , plus 30 = 50
 SB: 73 x 1 = 73 , plus 30 = 103

- Calculate TDI by multiplying the avg. passengers on-board Line 780 by the delay, and dividing by the new boardings

NB: 21 x 50 = 1050 , divided by 20 = 52.5
 SB: 21 x 103 = 2163 , divided by 73 = 29.6

RECOMMENDATIONS

The proposed stop at Central & Colorado **does/does not** meet the Stop Location Warrant for either direction and, therefore, **is/is not** recommended