



PLANNING AND PROGRAMMING COMMITTEE
February 21, 2002

Metropolitan
Transportation
Authority

One Gateway Plaza
Los Angeles, CA
90012-2952

SUBJECT: METRO RAPID EXPANSION PROGRAM

**ACTION: APPROVE IMPLEMENTATION OF THE METRO RAPID
EXPANSION PROGRAM**

RECOMMENDATIONS

- A. Adopt the Metro Rapid Expansion Program report findings and phased countywide implementation plan (Attachment A);
- B. Authorize the Chief Executive Officer to implement the funded portion of Phase IIA of the Metro Rapid Expansion Program (Table A);
- C. Direct staff to develop a five-year expansion plan for the Metro Rapid Program which identifies the operating and capital requirements necessary to complete Phase IIA and the remaining three expansion phases.

ISSUE

The Metro Rapid Demonstration Program has proven successful. Passenger travel times have been reduced by approximately 25%. Ridership has increased nearly 35%, with one-third of the increase new to public transit. Operating speeds, service quality, and customer response have all exceeded objectives, with very little or no negative impact on the rest of the system and other travel modes. Based on this success, staff has developed the Metro Rapid Expansion Program that, when complete, will offer a network of fast, reliable bus service throughout Los Angeles County. The expansion program includes corridors operated by both the MTA and Municipal Operators.

POLICY IMPLICATIONS

The purpose of the Metro Rapid Expansion Program is to introduce a new, high quality mode of transit that will offer faster travel choices for bus riders, especially the transit-dependent. The Metro Rapid Program is an integral part of the FY 2001 Long Range Transportation Plan.

OPTIONS

Options considered include (1) terminating the Metro Rapid Program and returning to the type of service operated prior to Metro Rapid in the two demonstration corridors, (2) continuing to operate Metro Rapid along the two demonstration corridors but not expanding the Metro Rapid Program beyond the demonstration corridors, and (3) expanding the demonstration program with one or two additional bus lines and evaluating the results of the expanded demonstration prior to recommending a countywide system expansion of the program. Options 1 and 2 are not recommended because of the success of the Metro Rapid Demonstration Program. Passenger travel times and service quality have been improved to the point that they are now noticed and appreciated by the public. Ridership has increased as a result. Option 3 is not recommended because data from the two Demonstration lines was found to be more than adequate to develop reliable and consistent findings and recommendations.

FINANCIAL IMPACT

Operating and capital cost estimates associated with implementing Phase IIA of the expansion program are predicated on the following assumptions.

Operating costs - The improved operating performance of Metro Rapid service is expected to allow for an increase of 12-15% in corridor service levels with no increase in operating cost. An additional 10% increase in Metro Rapid service will be made by optimizing both local and Metro Rapid schedules within the same corridor. However, based on ridership increases experienced on the first two Metro Rapid corridors, it is likely that additional capacity will be needed beyond the above. In such cases, staff will develop for Board consideration corridor-specific plans to cover the increase in operating costs.

Capital Costs – Capital cost estimates are derived from the Metro Rapid Demonstration Program. Given the same design and quality of station construction, the same bus signal priority technology, additional equipment to maintain and monitor each corridor, and a 25% contingency, one-time capital costs associated with implementing Phase IIA are estimated at \$24.6 million. Table A shows the estimated costs for each of the six Phase IIA corridors.

Approximately \$17.2 million is immediately available to fund Phase IIA construction; \$12.2 million in previously allocated Bus Signal Priority (BSP) Call for Projects funds and \$5.0 million in Regional Improvement Program funds set aside for Metro Rapid station construction. Since BSP funding is available for all six corridors, and since BSP construction is the longest lead-time project element, staff will immediately start bus signal priority construction. The South Broadway, Vermont, and Van Nuys corridors are planned to be operational in 12 to 18 months.

BACKGROUND

MTA developed a conceptual plan for expanding the Metro Rapid Demonstration Program as part of the FY 2001 LRTP. The plan recommended 22 expansion lines and was based on a limited evaluation process. Following adoption of the LRTP, a more rigorous selection process

was developed to identify both MTA and Municipal Operator corridors where application of the Metro Rapid Program goals and objectives would best meet the needs of transit patrons. Corridors were evaluated on the basis of existing success (current transit service), potential success (corridor transit potential), and the need for transit (corridor transit dependence). The selection process involved the following four steps:

1. Identify candidate Metro Rapid corridors countywide based on the number of unlinked weekday passenger boardings per mile of route. This process resulted in 36 candidate corridors being considered for Metro Rapid service.
2. Identify the core segment of each candidate line upon which to evaluate Metro Rapid opportunities based on the following three criteria:
 - Corridor Transit Potential – measures transit potential by a composite index of residential and employment density within walking distance of the candidate Metro Rapid alignment
 - Corridor Transit Dependence – measures transit dependency by a composite index of percentage of households below poverty and percentage of households without vehicles
 - Current Transit Service – measures transit utilization through current transit characteristics (weekday ridership and weekday passengers per mile of route)
3. Rank each candidate corridor based on a scoring process whereby the top ranked candidate in each of the above criteria received 100%, with all remaining corridors ranked relative to the top score. The following five performance measurements were added to the Current Transit Service criteria for this step: operating speed, average passenger trip length, percent of weekday ridership retained on weekends, weekday passengers per revenue hour, and weekday seat utilization.
4. Balance individual corridor evaluations with the needs of the network in terms of connectivity and achieving geographic coverage. Duplication and competition for the same markets were avoided, as was over saturating one part of a service area

As a result of the above process, 23 corridors have been identified for inclusion in the Metro Rapid Expansion Program. To a great extent, the expansion plan is similar to the conceptual plan first developed in the LRTP, with several corridors modified, added, or deleted from the original LRTP list of lines. All 23 corridors have been prioritized into four implementation phases. It is estimated that each phase represents a three-year implementation schedule of 5-6 Metro Rapid lines. Tables A and B present the phased implementation plan of the Metro Rapid Expansion Program. Table A presents the recommended construction sequence of the Phase IIA corridors. Table C lists the partnership jurisdictions in each corridor.

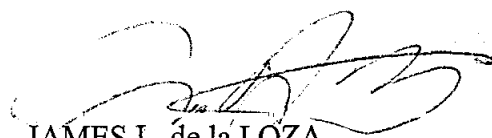
It should be noted that full implementation of the Metro Rapid Program was included in the Special Master's suggested Five Year Expansion Plan. The Bus Riders Union has expressed strong support for Metro Rapid expansion but has concerns about the reduction in local and

limited-stop service in Metro Rapid corridors. Staff will continue to seek participation of the Joint Working Group in the implementation of future Metro Rapid phases.

NEXT STEPS

With Board approval of the above recommendations, staff will develop construction and operating plans for each Phase IIA Metro Rapid corridor. The plans will build off the approach taken in the Demonstration, but will be refined based on “lessons learned”. The plans will include operating plans, schedules, and protocols, station locations, dedicated lane options, vehicle requirements, bus signal requirement interface, and marketing recommendations. Staff will begin operation of each Metro Rapid corridor immediately following construction.

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Table A
Proposed Metro Rapid Corridor Phasing

Existing Line	Corridor	Phase				Score	Miles	Total Cost	BSP		Station	
		II-A *	II-B	II-C	II-D				Cost	Revenue	Cost	Revenue
45-345	South Broadway	1 **				74.1%	10.1	2,686,589	1,329,995	1,329,995	1,356,594	1,356,594
204-354	Vermont	1 **				72.7%	12.7	3,378,186	1,672,369	1,672,369	1,705,817	1,705,817
30-31/33/SM7	Pico-Pico-Venice	2				63.4%	29.5	7,841,648	3,882,004	3,882,004	3,959,644	***
111-311	Florence	3				58.9%	16.2	4,309,183	2,133,259	2,133,259	2,175,924	***
251-252	Soto	3				55.3%	11.7	3,106,867	1,538,053	1,538,053	1,568,814	***
233-561	Van Nuys	2 † **				48.7%	12.4	3,309,027	1,638,132	1,638,132	1,670,895	1,670,895
Total							92.6	\$ 24,631,500	\$ 12,193,812	\$ 12,193,812	\$ 12,437,688	\$ 4,733,306
53	Central		X			69.8%	10.6					
4-304	Santa Monica		X			63.7%	20.0					
40	Hawthorne		X			60.3%	20.2					
60	Long Beach Ave		X			57.9%	22.4					
180-181/217	Hollywd-Fairfax-Psdna		X			49.4%	24.4					
Total							97.6	\$ -	\$ -	\$ -	\$ -	\$ -
207-357	Western			X		64.4%	13.2					
14	Beverly			X		61.8%	13.0					
105	Vernon-La Cienega			X		53.5%	18.2					
260/LB60	Atlantic			X		46.6%	31.1					
94-394	San Fernando Rd			X		46.2%	25.6					
CC6	Sepulveda (south)			X		36.4%	12.3					
Total							113.4	\$ -	\$ -	\$ -	\$ -	\$ -
28-328	West Olympic				X	72.6%	12.4					
68/70	Garvey-Chavez				X	58.2%	16.2					
115-315	Manchester				X	47.1%	22.4					
210-310	Crenshaw-Rossmore****				X	46.6%	19.6					
TT3	Torrance-Long Beach				X	39.0%	17.0					
SM3	Lincoln				X	33.2%	11.0					
Total							99.2	\$ -	\$ -	\$ -	\$ -	\$ -
		6	5	6	6		402.8					

* Recommended Phase IIA construction sequence.

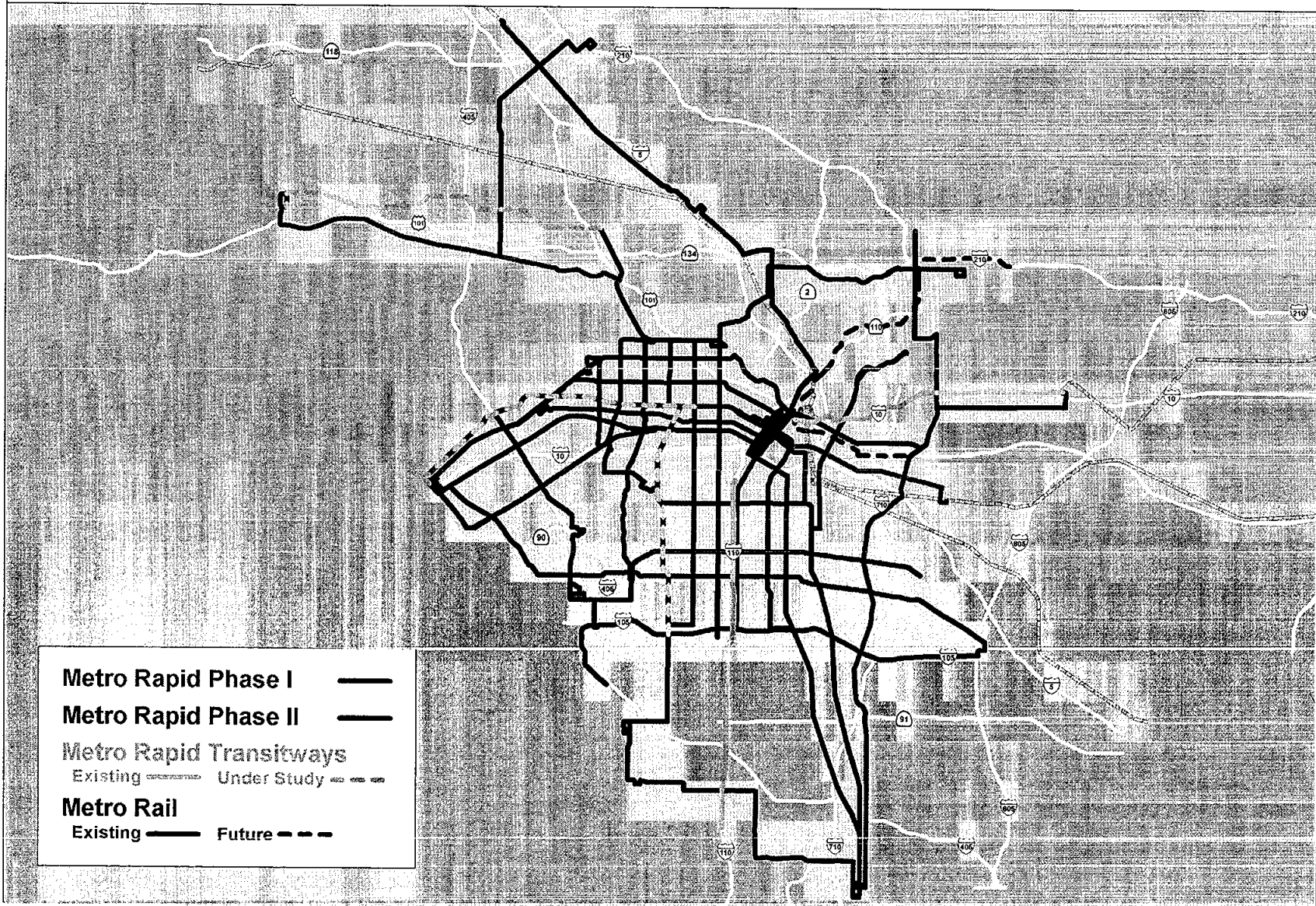
** Budgeted corridors.

*** Funding to be identified in the Metro Rapid Program Five-Year Expansion Plan.

**** Pending completion of MTA's Bus Signal Priority System project.

Table B

Metro Rapid Expansion Program



**Table C
Partnership Jurisdictions**

EXISTING LINE	CORRIDOR	II-A	II-B	II-C	II-D	JURISDICTIONS
45-345	South Broadway	1				City of Los Angeles
204-354	Vermont	1				City of Los Angeles
30-31/33/SM7	Pico-Pico-Venice	2				City of Los Angeles, Santa Monica
111-311	Florence	3				Inglewood, City of Los Angeles, County of Los Angeles (Walnut Park), Huntington Park, Bell, Bell Gardens
251-252	Soto	3				Alhambra, City of Los Angeles, Vernon, Huntington Park, County of Los Angeles (Walnut Park), South Gate
233-561	Van Nuys	2				City of Los Angeles

53	Central		X			City of Los Angeles, County of Los Angeles (Florence, Willowbrook)
4-304	Santa Monica		X			City of Los Angeles, West Hollywood, Beverly Hills
40	Hawthorne		X			City of Los Angeles, Inglewood, County of Los Angeles (Lennox), Lawndale, Redondo Beach, Torrance
60	Long Beach Ave		X			City of Los Angeles, Vernon, Huntington Park, County of Los Angeles (Walnut Park), South Gate, Compton, Lynwood, Long Beach
180-181/217	Hollywd-Fairfax-Psdna		X			Pasadena, Glendale, City of Los Angeles, West Hollywood

207-357	Western			X		City of Los Angeles, County of Los Angeles (Athens)
14	Beverly			X		City of Los Angeles, West Hollywood, Beverly Hills
105	Vernon-La Cienega			X		West Hollywood, City of Los Angeles, Beverly Hills, County of Los Angeles (View Park), Vernon, Huntington Park
260/LB60	Atlantic			X		South Pasadena, Alhambra, Monterey Park, County of Los Angeles (East L.A.), City of Commerce, Vernon, Maywood, Bell, Cudahy, South Gate, Lynwood, East Rancho Dominguez, Compton, Long Beach
94-394	San Fernando Rd			X		San Fernando, City of Los Angeles, Burbank, Glendale
CC6	Sepulveda (south)			X		City of Los Angeles, Culver City, El Segundo

28-328	West Olympic				X	City of Los Angeles, Beverly Hills
68/70	Garvey-Chavez				X	El Monte, South El Monte, Rosemead, Monterey Park, County of Los Angeles (East L.A., City Terrace), City of Los Angeles
115-315	Manchester				X	Norwalk, Downey, South Gate, County of Los Angeles (Walnut Park, Athens), City of Los Angeles, Inglewood
210-310	Crenshaw-Rossmore				X	City of Los Angeles, Inglewood, Hawthorne, Gardena, County of Los Angeles (El Camino Village), Torrance
TT3	Torrance-Long Beach				X	Redondo Beach, Torrance, City of Los Angeles, Carson, Long Beach
SM3	Lincoln				X	Santa Monica, City of Los Angeles, County of Los Angeles (Marina Del Rey)

Metro Rapid Expansion Program

1 Background

Los Angeles County Metropolitan Transportation Authority (MTA) developed a conceptual plan for expanding the successful Metro Rapid Demonstration Program as part of the most recent Long Range Transportation Plan. The conceptual plan included 22 expansion lines and was based on a limited selection process. The process included only MTA lines and was confined to those lines with more than 10,000 weekday unlinked boardings.



The MTA Board of Directors approved work to expand the demonstration Program (Phase I) in May 2001, based on the plan identified in the Long Range Transportation Plan (LRTP). This direction called for three principal work efforts:

- Reconfirm the lines identified in the LRTP through more extensive analysis and the consideration of additional MTA and Municipal lines, and prioritize potential Metro Rapid candidate lines into an updated phased implementation plan
- Implement an initial expansion phase of 6-7 lines
- Monitor, analyze, and improve Metro Rapid operations, facilities, and customer experience

This report presents the first element in this work: selection of the Metro Rapid Expansion Program lines (Phase II).

2 Selection Process

The selection process involved three principal steps:

- Identify potential candidate lines for Metro Rapid service
- Refine and evaluate candidate lines
- Recommend candidate lines on a priority basis

Identify Potential Candidate Lines

The LRTP Metro Rapid conceptual plan evaluated all MTA lines with over 10,000 weekday boardings based on the idea that a critical threshold of ridership would be required to justify and support both Metro Rapid

and local service¹ on a given corridor. This resulted in a short list of 41 line corridors and was considered sufficient at that time. However, since then there has been a desire on the part of both MTA and Municipal Operators to consider "Muni" line corridors as possible Metro Rapid candidates based on the premise that certain corridors had the necessary characteristics to support Metro Rapid service and provided necessary network linkages.

Initially, a lower ridership level of 5,000 weekday unlinked passenger boardings was considered the threshold for Metro Rapid consideration, recognizing that most Muni lines were shorter than MTA lines. However, working sessions with MTA Planning and Operations staff suggested using a new threshold based on unlinked weekday passenger boardings per mile of route in order to factor out the effect of the overall route length. The candidate selection was modified to reflect this approach.

Minimum thresholds for Phase II were established at 500 weekday passenger boardings per mile of route with a minimum route length of 10 miles in order to ensure that the necessary ridership levels and opportunities for significant travel time savings were met. A secondary consideration, for possible inclusion, was given to routes with boardings per route mile of 400 to 500 as noted in Exhibit 1. Thirty-six candidate lines were selected for evaluation in the end.

Refine and Evaluate Candidate Lines

Key criteria were identified as influencing the success of Metro Rapid and, in fact, any major transit investment. These criteria are:

- Corridor Transit Potential – measures transit potential by a composite index of residential and employment density within walking distance of the possible Metro Rapid alignment.
- Corridor Transit Dependency – measures transit dependency by a composite index of percentage of households below poverty and percentage of households without vehicles.
- Current Transit Service – measures transit utilization through a variety of service and ridership variables, including weekday ridership, percent of weekday ridership retained on weekends, weekday passengers per mile of route, weekday passengers per revenue hour, weekday seat utilization, average passenger trip length, and revenue operating speed.

¹ The service protocol for arterial Metro Rapid operation includes both Metro Rapid and local bus service.

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Exhibit 1 Potential Candidate Lines

Line	Weekday Ridership	Route Length (miles)	Weekday Ridership Per Line Mile	Include/Not Include (Factors)
204	49,493	12.7	3,897	Include
16	25,611	10.0	2,574	Include
207	36,322	18.2	1,996	Include
66	25,480	12.9	1,975	Include
200	12,504	6.4	1,954	Not Include: below minimum length
30	28,793	14.9	1,930	Include
20	24,607	15.1	1,630	Current Metro Rapid
4	32,533	20.0	1,627	Include
SM7	16,770	10.8	1,553	Include
40	30,590	20.2	1,514	Include
217	14,804	10.1	1,466	Include
45	24,055	16.7	1,440	Include
33	22,268	17.3	1,291	Include
18	24,452	21.3	1,148	Current Metro Rapid
60	25,463	22.4	1,137	Include
14/38	21,810	20.7	1,054	Include
68	20,440	19.5	1,048	Include
206	14,625	14.2	1,030	Include
210	20,046	20.0	1,002	Include
81	19,062	20.1	948	Include
28	32,555	34.8	934	Include
55	11,729	12.7	924	Include
251	21,128	23.0	919	Include
SM3	7,658	11.6	896	Include
70	14,208	15.9	894	Include
156	16,815	19.2	876	Include
51/26	22,289	26.1	854	Include (51)
53	13,387	15.7	853	Include
2	22,306	26.2	851	Include
180	17,013	21.4	795	Include
212	11,640	14.7	792	Include
LB60	8,845	11.2	790	Include
111	21,248	27.9	762	Include
117	9,738	12.8	761	Include
105	16,514	21.8	758	Include
150	13,290	18.4	722	Current Metro Rapid
CC1	5,604	7.9	709	Too short
10/48	14,544	20.7	703	Include
SM9	7,050	11.0	696	Include
SM12	8,192	12.2	671	Not Include: non-linear alignment
115	14,586	23.3	626	Include
561	15,923	25.5	624	Include
260	16,403	26.7	614	Include
SM14	3,994	6.5	612	Not Include: below minimum length
SM8	5,968	9.9	603	Not Include: below minimum length
108	14,940	25.1	595	Include
76	9,577	16.3	588	Include
CC6	6,890	12.2	565	Include
94	15,600	28.1	555	Include
38/71	9,904	18.2	544	Not Include: non-linear alignment (Line 71)
120	6,392	11.9	537	Not Include: borderline length
110	9,745	21.1	462	Not Include: secondary arterial alignment
TT3	7,812	17.1	457	Include
LB110	5,381	12.2	441	Not Include: long branches; secondary arterial alignment
LB190	7,473	17.3	432	Not Include: non-linear alignment; long branches
LB20	4,774	11.3	422	Not Include: long branches; below minimum length
LB45/46	7,386	17.8	415	Not Include: long branches

Metro Rapid Expansion Program

The evaluation was conducted in two steps using both tabular and geographic information assessment:

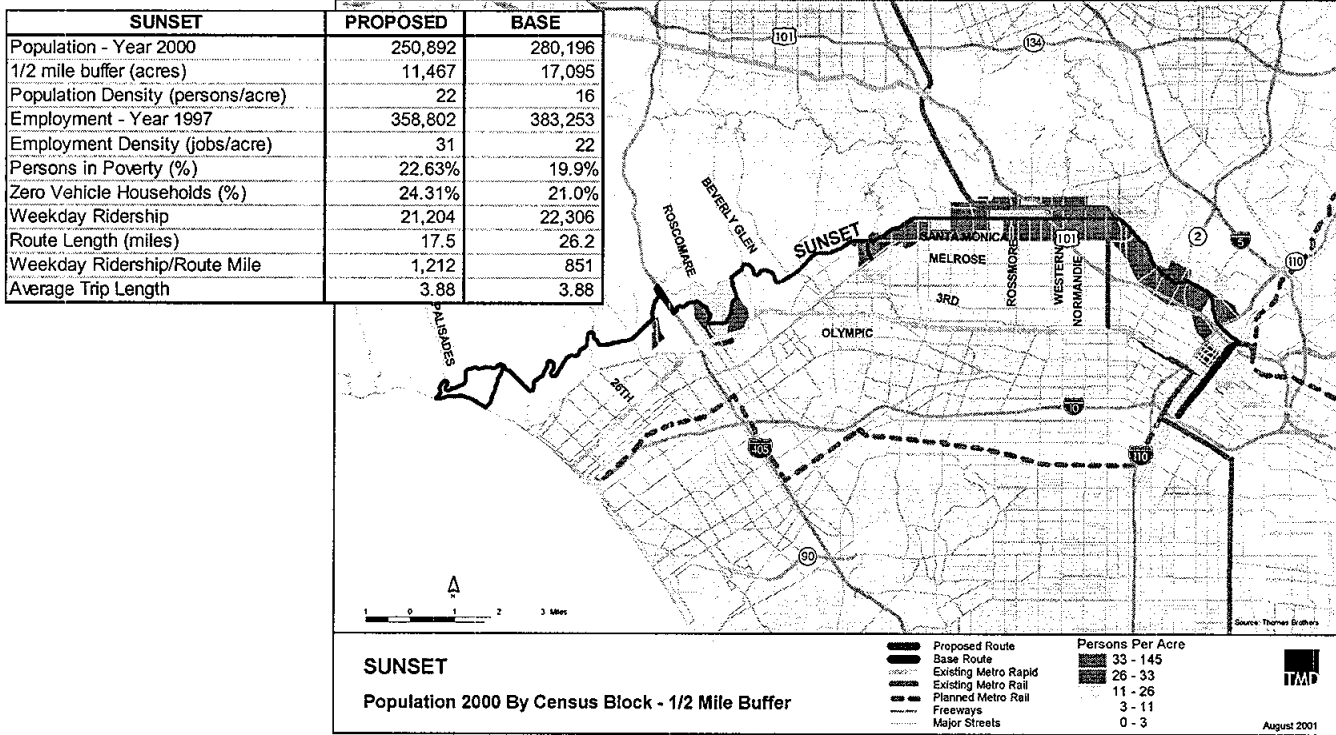
1. Step I Refinement – evaluated a subset of the above criteria in terms of refining the existing transit route alignments. Many of the current routes contain both segments with strong transit orientation and segments where Metro Rapid is clearly inappropriate. The objective was to identify the core part of the corridor upon which to evaluate Metro Rapid opportunities.
2. Step 2 Evaluation – evaluated the refined Metro Rapid candidate corridors using all above criteria.
3. Step 3 Service Warrants – considered other important factors in assessing the candidates for Phase II Metro Rapid service. These factors included whether current service frequencies could sustain two types of all day service, the current presence of limited stop or express service, whether it duplicates other Metro Rapid Transit (Metro Rapid or Metro Rail), and lastly whether there are special network issues to consider.

STEP ONE – REFINEMENT

The subset of evaluation criteria included transit potential (population and employment density), transit dependence (households below poverty and without vehicles), and two current transit characteristics (weekday ridership and ridership per mile of route). To assist in identifying corridor strengths by segment, population density, employment density, households below poverty, and households without vehicles were mapped at the census block level within ½ mile of the candidate corridor. In addition, ridership was reviewed at a bus stop level using the latest available ridership information (ride checks).

The baseline corridor was analyzed and a proposed refined corridor was identified for each of the candidate lines. Most were somewhat changed, with a few changing significantly and a few not changing at all. An example of this analysis is presented in Exhibit 2. The complete set of all candidates is available in a separate Technical Appendix.

Exhibit 2
Refinement Example



STEP TWO - EVALUATION

The evaluation consisted of analyzing all criteria in the transit potential, transit dependence, and transit characteristics elements and comparing the refined candidate corridors using a ranked scoring process. This scoring process used a “percentage of the best” approach, whereby the top-scoring candidate in each criterion received “100%”, with the other candidates receiving scores relative to the top score. For instance, if the top population density were 40 persons per acre (100%), then a candidate with a population density of 30 would receive a score of 75%. Each candidate line received a score for each criterion. An overall score was determined by averaging the individual criteria scores. Transit potential and transit dependency carried a weight of one with transit service carrying a weight of two to allow existing transit success to carry equal weight with the collective transit potential and dependency. The results are presented in Exhibits 3 through 7.

STEP THREE - SERVICE WARRANTS

Service warrants addressed non-quantitative factors that would likely influence the success of the Metro Rapid Expansion Program. These issues included whether current service frequencies could sustain two types of all day service, the current presence of limited stop or express

Exhibit 3
Transit Potential Scoring

Corridor	Population Density (persons/acre)	Employment Density (jobs/acre)	Population Density Index	Employment Density Index	Transit Potential Score
Atlantic	18.72	7.25	51.1%	17.6%	34.4%
Avalon	21.18	19.94	57.8%	48.4%	53.1%
Beverly	24.87	40.76	67.9%	99.0%	83.5%
Central	24.25	28.09	66.2%	68.2%	67.2%
Century Blvd	19.35	5.11	52.8%	12.4%	32.6%
Compton Ave.	14.65	19.98	40.0%	48.5%	44.3%
Crenshaw-Rossmore	19.53	8.02	53.3%	19.5%	36.4%
E. Olympic-West 8th	27.80	27.09	75.9%	65.8%	70.9%
Figueroa	20.31	23.09	55.5%	56.1%	55.8%
Florence	24.85	6.59	67.9%	16.0%	41.9%
Garvey-Chavez	15.60	17.89	42.6%	43.5%	43.0%
Hawthorne	21.68	23.18	59.2%	56.3%	57.7%
Hollywood-Fairfax-Pasadena	14.33	8.24	39.1%	20.0%	29.6%
La Brea	21.10	10.22	57.6%	24.8%	41.2%
Lincoln	8.81	9.86	24.1%	24.0%	24.0%
Long Beach Ave	19.56	22.17	53.4%	53.8%	53.6%
Manchester	17.66	6.15	48.2%	14.9%	31.6%
Melrose	28.71	39.80	78.4%	96.7%	87.5%
NoHo-Panorama City	21.66	6.50	59.2%	15.8%	37.5%
Normandie	34.70	8.72	94.8%	21.2%	58.0%
Pico-Pico-Venice	18.85	18.80	51.5%	45.7%	48.6%
San Fernando Rd	11.80	14.41	32.2%	35.0%	33.6%
Santa Monica	23.39	34.52	63.9%	83.8%	73.9%
Sepulveda (south)	12.08	12.06	33.0%	29.3%	31.1%
Slauson	19.41	6.11	53.0%	14.8%	33.9%
Soto	15.42	9.79	42.1%	23.8%	32.9%
South Broadway	22.36	36.01	61.1%	87.5%	74.3%
Sunset	21.88	31.29	59.8%	76.0%	67.9%
Torrance-Long Beach	15.16	8.38	41.4%	20.3%	30.9%
Valley Blvd	15.16	29.56	41.4%	71.8%	56.6%
Van Nuys	16.36	4.95	44.7%	12.0%	28.3%
Vermont	36.62	11.13	100.0%	27.0%	63.5%
Vernon-La Cienega	22.17	10.96	60.5%	26.6%	43.6%
West Olympic	26.02	41.17	71.1%	100.0%	85.5%
West Third	29.09	39.45	79.5%	95.8%	87.6%
Western	28.44	6.96	77.7%	16.9%	47.3%

Exhibit 4
Transit Dependency Scoring

Corridor	Persons In Poverty (%)	Zero Vehicle Households (%)	Transit Dependency Average	Transit Dependency Score
Atlantic	20.5%	16.2%	18.3%	48.8%
Avalon	33.7%	35.5%	34.6%	92.0%
Beverly	22.1%	26.7%	24.4%	64.9%
Central	37.1%	38.1%	37.6%	100.0%
Century Blvd	24.3%	16.7%	20.5%	54.5%
Compton Ave.	36.5%	35.8%	36.1%	96.2%
Crenshaw-Rossmore	17.0%	17.1%	17.1%	45.4%
E. Olympic-West 8th	29.6%	36.7%	33.1%	88.2%
Figueroa	30.0%	29.9%	29.9%	79.6%
Florence	25.1%	18.0%	21.6%	57.4%
Garvey-Chavez	24.5%	25.5%	25.0%	66.6%
Hawthorne	21.7%	21.3%	21.5%	57.2%
Hollywood-Fairfax-Pasadena	17.2%	17.7%	17.4%	46.4%
La Brea	18.4%	19.3%	18.8%	50.2%
Lincoln	8.5%	8.6%	8.5%	22.8%
Long Beach Ave	24.8%	25.9%	25.4%	67.5%
Manchester	19.9%	13.5%	16.7%	44.3%
Melrose	22.2%	26.8%	24.5%	65.2%
NoHo-Panorama City	15.3%	11.2%	13.2%	35.2%
Normandie	27.1%	27.3%	27.2%	72.4%
Pico-Pico-Venice	18.2%	19.1%	18.6%	49.6%
San Fernando Rd	17.9%	16.9%	17.4%	46.2%
Santa Monica	19.4%	21.4%	20.4%	54.3%
Sepulveda (south)	10.7%	7.4%	9.1%	24.1%
Slauson	25.8%	19.4%	22.6%	60.1%
Soto	23.3%	19.9%	21.6%	57.4%
South Broadway	35.3%	37.4%	36.4%	96.7%
Sunset	22.6%	24.3%	23.5%	62.5%
Torrance-Long Beach	16.3%	14.9%	15.6%	41.6%
Valley Blvd	23.8%	25.5%	24.7%	65.7%
Van Nuys	15.8%	11.1%	13.4%	35.8%
Vermont	30.1%	28.5%	29.3%	78.0%
Vernon-La Cienega	22.0%	19.0%	20.5%	54.5%
West Olympic	25.0%	30.5%	27.8%	73.9%
West Third	22.6%	30.1%	26.4%	70.1%
Western	24.3%	25.2%	24.7%	65.9%

Exhibit 5
Transit Service - Data

Corridor	Weekday Ridership Proposed	Weekday Ridership Per Line Mile	Average Trip Length	Operating Speed (mph)	Weekday Seat Utilization	Weekday Riders Retained on Weekends	Weekday Passengers per Bus Hour
Atlantic	24,308	782	3.70	12.6	52.9%	45.4%	71.9
Avalon	19,620	1,250	2.92	10.6	38.4%	72.7%	55.8
Beverly	14,274	1,098	3.15	10.5	36.0%	57.4%	47.9
Central	12,097	1,141	3.32	11.6	57.9%	63.6%	80.7
Century Blvd	9,738	761	3.03	11.2	42.5%	73.2%	62.9
Compton Ave.	11,729	924	2.67	10.4	32.5%	60.9%	50.6
Crenshaw-Rossmore	20,046	1,023	3.90	11.6	50.7%	48.0%	60.4
E. Olympic-West 8th	25,480	2,022	2.60	9.7	43.1%	59.9%	64.2
Figueroa	18,498	1,016	3.53	11.3	48.1%	70.4%	61.5
Florence	22,756	1,405	3.23	12.0	87.0%	62.4%	129.4
Garvey-Chavez	21,100	1,302	4.00	11.6	67.1%	64.9%	77.8
Hawthorne	30,590	1,514	3.61	11.1	59.1%	67.1%	72.9
Hollywood-Fairfax-Pasadena	30,257	1,240	3.28	9.7	54.8%	61.8%	64.6
La Brea	11,640	792	4.05	10.5	56.9%	48.8%	59.1
Lincoln	10,397	896	2.63	12.2	49.2%	49.5%	91.6
Long Beach Ave	25,463	1,137	3.44	10.8	41.0%	66.7%	51.6
Manchester	12,890	786	4.40	12.4	65.5%	61.7%	73.6
Meirose	14,544	1,469	3.18	10.0	40.0%	53.2%	50.4
NoHo-Panorama City	11,590	1,380	3.87	12.2	66.3%	67.4%	83.6
Normandie	14,625	1,030	2.49	10.6	42.9%	49.0%	73.3
Pico-Pico-Venice	60,572	2,055	4.14	11.2	82.9%	62.6%	89.7
San Fernando Rd	14,784	577	6.29	14.1	48.1%	60.0%	43.1
Santa Monica	32,533	1,627	3.98	10.3	49.0%	74.3%	50.9
Sepulveda (south)	6,890	560	3.83	11.3	44.0%	44.7%	51.9
Slauson	13,773	1,111	3.69	11.6	84.4%	51.2%	106.5
Soto	18,534	1,587	2.71	9.6	83.9%	46.1%	119.0
South Broadway	20,057	1,986	2.89	11.0	57.9%	68.6%	88.5
Sunset	21,204	1,212	3.88	11.5	60.2%	51.5%	71.4
Torrance-Long Beach	8,711	512	3.50	13.2	35.4%	49.9%	53.5
Valley Blvd	9,577	588	4.82	11.0	51.3%	59.4%	47.0
Van Nuys	16,744	1,346	4.80	12.6	93.2%	54.9%	97.7
Vermont	49,493	3,897	2.44	10.3	53.3%	61.2%	90.4
Vernon-La Cienega	22,476	1,235	3.13	12.1	59.9%	57.3%	92.6
West Olympic	22,335	1,801	2.87	11.1	69.6%	64.9%	107.4
West Third	25,611	2,227	2.71	10.3	42.0%	60.7%	63.8
Western	35,576	2,695	2.57	10.5	68.8%	63.8%	112.7

Exhibit 6
Transit Service – Scoring

Corridor	Weekday Ridership Proposed	Weekday Ridership/Route Mile Proposed	Average Trip Length	Revenue Operating Speed	Weekday Seat Utilization	Weekday Riders retained on Weekends	Weekday Passengers per Bus Hour	Transit Service Score
Atlantic	40.1%	20.1%	58.8%	69.2%	56.8%	61.1%	55.6%	51.7%
Avalon	32.4%	32.1%	46.4%	89.7%	41.2%	97.9%	43.1%	54.7%
Beverly	23.6%	28.2%	50.1%	91.0%	38.7%	77.3%	37.0%	49.4%
Central	20.0%	29.3%	52.8%	79.7%	62.2%	85.7%	62.4%	56.0%
Century Blvd	16.1%	19.5%	48.2%	83.4%	45.7%	98.5%	48.7%	51.4%
Compton Ave.	19.4%	23.7%	42.4%	92.0%	34.9%	82.0%	39.1%	47.7%
Crenshaw-Rossmore	33.1%	26.2%	62.0%	79.1%	54.4%	64.6%	46.7%	52.3%
E. Olympic-West 8th	42.1%	51.9%	41.3%	99.2%	46.2%	80.6%	49.6%	58.7%
Figueroa	30.5%	26.1%	56.1%	82.5%	51.6%	94.8%	47.6%	55.6%
Florence	37.6%	36.0%	51.4%	75.1%	93.4%	84.0%	100.0%	68.2%
Garvey-Chavez	34.8%	33.4%	63.6%	79.5%	72.1%	87.3%	60.1%	61.6%
Hawthorne	50.5%	38.9%	57.4%	84.2%	63.5%	90.3%	56.4%	63.0%
Hollywood-Fairfax-Pasadena	50.0%	31.8%	52.2%	99.4%	58.8%	83.2%	50.0%	60.8%
La Brea	19.2%	20.3%	64.4%	90.5%	61.1%	65.7%	45.7%	52.4%
Lincoln	16.6%	23.0%	41.8%	72.7%	52.8%	66.4%	70.8%	49.2%
Long Beach Ave	42.0%	29.2%	54.7%	87.3%	44.0%	89.8%	39.9%	55.3%
Manchester	21.3%	20.2%	70.0%	71.5%	70.3%	83.1%	56.9%	56.2%
Melrose	24.0%	37.7%	50.6%	95.8%	42.9%	71.6%	38.9%	51.6%
NoHo-Panorama City	19.1%	35.4%	61.5%	73.0%	71.2%	90.8%	64.6%	59.4%
Normandie	24.1%	26.4%	39.6%	89.3%	46.0%	66.0%	56.7%	49.7%
Pico-Pico-Venice	100.0%	52.7%	65.9%	83.3%	88.9%	84.3%	69.3%	77.8%
San Fernando Rd	24.4%	14.8%	100.0%	53.6%	51.7%	80.7%	33.3%	51.2%
Santa Monica	53.7%	41.7%	63.3%	92.5%	52.6%	100.0%	39.3%	63.3%
Sepulveda (south)	11.4%	14.4%	60.8%	82.6%	47.2%	60.2%	40.1%	45.2%
Slauson	22.7%	28.5%	58.7%	78.9%	90.6%	69.0%	82.3%	61.5%
Soto	30.6%	40.7%	43.1%	100.0%	90.0%	62.1%	92.0%	65.5%
South Broadway	33.1%	51.0%	45.9%	85.2%	62.2%	92.3%	68.4%	62.6%
Sunset	35.0%	31.1%	61.7%	80.3%	64.6%	69.3%	55.1%	56.7%
Torrance-Long Beach	14.4%	13.1%	55.6%	62.6%	38.1%	67.2%	41.4%	41.8%
Valley Blvd	15.8%	15.1%	76.6%	85.3%	55.1%	80.0%	36.3%	52.0%
Van Nuys	27.6%	34.5%	76.3%	69.2%	100.0%	73.9%	75.5%	65.3%
Vermont	81.7%	100.0%	38.8%	92.4%	57.2%	82.3%	69.8%	74.6%
Vernon-La Cienega	37.1%	31.7%	49.8%	74.1%	64.2%	77.1%	71.6%	57.9%
West Olympic	36.9%	46.2%	45.6%	84.9%	74.7%	87.4%	83.0%	65.5%
West Third	42.3%	57.1%	43.1%	93.0%	45.1%	81.8%	49.3%	58.8%
Western	58.7%	69.2%	40.9%	90.5%	75.9%	85.9%	87.1%	72.6%

Exhibit 7
Overall Scoring

Corridor	Transit Potential Score (weight 1)	Transit Dependency Score (weight 1)	Transit Service Score (weight 2)	Overall Score
Atlantic	34.4%	48.8%	51.7%	46.6%
Avalon	53.1%	92.0%	54.7%	63.6%
Beverly	83.5%	64.9%	49.4%	61.8%
Central	67.2%	100.0%	56.0%	69.8%
Century Blvd	32.6%	54.5%	51.4%	47.5%
Compton Ave.	44.3%	96.2%	47.7%	58.9%
Crenshaw-Rossmore	36.4%	45.4%	52.3%	46.6%
E. Olympic-West 8th	70.9%	88.2%	58.7%	69.1%
Figueroa	55.8%	79.6%	55.6%	61.6%
Florence	41.9%	57.4%	68.2%	58.9%
Garvey-Chavez	43.0%	66.6%	61.6%	58.2%
Hawthorne	57.7%	57.2%	63.0%	60.3%
Hollywood-Fairfax-Pasadena	29.6%	46.4%	60.8%	49.4%
La Brea	41.2%	50.2%	52.4%	49.1%
Lincoln	24.0%	22.8%	49.2% 43.0%	36.3% 33.2%
Long Beach Ave	53.6%	67.5%	55.3%	57.9%
Manchester	31.6%	44.3%	56.2%	47.1%
Melrose	87.5%	65.2%	51.6%	64.0%
NoHo-Panorama City	37.5%	35.2%	59.4%	47.9%
Normandie	58.0%	72.4%	49.7%	57.5%
Pico-Pico-Venice	48.6%	49.6%	77.8%	63.4%
San Fernando Rd	33.6%	46.2%	51.2%	45.6%
Santa Monica	73.9%	54.3%	63.3%	63.7%
Sepulveda (south)	31.1%	24.1%	45.2%	36.4%
Slauson	33.9%	60.1%	61.5%	54.3%
Soto	32.9%	57.4%	65.5%	55.3%
South Broadway	74.3%	96.7%	62.6%	74.1%
Sunset	67.9%	62.5%	56.7%	61.0%
Torrance-Long Beach	30.9%	41.6%	41.8%	39.0%
Valley Blvd	56.6%	65.7%	52.0%	56.6%
Van Nuys	28.3%	35.8%	65.3%	48.7%
Vermont	63.5%	78.0%	74.6%	72.7%
Vernon-La Cienega	43.6%	54.5%	57.9%	53.5%
West Olympic	85.5%	73.9%	65.5%	72.6%
West Third	87.6%	70.1%	58.8%	68.8%
Western	47.3%	65.9%	72.6%	64.6%

**Exhibit 8
Service Warrants**

Corridors	Achieves Minimum Service Thresholds			Duplicates Other MTA Rapid Transit (e-existing, p-potential)		Network Connections
	Peak (<10 min)	Off-Peak (12-min)	Limited Service	Metro Rapid	Metro Rail	
Atlantic	Partial Peak	No				Only north-south Eastside route
Avalon	Yes	Yes	Yes (wkdy peak bi-direct)	Central Rapid (p)		
Beverly	Yes	Yes (No Sundays)		Melrose and West 3rd Rapid (p)		
Central	Yes (Peak direction only)	No midday-Sundays		Avalon Rapid (p)	Blue Line	
Century Blvd	No	No				
Compton Ave.	Yes (Peak direction only)	No			Blue Line	
Crenshaw-Rossmore	Yes	Yes(No Weekends)	Yes (wkdy peak bi-direct)			
E. Olympic-West 8th	Yes	Yes		Wilshire-Whittier Rapid (e)		
Figueroa	Yes	Yes		Vermont and Broadway Rapid (p)	Pasadena Blue Line	
Florence	Yes	Yes	Yes (wkdy peak bi-direct)			
Garvey-Chavez	Yes	Yes			East Side LRT (p)	
Hawthorne	Yes	Yes	Yes (wkdy peak bi-direct)	Short overlap with Crenshaw & Florence Rapids (m)		
Hollywood-Fairfax-Pasadena	Yes	Yes (No Sundays)			Short overlap with Red Line	
La Brea	Yes (Peak direction only)	No				
Lincoln	Yes	No				
Long Beach Ave	Yes	Yes				
Manchester	Yes	No	Yes (wkdy peak bi-direct)			
Melrose	Yes	No midday-Sundays		Santa Monica & Beverly Rapids (p)		
NoHo-Panorama City	Yes	Yes		Short overlap with Van Nuys and SFV E-W BRL (m)		
Normandie	Yes	No		Vermont & Western Rapids (p)		
Pico-Pico-Venice	Yes	Yes (E Pico-Venice); No (W Pico)	Yes (wkdy peak bi-direct)	West Olympic (p)		
San Fernando Rd	Yes	Yes (No Sundays)	Yes (wkdy peak bi-direct)		Santa Clarita Metrolink	
Santa Monica	Yes	Yes	Yes (wkdy peak bi-direct)	Wilshire-Whittier Rapid (west of Westwood)		
Sepulveda (south)					North-South Westside Connector	
Slauson	Yes	No				
Soto	Yes	Yes (No Sundays)				
South Broadway	Yes	Yes	Yes (wkdy peak direction)			
Sunset	Yes	Yes (No Sundays)	Yes (wkdy peak direction)	Santa Monica & Hollywood Rapid		
Torrance-Long Beach					South Bay Connector	
Valley Blvd	No	No				
Van Nuys	Yes	Yes (No Sundays)	Yes (seven day bi-direct)	Short Overlap with NoHo-Pan. City Rapid (p)	North-South SFV Connector	
Vermont	Yes	Yes	Yes (wkdy bi-direct)	Normandie and Figueroa Rapid (p)	Short overlap with Red Line	
Vernon-La Cienega	Yes	No				
West Olympic	Yes	Yes	Yes (wkdy peak bi-direct)	Wilshire-Whittier (e) and Pico Rapid (p)		
West Third	Yes	Yes	Yes (wkdy peak bi-direct)	Wilshire-Whittier (e) and Beverly Rapid (p)		
Western	Yes	Yes	Yes (wkdy/Sat bi-direct)	Normandie Rapid (p)		

**Exhibit 9
Candidate Ranking**

CORRIDOR	Overall Ranked Score	Service Warrants
South Broadway	74.1%	Duplication with Avalon & Figueroa Rapids
Vermont	72.7%	Duplicates Normandie & Figueroa Rapids
West Olympic	72.6%	Duplicates Wilshire-Whittier Rapid
Central	69.8%	Duplicates Avalon and Compton Rapid
E. Olympic-West 8th	69.1%	Duplicates Wilshire-Whittier Rapid
West Third	68.8%	Duplicates Wilshire-Whittier Rapid
Western	64.4%	Duplicates Normandie Rapid
Melrose	64.0%	Possible duplication with other Westside Rapids
Santa Monica	63.7%	Partial duplication with Wilshire-Whittier Rapid (far west)
Avalon	63.6%	Duplicates Central and Broadway Rapids
Pico-Pico-Venice	63.4%	Possible duplication with other Westside Rapids
Beverly	61.8%	Possible duplication with other Westside Rapids
Figueroa	61.6%	Duplicates Pasadena Blue Line (North); Broadway Rapid (South)
Sunset	61.0%	Duplicates Santa Monica & Hollywood Rapids
Hawthorne	60.3%	
Compton Ave.	58.9%	
Florence	58.9%	Duplicates Central Rapid and Blue Line
Garvey-Chavez	58.2%	Partial duplication with Eastside LRT
Long Beach Ave	57.9%	
Normandie	57.5%	Duplicates Vermont and Western Rapids
Valley Blvd	56.6%	Service Frequencies
Soto	55.3%	
Slauson	54.3%	Service Frequencies
Vernon-La Cienega	53.5%	Service Frequencies
Hollywood-Fairfax-Pasadena	49.4%	Connects Westside with Arroyo Verdugo
La Brea	49.1%	Service Frequencies
Van Nuys	48.7%	North-South SFV Connector
NoHo-Panorama City	47.9%	Partial duplication with SFV E-W & Van Nuys Rapid
Century Blvd	47.5%	Service Frequencies
Manchester	47.1%	
Atlantic	46.6%	Eastside connector route
Crenshaw-Rossmore	46.6%	
San Fernando Rd	45.6%	Connects East SFV
Torrance-Long Beach	39.0%	South Bay Connector
Sepulveda	36.4%	North-South Westside Connector
Lincoln	36.3%	33.2% Service Frequencies

service, whether the service unproductively competes with other Metro Rapid Transit (Metro Rapid or Metro Rail), and whether there are special network issues to consider. Exhibit 8 presents the service warrant findings for the Metro Rapid Phase II candidates.

EVALUATION SUMMARY AND CANDIDATE RANKING

The overall ranked scoring and service warrants for the candidate corridors are presented in Exhibit 9.

3 Proposed Metro Rapid Expansion Program

The evaluation process resulted in corridors scored on the basis of existing success (transit service score), potential success (transit potential), and the need for transit (transit dependence). The challenge in selecting corridors is to balance the individual corridor scoring with the needs of the network in terms of connectivity and achieving geographic coverage. Specifically, duplication and competition for the same markets were avoided, as was over saturating one part of a service area.

The Metro Rapid Expansion Program has been prioritized into four sub-phases. It is anticipated that each sub-phase represents a two-year implementation plan of 4-6 Metro Rapid lines. Depending on MTA's level of interest in and willingness to commit the necessary resources to moving forward quickly, this two-year time frame could be relaxed to three-years if necessary. Exhibit 10 presents the phased implementation plan of the Metro Rapid Expansion Program.

Metro Rapid line descriptions have been prepared by phase.

PHASE IIA - 6 Lines

- South Broadway - operates from the Green Line to Gateway Center via the current alignment. One option for consideration is to connect this line with one proposed on North Broadway through Lincoln Heights and El Sereno.
- Vermont - follows the current alignment; some concern has been expressed over the overlap with the Metro Red Line; however, it is believed that these are separate markets and the results will be similar to the Wilshire-Whittier line with both Metro Rapid and Metro Rail benefiting from the new service.
- Pico-Pico-Venice - the only Metro Rapid with branches; the line initiates at Gateway and operates via downtown LA to Pico

**Exhibit 10
Metro Rapid Proposed Line Phasing**

Corridor	Phase IIA	Phase IIB	Phase IIC	Phase IID	Score	Explanation
South Broadway	X				74.1%	
Vermont	X				72.7%	
Pico-Pico-Venice	X				63.4%	
Florence	X				58.9%	
Soto	X				55.3%	
Van Nuys	X				48.7%	To be extended to Westwood when I-405 special lanes available
Central		X			69.8%	
Santa Monica		X			63.7%	
Hawthorne		X			60.3%	
Long Beach Ave		X			57.9%	
Hollywood-Fairfax-Pasadena		X			49.4%	Connects Westside with Arroyo Verdugo
Western			X		64.4%	
Beverly			X		61.8%	
Vernon-La Cienega			X		53.5%	"L" shaped network connector
Atlantic			X		46.6%	
San Fernando Rd			X		46.2%	
Sepulveda (south)			X		36.4%	Muni
West Olympic				X	72.6%	Possible need if demand on Wilshire-Whittier continues to grow
Garvey-Chavez				X	58.2%	
Manchester				X	47.1%	
Crenshaw-Rossmore				X	46.6%	Either La Brea or Crenshaw
Torrance-Long Beach				X	39.0%	Muni
Lincoln				X	33.2%	Muni
E. Olympic-West 8th				X	36.3%	
West Third					69.1%	Duplicates Wilshire-Whittier
Melrose					68.8%	Duplicates Wilshire-Whittier
Avalon					64.0%	Duplicates Santa Monica/Beverly
Figueroa					63.6%	Duplicates Central/Broadway
Sunset					61.6%	Duplicates Vermont/Broadway
Compton Ave.					61.0%	Duplicates Santa Monica/Hollywood
Normandie					58.9%	Duplicates Central/Blue Line
Valley Blvd					57.5%	Duplicates Vermont & Western
Slauson					56.6%	Garvey had much higher transit score
La Brea					54.3%	Competes with Vernon Rapid
NoHo-Panorama City					49.1%	Possible future candidate
Century Blvd					47.9%	Duplication with SFV E-W & Van Nuys Rapid
					47.5%	Lacks continuous arterial; Green Line
	6	5	6	6		

Metro Rapid Expansion Program

- Boulevard, continuing west to Rimpau where the line splits into two branches (the frequency needed on the trunk is higher than needed on the outer parts); one branch continues out via Pico to Santa Monica with the other operating via Venice also to Santa Monica. This line will present opportunities to possibly involve Big Blue Bus in Metro Rapid operations, albeit with a Big Red Bus.
- Florence – operates from an east terminal near Garfield via the current alignment west to Hawthorne, then following a revised alignment on Century to the LAX terminal.
- Soto – only the branch serving LACUSC Medical Center, Figueroa, and the Pasadena Blue Line is proposed with the south terminal in the vicinity of Firestone in order to maintain arterial access and stay out of residential neighborhoods.
- Van Nuys – serves the full Van Nuys corridor to Lake View Terrace, rather than to the Sylmar/San Fernando Metrolink Station; service needs to continue through the Sepulveda Pass to Westwood, but needs some priority measures on I-405 to be effective.

PHASE IIB – 6 Lines

- Central – current alignment south to Blue/Green Line station.
- Santa Monica – follows the current alignment to Santa Monica from downtown Los Angeles.
- Hawthorne – follows the current alignment.
- Long Beach – follows the current alignment to Long Beach from downtown Los Angeles.
- Hollywood-Fairfax-Pasadena – represents the joining of the Fairfax-Hollywood line with the Hollywood-Glendale-Pasadena service. Operates via the current alignment from West LA Transit Center to Glendale then via Colorado to Pasadena City College.

PHASE IIC – 6 Lines

- Western – current alignment south to Blue/Green Line station.

Metro Rapid Expansion Program

- Beverly – follows current alignment from downtown Los Angeles to a new terminal at Century City; possibly replacing Line 316.
- Vernon-La Cienega – operates via the current alignment with a new east terminal south on Pacific to Florence.
- Atlantic – generally the current alignment with an extension south to downtown Long Beach (the old 260) with Long Beach Transit still operating local services; from Huntington north via Fremont north to Washington.
- San Fernando – follows current alignment except that north terminal is at Sylmar/SF Metrolink Station, no deviation for BGP Airport, and deviation via Glendale CBD.
- Sepulveda – follows the current alignment with a north terminal located closely to the future Westwood Transit Center (Gayley/Wilshire) and to a south terminal at the Aviation Way Green Line Station.

PHASE IID – 6 Lines

- West Olympic – possible line if needed from downtown Los Angeles to Century City via current Line 28/328.
- Garvey-Chavez – operates from downtown Los Angeles via current Line 68 to Atlantic, then continues on regular Garvey route to El Monte.
- Manchester – current east terminal to new west terminal around Sepulveda; no deviations.
- Crenshaw-Rossmore – via the current routing (no Western Station deviation).
- Torrance-Long Beach – follows current alignment from Long Beach to north on Main Street to Carson to Torrance, then continues north on Hawthorne to South Bay Galleria.
- Lincoln – follows current alignment between Aviation Green Line Station to downtown Santa Monica.

4 Next Steps

The next steps will focus on continuing the refinement process and developing an implementation plan for Phase IIA if and when approved by the Board of Directors.