

Council Meeting of  
March 27, 2012

Honorable Mayor and Members  
Of the City Council  
City Hall  
Torrance, California

**Members of the Council:**

**SUBJECT:** **Transit** – Approve Memorandum of Understanding for Rapid Bus Program. Expenditure: \$7,900,000.

**RECOMMENDATION:**

Recommendation of the Transit Director that City Council approve a Memorandum of Understanding with the Los Angeles County Metropolitan Transportation Authority (LACMTA) for the Rapid Bus Program. Expenditure: \$7,900,000.

**FUNDING:**

Project is fully funded through the attached Memorandum of Understanding with Los Angeles County Metropolitan Transportation Authority.

**BACKGROUND/ ANALYSIS:**

The Los Angeles County Metropolitan Transportation Authority (LACMTA) is the main operator of Rapid Bus Programs in the Los Angeles County region of Southern California. Santa Monica Big Blue Bus and Culver City Bus also currently operate a Rapid Program, and Torrance Transit has now been approached to implement a Rapid service.

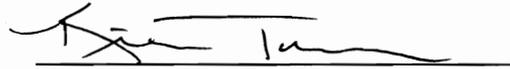
To address the operation and capital start up costs for this program, LACMTA allocated \$7,900,000 to Torrance Transit - \$1,500,000 for Operating Costs and \$6,400,000 for Capital for the purchase of eight alternative fuel buses. The funding has been approved in federal capital grant CA-95-X146, and all eight (8) buses for this program have been purchased.

Implementing the service requires the execution of a Memorandum of Understanding (MOU) between Torrance Transit and the Los Angeles County Metropolitan Transportation Authority (LACMTA). A copy of the MOU is attached for Your Honorable Body's review. (ATTACHMENT A).

The new service will run "East-West" from the South Bay Galleria to the Long Beach Transit Mall (and vice versa) during peak service hours. Transit plans to implement the

new Rapid service in summer of 2012, anticipating that it will be very popular not only to traditional, transit-dependent riders, but also those riders seeking an alternative to driving their own vehicles. Torrance residents will find the service useful for traveling to work, school, shopping, and other trips.

Respectfully submitted,



Kim Turner  
Transit Director

CONCUR:

  
LeRoy J. Jackson  
City Manager

Attachments:

- A) Memorandum of Understanding for the Rapid Bus Program.

**FUNDING AGREEMENT  
BETWEEN  
CITY OF TORRANCE  
AND  
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY**

THIS FUNDING AGREEMENT ("Agreement") is entered into this 1<sup>st</sup> day of April, 2012 (the "Effective Date"), by and between the City of Torrance, a municipal corporation ("City"), and the Los Angeles County Metropolitan Transportation Authority ("LACMTA"), a California county transportation authority existing under the authority of Sections 130050.2 et.seq. of the California Public Utilities Code.

**RECITALS**

WHEREAS, the Metro Board of Directors, at its September 18, 2002 meeting, approved the Metro Rapid Five-Year Implementation Plan ("Five-Year Plan") to deploy 24 Metro Rapid corridors, which includes the Torrance-Long Beach Rapid corridor (**Attachment A**); and

WHEREAS, funding for the Torrance-Long Beach corridor (the service) is derived from the Federal Transit Administration (FTA) Very Small Starts Program - Metro Rapid System Gap Closure Project (**Attachment B**); and

WHEREAS, the FTA requires that all Metro Rapid corridors funded through the Metro Rapid System Gap Closure Project be open for service; and

WHEREAS, The LACMTA Board, at its July 22, 2010 meeting, authorized the transfer of \$7.9 million in Congestion Management Air Quality (CMAQ) funds to City to implement the Torrance-Long Beach Rapid corridor (**Attachment C**).

**AGREEMENT**

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledge, the parties hereby agree as follows:

1. LACMTA agrees to provide the City \$7.9 million in CMAQ funds to implement the service as approved by the LACMTA Board on July 22, 2010. The funding includes \$6.4 million in capital and \$1.5 million for two-years of operating assistance.
2. LACMTA agrees to provide in-kind assistance in marketing of the regional rapid bus program.
3. City agrees to procure eight (8) expansion buses for the service.

4. City agrees to provide weekday peak hour service as necessary based on demand. No weekend service will be provided.
5. City agrees to submit the federal CMAQ application to the FTA for bus capital and operating funds.
6. City agrees to begin service upon the arrival of the buses and with sufficient time to prepare the buses for revenue service.
7. LACMTA will reprogram the funds for other eligible use if City does not implement the service.
8. Neither LACMTA, nor any officer, board member or employee thereof shall be responsible for any damage or liability occurring by reason of anything done or omitted to be done by City in connection with this Agreement. City shall fully indemnify and hold LACMTA and its officers, board members and employees harmless from any liability imposed for injury or loss occurring by reason of anything done or omitted to be done by City in connection with this Agreement or the Expansion Project.
9. Should a lawsuit, action or proceeding be instituted regarding the enforcement and interpretation of any of the terms of this Agreement or any matter arising out of or related to this Agreement, the prevailing party shall be entitled to, in addition to any damages awarded, its reasonable attorney's fees and all costs of the lawsuit, action or proceeding.
10. This Agreement may not be assigned, transferred, hypothecated or pledged by either party without the express written consent of the other party, except as set forth in this Agreement. This Agreement shall be binding upon any successors or assigns of the parties hereto.
11. This Agreement may be amended only by written agreement executed by all of the parties hereto. No alteration or variation of the terms of this Agreement shall be valid unless made in writing, signed by both parties, and no oral understanding or agreement not incorporated herein shall be binding on either of the parties hereto.
12. This Agreement shall be interpreted under and governed by the laws of the State of California.
13. This Agreement shall terminate on December 31, 2014, to cover the year of fund allocation plus two additional years before lapsing of funds. However, Section 4 of this Agreement shall survive the termination of this Agreement.

14. This Agreement constitutes the entire agreement between the parties hereto relating to the transfer of \$7.9 million in CMAQ funds to City to implement the service as contemplated herein.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the dates indicated below:

CITY OF TORRANCE

LOS ANGELES COUNTY  
METROPOLITAN TRANSPORTATION  
AUTHORITY

BY: \_\_\_\_\_  
Frank Scotto  
Mayor

BY: \_\_\_\_\_  
Arthur T. Leahy  
Chief Executive Officer

Date: \_\_\_\_\_

Date: \_\_\_\_\_

ATTEST:

APPROVED AS TO FORM:

\_\_\_\_\_  
Sue Herbers, City Clerk

ANDREA SHERIDAN ORDIN  
County Counsel

JOHN L. FELLOWS III  
City Attorney

By: \_\_\_\_\_  
Deputy

By: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



**Metro**

Metropolitan Transportation Authority

One Gateway Plaza  
Los Angeles, CA 90012-2952

213.922.2000 Tel  
metro.net

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PLANNING AND PROGRAMMING COMMITTEE

January 16, 2008

**SUBJECT: INCREASE IN THE METRO RAPID FIVE-YEAR IMPLEMENTATION PLAN INFRASTRUCTURE BUDGET**

**ACTION: APPROVE RECOMMENDATION**

RECOMMENDATION

Increase the Metro Rapid Five-Year Implementation Plan budget in the amount of \$16.3 million to cover cost increases, increasing the project budget from \$112.2 million to \$128.5 million.

ISSUE

In September 2002, the Board approved \$112.2 million to construct and implement the Metro Rapid Five-Year Implementation Plan. Approximately \$64.8 million was set-aside to construct the bus signal priority system, and \$47.4 million to construct Metro Rapid stations throughout Los Angeles County. Since then, equipment and construction costs have out-paced the escalation rates used to develop the original bus signal priority and station construction budgets. In addition, cities outside of the City of Los Angeles have proven to cost slightly more per mile to construct bus signal priority than was assumed in the Five-Year Plan due to a lack adequate infrastructure to support bus signal priority technology. As a result, the bus signal priority construction budget is projected to increase by \$4.1 million, from \$64.8 million to \$68.9 million, and the station construction budget is projected to increase by \$12.2 million, from \$47.4 million to \$59.6 million.

POLICY IMPLICATIONS

The recommended action is consistent with and supports completion of the Board adopted 28-corridor Metro Rapid network.

ALTERNATIVES CONSIDERED

*Bus Signal Priority Cost Increase* – The Board could request staff to either reduce the amount of bus signal priority constructed on the final six Metro Rapid corridors where construction contracts are pending, or not construct bus signal priority on one or two of these same corridors. Staff is not recommending either of these alternatives as both will increase average bus speeds, resulting in added passenger

delay. Bus speed improvement goals may no longer be met. Because bus signal priority accounts for approximately 1/3 of a corridor's total speed improvement, operating costs are likely to increase along the affected corridor.

*Station Construction Cost Increase* – The Board could direct staff to either reduce the number of stations constructed, or redesign the stations to reduce the cost per station. Staff is not recommending either of these alternatives since the stations, as designed, are considered an integral part of the Metro Rapid Program.

### FINANCIAL IMPACT

The funds for this project increase will be included in the FY 09 budget. Since this is a multi year project, the Chief Planning Officer will be responsible for budgeting the required funding in future year budgets. The source of funds for the cost increase will be CMAQ funds that were originally intended for the Gap Closure portion of the Metro Rapid Program: the Metro Rapid System Gap Closure Project. Recently, the FTA approved a Very Small Starts Grant for the Gap Closure Project making the CMAQ funds available for the Metro Rapid cost increase.

### DISCUSSION

Metro has reached the final phase of implementation the Metro Rapid Program and now operates 19 of the 28 corridors scheduled for implementation (Exhibit 1). The program's success has garnered national attention. Passenger travel times have been reduced by an average of 24%, with nearly 300 buses in service today operating over 250 corridor miles. Demand for Metro Rapid service has increased significantly, with ridership up by as much as 40% in some corridors. Approximately 1/3 of this ridership increase has been generated by patrons who previously used the automobile. When complete, the system will consist of 28 corridors operating nearly 500 buses along 360 miles throughout the City of Los Angeles, Los Angeles County, and 31 other cities.

#### Bus Signal Priority Construction Cost Increase

Nearly 275 miles of bus signal priority has been funded to-date throughout the Cities of Los Angeles, Pasadena, West Hollywood, Santa Monica, Beverly Hills, Bell, Bell Gardens, Compton, Huntington Park, Inglewood, Lawndale, Long Beach, Lynwood, South Gate, and Los Angeles County. An additional 55 miles of bus signal priority is planned for construction in the Cities of Los Angeles, Culver City, Glendale, Pasadena, Alhambra, Bell, Carson, Commerce, Cudahy, Inglewood, Long Beach, Maywood, Monterey Park, Rosemead, South Pasadena, Torrance, Vernon, and Los Angeles County. The cost of the planned construction is estimated at \$14.1 million. In total, committed bus signal priority construction projects (\$54.8 million) and planned bus signal priority projects (\$14.1 million) are projected to exceed the Board-approved budget (\$64.8 million) by \$4.1 million.

While a majority of the corridors implemented during the first three years of the program were constructed entirely within the City of Los Angeles, recent corridor alignments have passed through three or more cities and have required the cooperation of those cities in order to realize the program's 20% bus speed improvement goal. Many cities outside the City of Los Angeles, however, have not had adequate infrastructure to support bus signal priority technology and, thus, the unit cost of construction in those cities has been higher than anticipated. Examples include the Cities of Beverly Hills, Pasadena, West Hollywood, and Santa Monica. To help mitigate unanticipated construction cost increases, a number of cost reduction strategies were put in place at the inception of the program, including rejection of all construction bids greater than 25% above the budget estimate, elimination of bus signal priority along corridor segments where average traffic speeds were deemed consistently higher than average, and elimination of bus signal priority in those cities that could not maintain or support the technology. To-date, the City of Vernon is the only city which has stated that it cannot support bus signal priority technology. Corridor segments found to have higher than average traffic speeds include the segment of the San Fernando South Metro Rapid that traverses the City of Burbank, the segment of the Western Metro Rapid that traverses the City of Inglewood, segments of the Sepulveda South and Western Metro Rapids that traverse the County of Los Angeles, and the segment of the San Fernando-Lankershim Metro Rapid that traverses the City of San Fernando.

Staff's recommendation to increase the bus signal priority construction budget by \$4.1 million is a result of the combined effect of higher unit costs of construction coupled with increases in construction costs outpacing escalation rates.

#### Station Construction Cost Increase

Only 56 of the 779 Metro Rapid stations approved by the Board in September 2002 have been constructed. A cooperative agreement between Metro and the City of Los Angeles to fabricate, install, and maintain up to 503 Metro Rapid stations, at a total cost of \$28.3 million, has been stalled since 2002 due primarily to complications between the City and the County Tax Assessors office. A cooperative agreement between Metro and Los Angeles County to fabricate, install, and maintain up to 62 Metro Rapid stations, at a total cost of \$5.5 million, is nearing completion. These significant delays in the station construction schedule, in conjunction with requests to construct 73 additional stations beyond the Board-approved 779, as well as 27 stations along the Wilshire corridor which were left unfunded as part of the Metro Rapid Demonstration Program, have resulted in a revised station construction cost estimate that exceeds the Board-approved budget by an estimated \$30.8 million.

To help mitigate a portion of the increase in station construction costs, staff identified the following cost reduction strategies that take into account shortened corridor alignments, "shared" bus stops, "alighting-only" bus stops, and bus stops added through January 2008. As a result, the \$30.8 million cost increase has been reduced to \$12.2 million.

- *Eliminate 49 stations due to shortened corridor alignments* – Minor changes in Metro Rapid corridor alignments have taken place over the life of the Metro Rapid Program, resulting in 49 fewer bus stops (and stations) than approved by the Board in the Metro Rapid Five-Year Implementation Plan. Elimination of 49 stations equates to a savings of approximately \$4.4 million.
- *Eliminate 19 “shared” stations* – As the final ten corridors of the Metro Rapid network are implemented, and gaps between corridors are eliminated, bus stops (and stations) along specific segments of corridors are shared to facilitate quick and easy transfers of patrons between Metro Rapid lines. Elimination of 19 shared stations equates to a savings of approximately \$1.7 million.
- *Eliminate 68 “alighting-only” stations* – The primary purpose of Metro Rapid stations is to provide safe and secure passenger waiting areas, passenger information, and system identity. In some cases, however, stations are not required at the last stop on the line where patrons alight only. Elimination of 68 alighting-only stations equates to a savings of approximately \$6.0 million.
- *Eliminate 73 “added” stations* – Over the life of the Metro Rapid Program, 73 bus stops have been added for various reasons. Funds to construct stations at these bus stops, however, were never approved. Elimination of 73 added stations equates to a savings of approximately \$6.5 million.

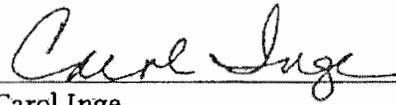
### NEXT STEPS

Upon Board approval to increase the Metro Rapid Five-Year Implementation Plan budget from \$112.2 million to \$128.5 million, staff will complete negotiations and execute agreements to complete construction of the Metro Rapid stations and bus signal priority system.

### ATTACHMENT

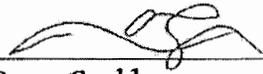
Los Angeles County Metro Rapid Network Map

Prepared by: Rex Gephart, Director, Regional Transit Planning  
 Brad McAllester, Executive Officer, Long Range Planning &  
 Coordination



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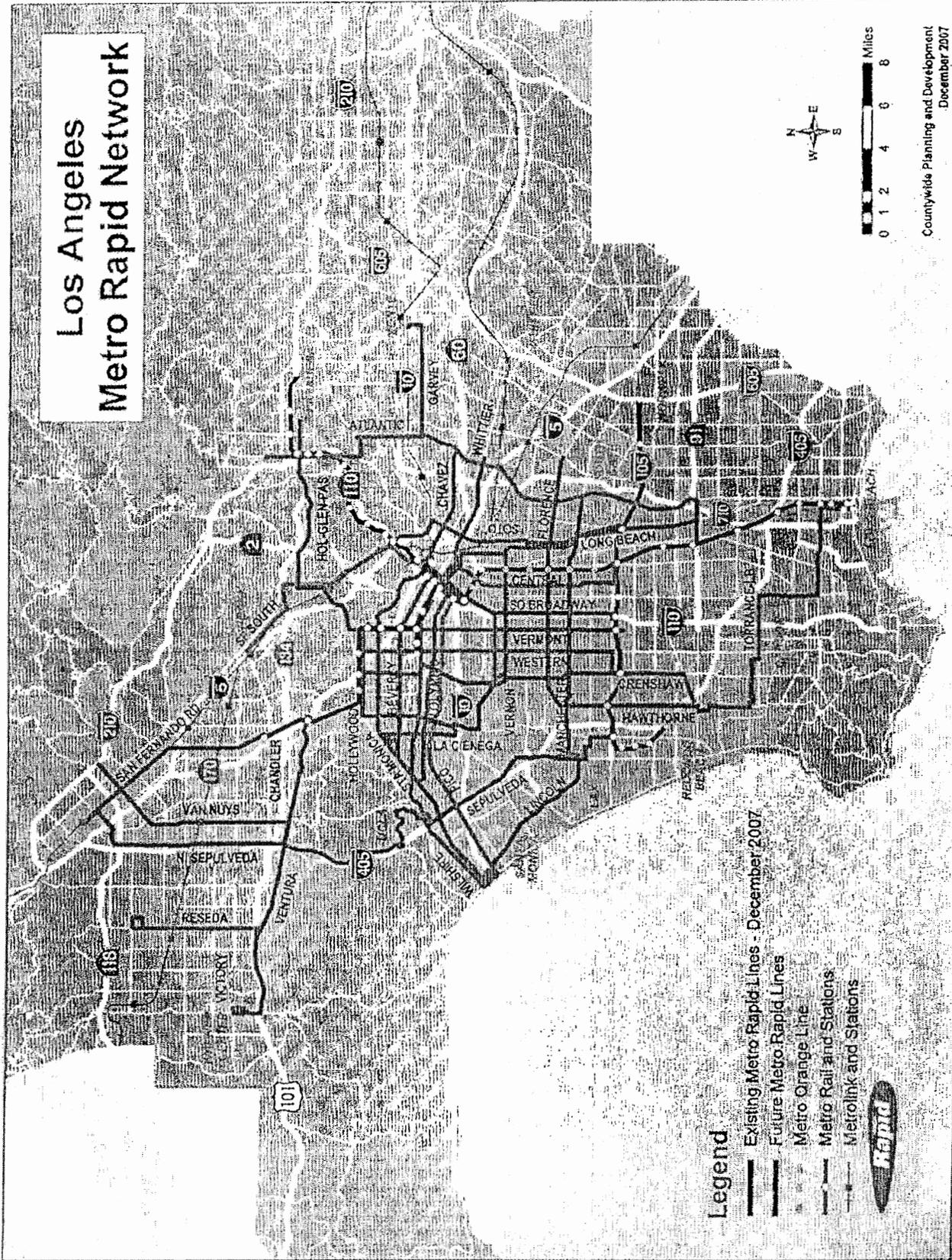
Carol Inge  
Chief Planning Officer  
Countywide Planning and Development



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Roger Snoble  
Chief Executive Officer

# Los Angeles Metro Rapid Network



### Legend

- Existing Metro Rapid Lines - December 2007
- Future Metro Rapid Lines
- Metro Orange Line
- Metro Rail and Stations
- Metrolink and Stations



Countywide Planning and Development  
December 2007



Metropolitan Transportation Authority

One Gateway Plaza  
Los Angeles, CA 90012-2952

213.922.2000 Tel  
metro.net

**OPERATIONS COMMITTEE  
JULY 15, 2010**

**SUBJECT: RE-PROGRAM FEDERAL CONGESTION MITIGATION AND AIR QUALITY (CMAQ) FUNDS TO TORRANCE TRANSIT TO IMPLEMENT THE TORRANCE-LONG BEACH RAPID CORRIDOR AND TO METRO'S BUS ACQUISITION CAPITAL PROJECT AND APPROVE RELATED ACTIONS**

**ACTION: AUTHORIZE THE TRANSFER OF \$7.9 MILLION IN CMAQ FUNDS TO TORRANCE TRANSIT TO IMPLEMENT THE TORRANCE-LONG BEACH RAPID CORRIDOR AND \$23.3 MILLION IN CMAQ FUNDS TO METRO'S BUS ACQUISITION CAPITAL PROJECT AND APPROVE RELATED ACTIONS**

**RECOMMENDATION**

- A. Authorize the re-programming of \$7.9 million in federal CMAQ funds from the Metro Rapid Five-Year Plan for the purchase of eight buses and to provide operating funds for two years to implement the Torrance-Long Beach Rapid Corridor in accordance with Torrance Transit's funding plan, contingent upon federal approval; and
- B. Authorize the re-programming of \$23.3 million in federal CMAQ funds from the Metro Rapid Five-Year Implementation Plan to Metro's Bus Acquisition capital project; and
- C. Authorize the CEO or his designee to negotiate and execute a funding agreement with Torrance Transit for the operations of the Torrance-Long Beach Rapid Corridor.

**ISSUE**

Staff has been working with Torrance Transit to implement the Torrance-Long Beach Rapid Line, identified in Metro's New Service Implementation Plan. Given reductions in state transit funds, Torrance Transit is unable to purchase buses and operate the line without our financial assistance. In addition, we are also requesting funds for the purchase of new buses for the Metro bus fleet.

## **POLICY IMPLICATIONS**

Approving our recommendation would provide Torrance Transit with the financial assistance necessary to implement the Torrance-Long Beach Rapid line. Additionally, the funding for the Metro bus acquisition is consistent with Board priorities to replace aging revenue vehicles and it is consistent with the adopted 2009 Long Range Transportation Plan.

## **OPTIONS**

The Board could choose not to approve the recommended actions. We do not recommend this option. The recommended action provides a means to implement the Torrance-Long Beach Rapid Line. Additionally, we would not be able to proceed with our bus acquisition necessary to comply with Board priorities to replace aging revenue vehicles and to provide support to one of the Board's major regional mobility programs. Moreover, because the CMAQ funds to be used for these actions are 2007 funds, they would lapse if not obligated before September 2010. This time constraint limits our flexibility to transfer those funds to another capital project outside the scope of the existing grant award.

## **FINANCIAL IMPACT**

No expenses for any of the projects recommended for funding awards are included in the FY11 Budget. However, these are multi-year projects and the project manager(s) will be responsible for budgeting project expenses in future years.

### **Impact to Bus and Rail Operating and Capital Budget**

The recommended funding will come from obligated but unspent CMAQ funds previously authorized by the Board for the implementation of the Metro Rapid program. Action B of the recommendation is for authorization to transfer a portion of the Metro Rapid program unspent funds to the capital program for the acquisition of Metro buses.

## **BACKGROUND**

Metro's New Service Implementation Plan was developed as a result of the Consent Decree. The Torrance-Long Beach Corridor, identified in the New Service Implementation Plan, was anticipated to be implemented by Torrance Transit. Given the state budget crisis and the loss of state transit funds, Torrance Transit does not have the financial resources necessary to purchase the buses or operate this new Rapid service.

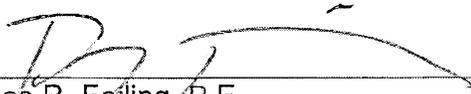
We have reviewed the Metro Rapid program budget and have found that substantial savings can be achieved by selecting an "off the shelf" Metro Rapid station design rather than the original unique design created for the Metro Rapid program. These stations are proposed to be installed and maintained through agreements between local

jurisdictions and advertising vendors. We have found that vendors prefer the “off the shelf” design as it reduces maintenance costs and increases the ease of station maintenance and upkeep. This “off the shelf” design will result in a \$41.6 million savings to the \$131 million Metro Rapid Five Year Plan. Of these savings, \$33.0 million are CMAQ funds, of which \$1.8 million will stay with the project as a contingency, and the balance of \$31.2 million is subject to lapsing September 2010 if not obligated in a grant. Another \$8.6 million would be realized in future Proposition C 40% local match funds, which can be used for other Proposition C 40% eligible projects. The cost savings provide the funds necessary for the Torrance Transit bus purchase and two year operations, as well as the Metro bus purchase. With Board approval of the recommendation, Torrance Transit anticipates implementing its Rapid corridor by February 2011.

### **NEXT STEPS**

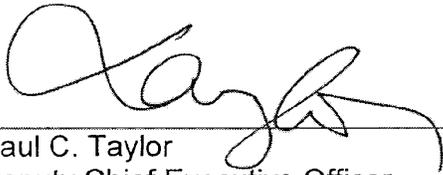
With Board approval of our recommendation, we will prepare and execute the necessary documents to make available \$31.2 million in federal CMAQ funds savings from the Metro Rapid program to provide \$7.9 million for capital and two-years operating assistance for Torrance Transit to implement the Rapid Line, and the balance of \$23.3 million to acquire new replacement Metro buses.

Prepared by: Brad McAllester, Executive Officer  
Long Range Planning & Coordination



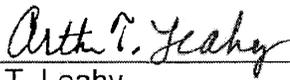
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Douglas R. Failing, P.E.  
Executive Officer, Highway Programs



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Paul C. Taylor  
Deputy Chief Executive Officer



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Arthur T. Leahy  
Chief Executive Officer



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PLANNING AND PROGRAMMING COMMITTEE  
September 18, 2002

10

Metropolitan  
Transportation  
Authority

One Gateway Plaza  
Los Angeles, CA  
90012-2952

**SUBJECT: METRO RAPID FIVE-YEAR IMPLEMENTATION PLAN**

**ACTION: APPROVE IMPLEMENTATION OF THE METRO RAPID FIVE-YEAR IMPLEMENTATION PLAN**

**RECOMMENDATIONS**

- A. Adopt the Metro Rapid Five-Year Implementation Plan report findings and accelerated, phased countywide expansion plan (Attachment A);
- B. Set aside \$92.3 million of future regional funds to complete the Metro Rapid Five-Year Implementation Plan (Attachment A, Table 10);
- C. Amend the FY 2003 Special Revenue budget to include \$3.8 million for Phase II station construction. Funds are included in the FY 2002 Regional TIP for this purpose;
- D. Authorize the Chief Executive Officer to negotiate and execute agreements with the local jurisdictions in each corridor so as to expedite deployment of the Five-Year Implementation Plan.

**ISSUE**

In February 2002, MTA adopted the Metro Rapid Expansion Program, a conceptual plan for expanding the Metro Rapid Demonstration Program. The Expansion Program recommended implementing countywide Metro Rapid service, and included a selection process for evaluating the merits of candidate corridors. To build on the program's success, the Board requested that staff develop an accelerated deployment plan and return to the Board for consideration.

Staff is presenting a Metro Rapid Five-Year Implementation Plan which recommends dedicating \$92.3 million of regional funds to implement 24 lines on an accelerated schedule by 2008. This recommended funding will be used to construct bus signal priority, stations, and related communications equipment.

This Plan was developed following a rigorous selection process to identify both MTA and Municipal Operator corridors where Metro Rapid Program service would best meet the needs of transit patrons (Attachment A). 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). As a result of the

above process, 24 corridors have been identified for inclusion in the Metro Rapid Five-Year Implementation Plan.

### **POLICY IMPLICATIONS**

The purpose of the Metro Rapid Five-year Implementation Plan 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 adopted Long Range Transportation Plan.

### **OPTIONS**

Options considered include (1) continuing to operate Metro Rapid along the two demonstration corridors, but not expanding the Metro Rapid Program beyond these corridors, and (2) expanding the demonstration program with one or two additional corridors and evaluating the results of the expanded demonstration prior to recommending a countywide system expansion of the program. Option 1 is 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 significantly as a result. Option 2 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 presented in the Implementation Plan are predicated on the following assumptions.

Operating costs – Implementation of the Broadway and Vermont corridors in December 2002 is scheduled at approximately 5,300 revenue service hours (\$1.1 million) more than pre-existing levels during FY 2003. Funds to implement these services are available within the existing FY 2003 budget.

When complete in FY 2008, the Implementation Plan provides a net increase of 15,646 annual revenue hours for the 24 expansion corridors over the pre-existing service levels in those corridors. This increase in service is within the levels assumed in the 10-year forecast. However, based on ridership increases experienced on the two Metro Rapid demonstration corridors, it is likely that additional capacity will be needed beyond the above funding. 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 and “next trip” display technology, and additional equipment to maintain and monitor each corridor, one-time capital costs associated with implementing the entire program are estimated at \$110.5 million, escalated (Five-Year Implementation Plan, Table 10).

Funding for the continued implementation of Phase II is consistent with the 10-year financial forecast and included in the Long Range Transportation Plan but not in the MTA FY 2003 budget. Approval of this action would direct staff to include Phase II capital expenditures and revenues in MTA's Special Revenue budget. Approximately \$4.5 million will be transferred from the MTA Capital budget since the assets constructed will not become MTA property. Additionally, the FY 2003 Budget does not include station construction expenditures and revenues for Phase II of \$3.8 million that were approved by the State after the budget was prepared.

## **BACKGROUND**

The Metro Rapid Demonstration Program has proven successful with the implementation of key attributes, including unique vehicle and station "branding", transit signal priority, special stations with "next trip" displays and information kiosks, and "rail-like" operating characteristics. This has resulted in passenger travel times reduced by approximately 25 percent and a nearly 40 percent increase in ridership, with one-third of the increase new to public transit. Based on this success, staff developed the Metro Rapid Expansion Program and presented it to the Board in February 2002. The Expansion Program identified the corridors which best met the programs' goals and objectives, and recommended a phasing plan designed to construct a network of Metro Rapid service over the next eleven years.

### **Accelerated Deployment**

At the Board's request to accelerate deployment of the Metro Rapid Program, staff developed the Metro Rapid Five-year Implementation Plan (Attachment A). The Implementation Plan identifies the operating and capital costs associated with constructing and operating each corridor, and proposes a five-phase accelerated deployment schedule significantly shorter than that presented in the original Expansion Program. While significant staff work will be needed to refine the Plan as it moves forward to actual implementation, the accelerated schedule is achievable, contingent on resolving the following issues.

A construction and implementation critical path was developed for the initial phase of the Metro Rapid expansion program. Issues considered in the critical path included station design, fabrication, and installation; signal priority design, construction, and testing; vehicle procurement and make-ready; schedule development and operational training; marketing campaigns; and execution of the contracts and agreements necessary to fund the construction program. Two key elements in the critical path were the station construction and signal priority implementation schedules.

While it is unlikely that the station construction contract between the City of Los Angeles and MTA will be executed in time to complete construction prior to the opening of the first two expansion corridors planned for this December (Vermont and Broadway), it is expected that station development will keep pace with the Metro Rapid phased corridor implementation plan after that point.

The critical element in the Metro Rapid expansion schedule is the construction of bus signal priority in the City of Los Angeles, Los Angeles County, and other cities. The City of Los Angeles is currently capable of deploying approximately 20 miles of signal priority per year. The City believes, however, that they can double the current rate of construction *provided* that additional resources are made available either through LADOT in-house staffing or a contractor. Accelerated implementation of the Five-Year Implementation Plan is dependent on LADOT resolving this important issue.

The County of Los Angeles recently began bus signal priority construction along Whittier Boulevard as part of the Wilshire/Whittier Metro Rapid. The City of Beverly Hills will soon begin construction along Wilshire Boulevard, also as part of the Wilshire/Whittier Metro Rapid. Staff will work closely with the cities in each corridor to expedite bus signal priority construction as future corridors are implemented. Table 7 of the Five-Year Implementation Plan presents the accelerated deployment schedule.

#### Deployment Within Available Revenue

The Five-Year Implementation Plan assumes deployment of all Phase II Metro Rapid corridors within available operating revenues. In order to meet this financial objective, and taking into account the efficiency improvements resulting from both faster operating speeds and restructured operator schedules, the following modifications in Metro Rapid attributes were made. Staff will identify additional operating hours should ridership exceed the added capacity.

- *Seven Day Service* – the policy of providing Metro Rapid service seven days a week has been modified to allow deployment only within available revenue. In some cases, operation of six or seven day schedules is appropriate regardless of operating cost constraints; in other cases expansion to a seven day service is sound only if funds become available. The proposed span of Metro Rapid service recommends that 6 of the 24 Metro Rapid expansion corridors operate seven-days a week, 5 operate weekdays and Saturdays, 6 operate all-day on just weekdays, and 7 operate in just weekday peak periods.
- *Minimum Service Frequencies* – the Metro Rapid program calls for very frequent service as one of the basic attributes, with at least 10-minute peak and 12-minute off-peak service in order to attract riders. However, 19 of the planned 24 Metro Rapid expansion corridors will initially not meet these minimum standard frequencies. The impact of less frequent service will vary from corridor to corridor, but will result in less ridership growth until additional service can be added.
- *Service Capacity* – when implementing the Metro Rapid Demonstration Program, additional capacity was deployed from the outset. On one corridor (Ventura) this capacity was adequate for passenger needs. However, the second corridor (Wilshire/Whittier) has required ongoing increases in capacity to meet ridership growth. Expansion of Metro Rapid service within available operating revenue requires that each line be scheduled as close to existing hours as possible while

allowing the miles to increase due to increased operating speeds and schedule restructuring. It is anticipated that additional operating resources may be needed to meet ridership demand.

### **NEXT STEPS**

Consistent with the proposed phasing plan, and working closely with each Service Sector, agreements will be executed with local jurisdictions to design and construct the signal priority and station elements of the program. To expedite implementation, staff will work with the Municipal Operators to accelerate those corridors which have been prepared for Metro Rapid deployment. Improvements to both the system attributes and operational performance of the program will be made, in part, based on the results of a recent MTA-sponsored Metro Rapid operator/customer survey. Consistent with the survey recommendations, staff will consider implementing one or more of the Metro Rapid attributes on other regional corridors in an effort to expand the program's qualities as quickly as possible. Staff will return to the Board with progress reports as Metro Rapid corridors are implemented.

### **ATTACHMENT**

#### **A. Metro Rapid Five-Year Implementation Plan**

Prepared by: Rex Gephart, Project Manager  
Long Range Planning & Coordination



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James L. de la Loza  
Executive Officer  
Countywide Planning & Development



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Roger Snoble  
Chief Executive Officer

# **Metro *Rapid*** LOS ANGELES

## **Five Year Implementation Plan**



Prepared by:



August 2002

# Metro Rapid

LOS ANGELES

## Five Year Implementation Plan

### 1 Five Year Implementation Plan Background

#### 1.1 Metro Rapid Demonstration

In March 1999 the MTA Board of Directors approved a two-corridor Metro Rapid Demonstration Program based on a purpose and need assessment that followed a visit to the very successful system in Curitiba, Brazil, by some MTA Board members and staff. In June 2000, together with the San Fernando Valley extension of the Metro Red Line, MTA introduced Metro Rapid Lines 720 and 750 serving the Wilshire-Whittier and Ventura corridors, respectively. From the first day, the demonstration has proven successful with the implementation of key Metro Rapid attributes, including unique vehicle and station "branding", transit signal priority, special stations with "next trip" displays and information kiosks, and "rail-like" operating characteristics. This has resulted in passenger travel times reduced by at least 25 percent and a nearly 40 percent increase in ridership, with one-third of the increase new riders to public transit. MTA's Metro Rapid program has become a model for other transit systems in both North American and overseas.

#### 1.2 Expansion Program

Based on this success, staff developed the Metro Rapid Expansion Program and presented it to the Board in February 2002. The Expansion Program identified over 20 corridors which best met the Metro Rapid program goals and objectives, and recommended a phasing plan designed to construct a network of Metro Rapid service over the next eleven years. The Board approved the expansion program for Metro Rapid, but requested an accelerated deployment of the Metro Rapid Program.



### 2 Accelerated Deployment

Working together with the City of Los Angeles, MTA has prepared an accelerated deployment Five Year Metro Rapid Implementation Plan. The Implementation Plan identifies the operating and capital costs associated with constructing and operating each corridor, and proposes an accelerated deployment schedule significantly shorter than that presented in the original Expansion Program. While significant staff work will be needed to refine the Plan as it moves forward to actual implementation, the accelerated schedule is achievable, contingent on resolving certain issues.



A construction and implementation critical path was developed for the initial phase of the Metro Rapid expansion program. Issues considered in the critical path included station design, fabrication, and installation; signal priority design, construction, and testing; vehicle procurement and make-ready; schedule development and operational training; marketing campaigns; and execution of the contracts and agreements necessary to fund the station construction and signal priority programs. The two key elements in the critical path were the station construction and signal priority implementation schedules.

## 2.1 Station Construction

It is unlikely that the station construction contract between the City of Los Angeles and MTA utilizing the City's new shelter advertising contractor, Viacom Decaux, will be executed in time to complete construction prior to the opening of the first two expansion corridors currently planned for December 2002. Consequently, it is recommended that implementation of these first two expansion lines move forward with temporary stations, as was done with the demonstration lines. It is expected that station development in the City of Los Angeles will keep pace with Metro Rapid corridor implementation after that point and will not be a further issue.

A second issue centers on construction of Metro Rapid stations in other cities and in the County of Los Angeles. To date, MTA has not constructed stations outside the City of Los Angeles, but is moving ahead with developing the necessary agreements to make this possible. It is anticipated that these agreements will be in place in time to meet station construction schedules for June and December 2003.

## 2.2 Signal Priority

The second issue in the Metro Rapid expansion schedule was found to be the signal priority construction schedule. To date, LADOT has installed and operated all of the transit signal priority, including certain areas outside of the City of Los Angeles under inter-local agreements. At the same time, MTA has been in the process of developing a test of an alternative transit priority system along a segment of Crenshaw Boulevard for the past several years and is likely to be ready for operational testing in 2003. Regardless, the Five Year Metro Rapid Implementation Plan calls for continued reliance on LADOT's highly successful signal priority system wherever feasible. The LADOT priority system has proven to be very reliable while achieving significant time savings for Metro Rapid without noticeable impact on other traffic and at minimal operating and capital cost.

LADOT is currently capable of deploying approximately 20 miles of signal priority per year. LADOT believes, however, that they can double the current rate of construction to over 40 miles annually provided that





additional resources are made available either through in-house staffing or a contractor. This accelerated rate of construction is anticipated to reduce the Metro Rapid deployment schedule from eleven years to six years (the current fiscal year, plus the next five), recognizing that the City of Los Angeles comprises only 2/3 of the entire 357 miles of planned Metro Rapid service.

### 2.3 Other Issues

The only other issue that had a possible impact on accelerated deployment was the availability of suitable transit vehicles for Metro Rapid service. Metro Rapid calls for operation of low-floor standard or high capacity buses. MTA has enough NABI low-floor CNG coaches, like those currently in operation of the Metro Rapid demonstration lines, to meet immediate term needs if they are "rebranded" and transferred to Metro Rapid. The high capacity vehicle procurement currently underway will provide the necessary vehicles for the balance of the five-year Metro Rapid implementation.

## 3 Operational Plan

The successful operation of the Phase I demonstration formed the basis of the operational elements for the Five Year Metro Rapid Implementation Plan. No fundamental changes are proposed.

### 3.1 Metro Rapid Attributes

Metro Rapid is defined by a number of attributes that contribute to its success, as shown below.

Attribute	Phase I Demonstration	Phase II
1. Frequent Service	Yes	Yes
2. Bus Signal Priority	Yes	Yes
3. Headway-based Schedules	Yes	Yes
4. Simple Route Layout	Yes	Yes
5. Less Frequent Stops	Yes	Yes
6. Integrated with Local Bus Service	Yes	Yes
7. Level Boarding and Alighting	Yes	Yes
8. "Branded" Buses and Stations	Yes	Yes



Attribute	Phase I Demonstration	Phase II
9. High Capacity Buses	No	Yes
10. Exclusive Lanes	No	Yes
11. All-Door Boarding	No	Yes

MTA reviewed the various attributes demonstrated in Phase I and those planned in Phase II to determine their continued viability.

The basic service attributes of frequent service, headway-based schedules, simple route layout, less frequent stops, integration with local bus service, and level boarding and alighting have all clearly resulted in a superior transit service based on customer, operator, and street supervisor reports. The remaining attributes involve additional capital investment by MTA and warrant additional discussion.

- Bus Signal Priority – analysis of LADOT’s bus signal priority system indicates that it has improved running times by some 8-10 percent, while simultaneously improving headway reliability by actively minimizing vehicle bunching. Both faster and more reliable operations are major customer attractors that directly result in increased ridership and revenue. As well, the reduced round trip cycle times attributable to bus signal priority directly reduce operating and capital expenses. For instance, the speed improvement on Line 720 serving Wilshire-Whittier translates into running time savings of 10-12 minutes per round trip, reducing operating expenses by some \$500,000 annually and eliminating the need for 3-5 peak vehicles, saving between \$1.05 and \$1.4 million in capital costs. This makes implementation of bus signal priority a very good return on investment for MTA.
- “Branded” Buses and Stations – MTA’s original model for Metro Rapid was Curitiba, Brazil’s now famous Bus Rapid Transit, which had “branded” services. The vehicle branding results in little capital cost, but requires MTA Operations and Maintenance to have two fleets ready every day, Metro Rapid and local. This has not been an issue as MTA Operations and Maintenance has done an excellent job in delivering the vehicles and service every day without increased cost. The “branded” stations have also received positive response from customers, operators, and street supervisors. The aspects most often cited: clear differentiation from local service, consistent with “rail-like” higher quality service including kiosks and “real-time” passenger information, longer distance visibility, station gates which help pre-queue





passengers for boarding and allow for more precise operator placement of the vehicle thereby minimizing dwell times, and few complaints from adjacent property owners. There also have been suggestions both internally and externally regarding ways to further refine the stations to make them even more effective. This is part of the five year implementation plan.

- High Capacity Buses – MTA commissioned a detailed review of the potential opportunities to use high capacity buses in both regular and Metro Rapid service. The report found that today's 45-foot buses and 60-foot articulated buses were mature cost-effective vehicles and had significant application for MTA in both Metro Rapid and regular operations. While the five year financial plan presented here is based on operation of the current 40-foot transit bus, the Plan will be updated for operation of high capacity vehicles as the availability and cost of these buses becomes known (MTA has just released a vehicle procurement for these buses).
- Exclusive Lanes – MTA in concert with the City of Los Angeles is initiating a test of exclusive lanes for Metro Rapid along Wilshire Boulevard in West Los Angeles. While it is clear that exclusive lanes will greatly help speed Metro Rapid service in congested areas, their benefit is less clear in areas of less or no congestion. While the Five Year Metro Rapid Implementation Plan presented here does not include exclusive lanes, the Plan will be updated based on the findings of the Wilshire test.
- All-Door Boarding – the MTA Universal Fare system includes the capability for boarding passengers with Smart Cards through the rear door(s). While expectations are that all-door boarding will reduce station dwell times, the benefit depends on passenger volumes. The Plan presented here does not include this capability, but it will be considered once testing is undertaken. If there are significant benefits, then the Plan will be refined to include this capability for all-door boarding.

### 3.2 Metro Rapid Service Providers

The Phase II Metro Rapid program calls for expansion of the service area to much of Los Angeles County. While most of the planned Metro Rapid services fall within MTA's historic service corridors, four lines do not and would be potential candidates for operation by municipal operators. The lines and likely operators are:

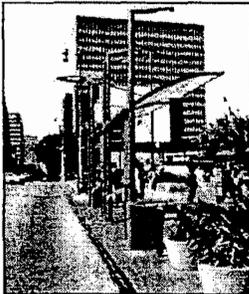


- Pico Santa Monica Municipal Bus Lines
- Sepulveda Culver City Municipal Bus Lines
- Torrance-Long Beach Torrance Transit
- Lincoln Santa Monica Municipal Bus Lines

This Plan calls for the same attributes, operating protocols, and branding to ensure a consistent “product” for the customer regardless of operator. MTA will be continuing to work closely with these Municipal operators regarding Metro Rapid implementation.

### 3.3 Deployment Within Available Revenue

Previous Board action provided funds for capital requirements, but did not include additional operating funds. Consequently, the Metro Rapid Implementation Plan assumes a deployment of Phase II corridors that is funded with available operating revenues. In order to meet this financial requirement, and taking into account the efficiency improvements resulting from both faster operating speeds and restructured operator schedules, the following modifications in Metro Rapid attributes were made:



- Seven Day Service – the policy of providing Metro Rapid service seven days a week has been modified to allow deployment only where appropriate from an operating cost standpoint. In some cases, operation of six or seven day schedules is appropriate regardless of operating cost constraints; in other cases expansion to a seven day service is sound only if funds become available. The proposed span of Metro Rapid service recommends that 6 of the 24 Metro Rapid expansion corridors operate seven-days a week, 5 operate weekdays and Saturdays, 6 operate all-day on just weekdays, and 7 operate in just weekday peak periods.
- Minimum Service Frequencies – the Metro Rapid program calls for very frequent service as one of the basic attributes, with at least 10-minute peak and 12-minute off-peak service in order to attract riders. However, 19 of the planned 24 Metro Rapid expansion corridors will not meet these minimum standard frequencies as currently proposed. The impact of less frequent service will vary from corridor to corridor, but will result in less ridership growth compared with the demonstration corridors which met the minimum requirements on opening day.
- Service Capacity – the Metro Rapid Demonstration Program deployed additional capacity from the outset. On one corridor (Ventura) this capacity was adequate for passenger needs. However, the second corridor (Wilshire/Whittier) has required ongoing increases in capacity to meet ridership growth.



Expansion of Metro Rapid service within available operating revenue requires that each line be scheduled as close to existing hours as possible while allowing the miles to increase due to increased operating speeds and schedule restructuring. It is anticipated that additional operating resources may be needed to meet ridership demand.

Implementation of Metro Rapid service attributes as originally adopted in the Long Range Transportation Plan (LRTP) will require additional resources. Given the need to work within existing budget limitations, the most likely source of these additional resources will be through service restructuring efficiencies achieved in conjunction with the Service Sectors and Area Teams.

### 3.4 Development of Corridor Service Plans

The expansion of Metro Rapid service calls for developing corridor service plans that efficiently utilize vehicle and labor resources in order to maximize service growth within existing operating revenue. To achieve this efficiency, the development of service plans for each corridor involves several essential steps:

- Review corridor ridership and characteristics to identify preliminary corridor alignment, station locations, and terminal sites.
- Continue policy whereby all station maintenance costs are funded through advertising and/or local jurisdictions.
- Review current service spans, frequencies, and running times
- Identify service periods during which Metro Rapid service would be provided (e.g., weekday peak, weekday midday, later evenings, Saturdays, and Sundays)
- Develop specific service frequencies by time of day and running times for both Metro Rapid and local services
- Prepare "pilot" Metro Rapid and local operating schedules for costing purposes (these will need considerable refinement for actual implementation)
- Determine service hours, miles, and peak vehicles by corridor and service type
- Determine additional TOS and BOC needs; plan calls for one dedicated TOS in the field during Metro Rapid operations and each BOC staff to handle 5-6 Metro Rapid lines when implementation is completed (*the investment in BOC/TOS support*)

*has proven to improve cost efficiency through the ability to maintain reduced running times and decreased vehicle bunching).*

The service plans provided the basis for determining Metro Rapid operating and capital costs.

#### 4 Proposed Metro Rapid Services

The proposed corridor services are those presented in the February 2002 Metro Rapid Expansion Program with three modifications based on continued refinement in developing the Implementation Plan.

- South Broadway
- Vermont
- Florence
- Van Nuys
- Soto
- Crenshaw-Rossmore
- Pico (*two branch line consolidated onto only the Pico corridor*)
- Santa Monica
- Hawthorne
- Long Beach Ave
- Hollywood-Fairfax-Pasadena
- Western
- Beverly
- Vernon-La Cienega
- Atlantic
- Central
- San Fernando-Lankershim (*San Fernando split into two lines*)
- West Olympic
- Garvey-Chavez
- Manchester
- San Fernando (south) (*San Fernando split into two lines*)
- Sepulveda (south)
- Torrance-Long Beach
- Lincoln

##### 4.1 Corridor Characteristics and Phasing

The proposed corridor characteristics including length of the Metro Rapid line, number and type of stations, and average station spacing are presented in Table 1.

Table 1 also presents the Metro Rapid implementation groups in five phases. The phase groupings were based on:



- Phase IIA Expand the network by introducing key connections
- Phase IIB Introduce Metro Rapid on some of the region's heaviest corridors while continuing development of the network
- Phases IIC-IIE Continue network development while focusing on major corridors

#### 4.2 Proposed Service Levels

The proposed Metro Rapid service is tailored to the current corridor needs while staying within available operating revenue. The proposed service spans and days of operation are presented in Table 2.

Table 3 presents the proposed service frequencies on each corridor. The frequencies shown are the combined local and Metro Rapid service and provide an indication of planned corridor capacity with Metro Rapid.

### 5 Metro Rapid Corridor Costs

Metro Rapid corridor operating and capital costs have been estimated based on the planned services and the facilities, vehicles, and staff needed to support the operation.

#### 5.1 Service Requirements



Table 4 presents the estimated service trips, revenue hours and miles, and peak vehicles required for the corridor, including both local and Metro Rapid services in comparison with current services. As well, Table 4 provides a breakout of peak and total Metro Rapid buses required by line.

The introduction of Metro Rapid will result in almost no change in peak vehicles and revenue hours, while providing a 9-10 percent increase in both service trips and revenue miles. This is the result of Metro Rapid's faster running.

#### 5.2 Operating Costs

Table 5 indicates the estimated annual operating costs for each of the Metro Rapid corridors based on the most recent available MTA cost allocation model for marginal costing. The incremental operating cost of implementing Metro Rapid over the current service operation is also included, as well as the estimated cost of operations support staff, including bus operations control center and transit operations supervision.

Metro Rapid will result in an increase of approximately \$11.6 million in additional annual costs for the 24 expansion lines. This will be offset by an additional \$6.5 million in estimated new passenger revenue.



### 5.3 Capital Costs

Table 6 presents the estimated capital costs for Metro Rapid, including stations, signal priority, revenue and non-revenue vehicles, and expansion of the Bus Operations Control Center. The overall capital cost of \$101.9 million is just over \$250,000 per mile for the additional 357 miles included in the Metro Rapid expansion program.

## 6 Metro Rapid Implementation Phasing

The Metro Rapid corridor implementation was phased based on both network expansion needs and the goal of expediting deployment of Metro Rapid on the heaviest corridors. The expansion of the LADOT bus signal priority system also influenced the phasing by limiting the number of line miles installed annually. Table 7 presents the proposed Metro Rapid five year implementation phasing.

## 7 Metro Rapid Financial Plan

Based on the planned Five Year Implementation Plan for Metro Rapid, a financial plan was prepared.

Table 8 presents the annual operating costs.

Table 9 presents the annual capital costs.

Table 10 presents the annual funding requirements.

## 8 Metro Rapid Implementation

This Five Year Implementation Plan provides the initial groundwork for developing the full network of Metro Rapid services. There is much additional work and refinement that will take place prior to the actual startup of services:

- Finalize alignments, station locations, and end-of-line terminals, including station layouts
- Refine the original station design to improve effectiveness, increase deployment opportunities, and reduce operating and capital costs; develop final station construction plan
- Identify opportunities for exclusive lane segments
- Finalize signal priority and passenger information display technology throughout the system
- Construct stations and any exclusive lane segments



- Install signal priority and passenger information display technology
- Refine of draft operating schedules
- Secure and prepare the Metro Rapid fleet, including consideration of upcoming high capacity buses for Metro Rapid operation
- Select and train operations staff
- Secure all necessary agreements required for implementation

The schedule for implementation of Metro Rapid Phase IIA is at present:

- December 2002 – South Broadway and Vermont
- June 2003 – Florence and Van Nuys
- December 2003 – Soto and Crenshaw-Rossmore

Throughout the implementation process will be close coordination among MTA's Metro Rapid group, MTA's Service Sectors, municipal operators, and local jurisdictions.

# Metro Rapid Expansion Program



**Metro Rapid Phase I** —

- Ventura
- Wilshire-Whittier

**Metro Rapid Phase II A** —

- South Broadway
- Vermont
- Florence
- Van Nuys
- Soto
- Crenshaw-Rossmore

**Metro Rapid Phase II B** —

- Pico
- Santa Monica
- Hawthorne
- Long Beach Blvd

**Metro Rapid Phase II C** —

- Hollywood-Fairfax-Pasadena
- Western
- Beverly
- Vernon-La Cienega

**Metro Rapid Phase II D**

- Atlantic
- Central
- San Fernando-Lankershim
- West Olympic

**Metro Rapid Phase II E** —

- Garvey-Chavez
- Manchester
- San Fernando (south)
- Sepulveda (south)
- Torrance-Long Beach
- Lincoln

**Metro Rapid Transitways**

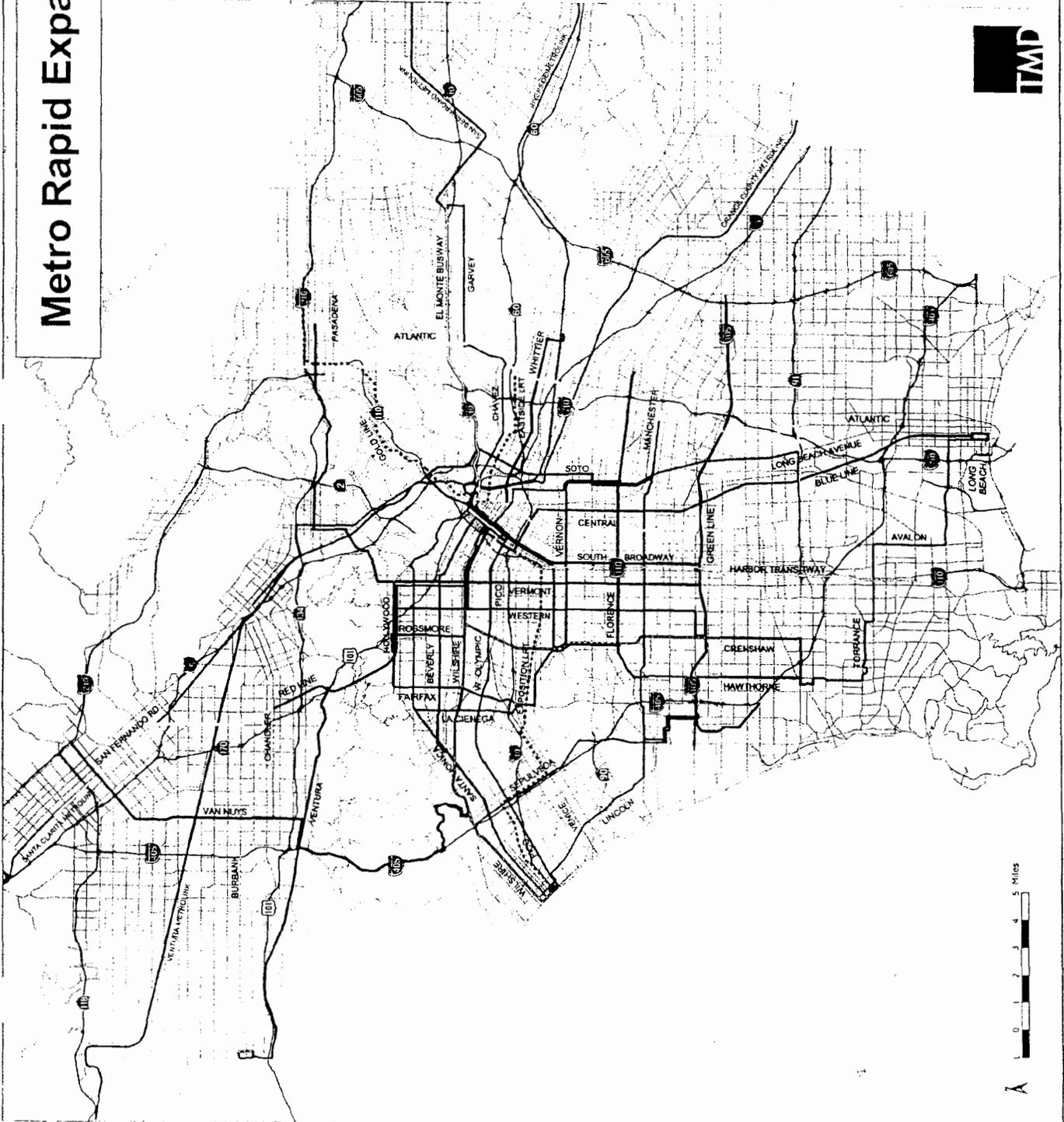
Existing Proposed

**Metro Rail**

Existing

..... Under Construction  
or Planned

**Metro Link** —



**Table 1**  
**Metro Rapid Corridor Characteristics**

	<b>Metro Rapid Line</b>	<b>Line Miles</b>	<b>Station Pairs</b>	<b>Average Station Spacing (miles)</b>
<b>PHASE II A</b>	South Broadway	10.5	16	0.66
	Vermont	11.9	17	0.70
	Florence	10.3	13	0.79
	Van Nuys	21.4	20	1.07
	Soto	10.0	15	0.67
	Crenshaw-Rossmore	18.8	22	0.85
<b>PHASE II B</b>	Pico	17.3	27	0.64
	Santa Monica	20.2	27	0.75
	Hawthorne	18.7	23	0.81
	Long Beach Blvd	15.3	23	0.67
<b>PHASE II C</b>	Hollywood-Fairfax-Pasadena	21.5	27	0.80
	Western	13.1	19	0.69
	Beverly	11.0	16	0.69
	Vernon-La Cienega	16.5	23	0.72
<b>PHASE II D</b>	Atlantic	25.1	27	0.93
	Central	10.6	13	0.81
	San Fernando-Lankershim	9.9	10	0.99
	West Olympic	12.1	21	0.58
<b>PHASE II E</b>	Garvey-Chavez	14.7	22	0.67
	Manchester	13.5	15	0.90
	San Fernando (south)	13.6	18	0.76
	Sepulveda (south)	12.8	16	0.80
	Torrance-Long Beach	15.6	20	0.78
	Lincoln	12.1	13	0.93
	<b>Total Phase II</b>	<b>356.5</b>	<b>460</b>	<b>0.78</b>

Table 2  
 Metro Rapid Corridor Proposed Service Spans

		Weekday Peak	Weekday Midday	Weekday Evening <sup>1</sup>	Saturday	Sunday
PHASE II A	South Broadway	X	X	X	X	X
	Vermont	X	X	X	X	X
	Florence	X	X		X	X
	Van Nuys	X	X	X	X	X
	Soto	X	X		X	
	Crenshaw-Rossmore	X	X			
PHASE II B	Pico	X	X	X	X	X
	Santa Monica	X	X	X	X	X
	Hawthorne	X	X		X	
	Long Beach Blvd	X	X		X	X
PHASE II C	Hollywood-Fairfax-Pasadena	X	X			
	Western	X	X	X	X	X
	Beverly	X				
	Vernon-La Cienega	X				
PHASE II D	Atlantic	X				
	Central	X				
	San Fernando-Lankershim	X	X			
	West Olympic	X	X			
PHASE II E	Garvey-Chavez	X	X		X	
	Manchester	X				
	San Fernando (south)	X	X			
	Sepulveda (south)	X				
	Torrance-Long Beach	X				
	Lincoln	X	X			

<sup>1</sup> Weekday evening indicates service that operates after 9:00 pm.

Table 3  
Metro Rapid Corridor Frequency Comparison (In minutes)

Metro Rapid Line	All Peak			Off Peak			PM Peak			Secondary			Sundry			
	Existing	Proposed	% Change	Existing	Proposed	% Change	Existing	Proposed	% Change	Existing	Proposed	% Change	Existing	Proposed	% Change	
PHASE II A																
South Broadway	2.7	2.6	0.1	4.3%	10.0	7.5	2.5	25.0%	3.5	3.3	0.2	4.8%	10.0	7.5	2.5	25.0%
Vermont	3.0	2.9	0.1	4.8%	5.0	4.6	0.4	7.7%	3.0	2.9	0.1	4.8%	8.0	4.8	3.2	40.0%
Pierson	5.5	5.5	0.0	0.0%	11.0	10.0	1.0	9.1%	6.0	6.0	0.0	0.0%	10.0	10.0	0.0	0.0%
Van Nuys	6.3	6.0	0.3	5.0%	12.0	8.6	3.4	28.6%	7.5	8.0	0.5	6.7%	12.0	8.6	3.4	28.6%
Solo	8.0	5.0	3.0	37.5%	9.0	8.6	0.4	4.8%	8.0	6.0	2.0	25.0%	12.0	10.0	2.0	16.7%
Greenhaw/Rossmore	8.2	8.0	0.2	3.3%	12.0	10.0	2.0	16.7%	8.0	5.5	2.5	31.3%	8.0	6.0	2.0	25.0%
PHASE II B																
Irma	3.0	3.0	0.0	0.0%	7.5	8.7	-1.2	-11.1%	3.5	3.3	0.2	4.8%	6.0	6.0	0.0	0.0%
Sanita Morica	3.4	2.8	0.6	15.2%	8.5	8.0	0.5	6.4%	3.8	3.3	0.5	11.1%	7.0	6.5	0.5	7.1%
Hawthorne	6.0	6.0	0.0	0.0%	10.0	9.8	0.2	2.0%	8.0	8.0	0.0	0.0%	10.0	8.8	1.2	12.0%
Long Beach Blvd	4.0	3.8	0.2	5.0%	8.5	7.5	1.0	11.8%	3.4	3.3	0.1	2.9%	8.0	7.5	0.5	6.3%
PHASE II C																
Hollywood-Fairfax-Pasadena	7.5	6.0	1.5	20.0%	12.0	10.0	2.0	16.7%	7.5	6.9	0.6	8.0%	8.0	6.0	2.0	25.0%
Western	5.0	4.6	0.4	7.7%	6.0	5.4	0.6	8.8%	4.0	3.5	0.5	11.4%	6.0	6.0	0.0	0.0%
Beverly	6.5	6.0	0.5	7.7%	7.0	6.7	0.3	4.3%	6.5	6.0	0.5	7.7%	7.0	6.7	0.3	4.3%
Vermont/Claremont	7.0	6.7	0.3	4.3%	7.0	6.7	0.3	4.3%	7.0	6.7	0.3	4.3%	7.0	6.7	0.3	4.3%
PHASE II D																
Atlantic	8.1	8.6	-0.5	-6.2%	10.0	8.6	1.4	14.0%	10.0	8.6	1.4	14.0%	10.0	8.6	1.4	14.0%
Central	4.0	4.0	0.0	0.0%	9.0	5.5	3.5	38.9%	9.0	5.5	3.5	38.9%	9.0	5.5	3.5	38.9%
San Fernando-Lincoln	5.0	3.3	1.7	33.3%	15.0	8.6	6.4	42.9%	8.0	4.4	3.6	45.0%	10.0	3.3	6.7	67.0%
West Olympic	2.9	2.7	0.2	6.9%	6.0	7.5	-1.5	-25.0%	4.1	3.8	0.3	7.3%	4.0	3.9	0.1	2.5%
PHASE II E																
Ganey-Chavez	4.5	3.4	1.1	23.8%	6.0	5.0	1.0	16.7%	4.0	3.9	0.1	2.5%	6.5	6.0	0.5	7.7%
Manchester	5.2	5.0	0.2	4.2%	6.0	6.0	0.0	0.0%	6.0	6.0	0.0	0.0%	6.0	6.0	0.0	0.0%
San Fernando (south)	6.0	5.5	0.5	8.3%	15.0	10.0	5.0	33.3%	6.5	6.0	0.5	7.7%	6.5	6.0	0.5	7.7%
Sepulveda (south)	12.0	10.0	2.0	16.7%	12.0	10.0	2.0	16.7%	12.0	10.0	2.0	16.7%	12.0	10.0	2.0	16.7%
Torrance-Long Beach	15.0	12.0	3.0	20.0%	15.0	12.0	3.0	20.0%	15.0	12.0	3.0	20.0%	15.0	12.0	3.0	20.0%
Lincoln	10.0	10.0	0.0	0.0%	10.0	10.0	0.0	0.0%	10.0	10.0	0.0	0.0%	10.0	10.0	0.0	0.0%
Averages	6.1	5.5	0.6	9.5%	9.7	7.9	1.8	18.6%	6.6	5.8	0.8	12.1%	8.2	7.3	0.9	11.0%

Table 4  
Corridor Service Requirement Comparison

Metro Rapid Line	Corridor Daily Trips			Corridor Peak Vehicles			Annual Corridor Revenue Hours			Annual Corridor Revenue Miles			Required Metro Rapid Fleet							
	Existing	Proposed	% Change	Existing	Proposed	% Change	Existing	Proposed	% Change	Existing	Proposed	% Change	AM Peak	PM Peak	Spares (20%)	Total				
PHASE II A																				
South Broadway	294	318	44	15.0%	45	43	(2)	-4.4%	123,047	132,378	9,332	7.6%	1,368,879	1,548,746	181,866	13.3%	22	20	5	27
Vermont	455	515	60	13.2%	52	50	(2)	-3.8%	183,575	184,839	1,264	0.7%	1,891,100	2,182,790	291,690	15.4%	34	32	7	41
Florence	242	269	27	11.2%	25	26	1	4.0%	98,913	101,271	2,358	2.4%	1,223,062	1,287,931	64,869	5.3%	9	10	2	12
Van Nuys	204	256	52	25.5%	28	29	1	3.6%	112,378	110,510	(1,868)	-1.7%	1,457,281	1,576,246	118,965	8.2%	18	20	4	24
Solo	267	304	37	13.8%	32	31	(1)	-3.1%	101,555	102,195	640	0.6%	1,000,927	1,112,225	111,298	11.1%	15	15	3	18
Gresham-Rossmore	209	230	21	10.0%	33	31	(2)	-6.1%	105,280	105,815	534	0.5%	1,241,297	1,355,869	114,572	9.2%	16	18	4	22
PHASE II B																				
Pico	349	393	44	12.6%	60	62	2	3.3%	204,733	206,011	1,278	0.6%	2,060,721	2,291,879	231,158	11.2%	21	26	6	32
Santa Monica	354	423	69	19.5%	55	54	(1)	-1.8%	216,705	207,535	(9,170)	-4.0%	2,255,369	2,550,965	301,587	13.4%	33	37	4	45
Hawthorne	247	260	13	5.3%	42	33	(9)	-21.4%	140,910	139,799	(1,111)	-0.8%	1,582,090	1,641,151	59,062	3.7%	21	20	5	26
Long Beach Blvd	311	334	23	7.4%	46	50	4	8.7%	163,621	186,808	23,187	1.9%	1,821,421	2,085,148	244,727	13.4%	20	23	5	28
PHASE II C																				
Hollywood-Fairfax-Pasadena	442	366	(86)	-12.7%	50	47	(3)	-6.0%	181,724	186,481	4,758	2.6%	1,895,161	2,091,104	201,942	10.6%	20	23	5	28
Westem	361	377	16	4.4%	36	37	1	2.8%	145,202	143,090	(2,112)	-1.5%	1,536,749	1,732,861	196,112	12.8%	18	23	5	28
Beverly	390	390	0	0.0%	32	35	3	9.4%	107,789	108,432	643	0.6%	1,119,624	1,175,546	55,922	5.0%	8	8	2	10
Vermont-La Cienega	176	187	11	6.3%	26	28	2	7.7%	91,253	91,508	255	0.3%	1,113,206	1,109,893	(3,315)	-0.3%	14	15	3	18
PHASE II D																				
Atlantic	142	154	12	8.5%	28	28	0	0.0%	85,071	88,224	3,153	3.7%	1,000,371	1,185,643	185,272	18.5%	13	15	3	18
Central	164	219	55	33.5%	24	25	1	4.2%	74,834	78,037	3,203	4.3%	871,728	922,243	50,515	5.8%	10	10	2	12
San Fernando-Lankershim	121	121	0	0.0%	8	8	0	0.0%	19,457	19,457	0	0.0%	306,000	306,000	0	0.0%	7	8	2	10
West Olympic	346	369	23	6.6%	42	43	1	2.4%	106,615	113,910	7,295	6.9%	1,197,068	1,374,513	177,225	14.8%	18	18	4	22
PHASE II E																				
Garvey-Chavez	408	477	69	16.9%	45	44	(1)	-2.2%	192,770	178,776	(13,993)	-7.3%	2,224,855	2,173,891	(50,964)	-2.3%	17	20	4	24
Manchester	178	185	7	3.9%	28	27	(1)	-3.6%	81,064	81,064	0	0.0%	1,016,283	1,026,893	10,610	1.1%	11	10	3	14
San Fernando (north)	193	226	33	17.1%	37	31	(6)	-16.2%	120,556	113,064	(7,492)	-6.2%	1,719,031	1,648,141	(70,890)	-4.1%	12	14	3	17
Sepulveda (north)	140	149	9	6.4%	15	15	0	0.0%	60,029	59,519	(510)	-0.8%	602,700	633,555	30,855	5.1%	6	6	2	8
Torrance-Long Beach	130	130	0	0.0%	11	14	3	27.3%	51,912	48,597	(3,315)	-6.4%	690,071	684,206	(5,865)	-0.8%	4	4	1	5
Lincoln	184	205	21	11.4%	17	18	1	5.9%	72,535	73,657	1,122	1.5%	810,139	911,042	100,904	12.5%	5	5	1	6
Totals	8,286	8,647	361	4.4%	808	809	1	0.1%	2,827,871	2,842,517	15,646	0.6%	31,711,185	34,955,403	2,844,218	9.1%	312	400	89	495

Note: Hollywood-Fairfax-Pasadena Metro Rapid operates over a combination of Line 217-Fairfax and Lines 180/181-Hollywood-Pasadena; this results in 2 local trips combined into one longer Metro Rapid trip, reducing the number of trips, but not service.

Table 5  
Annual Corridor Operating Cost Comparison

	Metro Rapid Line	Existing <sup>1</sup>	Proposed <sup>2</sup>	Net Change (Incremental Cost)	Percent Change
PHASE II A	South Broadway	\$7,331,000	\$8,484,000	\$1,153,000	15.7%
	Vermont	\$10,476,000	\$11,555,000	\$1,079,000	10.3%
	Florence	\$6,017,000	\$6,457,000	\$440,000	7.3%
	Van Nuys	\$6,929,000	\$7,605,000	\$676,000	9.8%
	Soto	\$5,752,000	\$6,186,000	\$434,000	7.5%
	Crenshaw-Rossmore	\$6,336,000	\$6,726,000	\$390,000	6.2%
PHASE II B	Pico	\$11,620,000	\$12,443,000	\$823,000	7.1%
	Santa Monica	\$12,329,000	\$12,829,000	\$500,000	4.1%
	Hawthorne	\$8,307,000	\$8,704,000	\$397,000	4.8%
	Long Beach Blvd	\$9,583,000	\$10,454,000	\$871,000	9.1%
PHASE II C	Hollywood-Fairfax-Pasadena	\$10,236,000	\$11,137,000	\$901,000	8.8%
	Western	\$8,297,000	\$8,859,000	\$562,000	6.8%
	Beverly	\$6,185,000	\$6,441,000	\$256,000	4.1%
	Vernon-La Cienega	\$5,528,000	\$5,648,000	\$120,000	2.2%
PHASE II D	Atlantic	\$5,394,000	\$5,860,000	\$466,000	8.6%
	Central	\$4,484,000	\$4,731,000	\$247,000	5.5%
	San Fernando-Lankershim	\$0	\$1,521,000	\$1,521,000	N/A
	West Olympic	\$6,482,000	\$7,191,000	\$709,000	10.9%
PHASE II E	Garvey-Chavez	\$11,321,000	\$10,950,000	(\$371,000)	-3.3%
	Manchester	\$5,022,000	\$5,122,000	\$100,000	2.0%
	San Fernando (south)	\$7,794,000	\$7,516,000	(\$278,000)	-3.6%
	Sepulveda (south)	\$3,372,000	\$3,504,000	\$132,000	3.9%
	Torrance-Long Beach	\$3,202,000	\$3,207,000	\$5,000	0.2%
	Lincoln	\$4,211,000	\$4,633,000	\$422,000	10.0%
<b>Total Phase II Operating Cost <sup>1,2</sup></b>		<b>\$166,208,000</b>	<b>\$177,763,000</b>	<b>\$11,555,000</b>	<b>7.0%</b>

<sup>1</sup> Existing operating cost includes both local and limited services on the corridor in FY2002 dollars.

<sup>2</sup> Proposed operating cost includes both Metro Rapid and local services on the corridor in FY2002 dollars.

Table 6  
Corridor Capital Costs

Metro Rapid Line	Stations <sup>1</sup>				Signal Priority		Revenue Vehicles			Ops Support		Line Capital Cost
	Single Gate	Double Gate	Double Gate	Double Gate	Line Miles	Ave Cost per Mile	40-foot Buses	40-ft Bus Cost	Cost	Cost	Cost	
	Cost	Cost	Cost	Cost								
PHASE II A	26	\$54,900	4	\$88,200	\$1,780,200	10.5	\$141,800	(2)	\$340,000	(\$680,000)	\$214,000	\$2,800,200
	26	\$54,900	6	\$88,200	\$1,956,600	11.9	\$250,699	(2)	\$340,000	(\$660,000)	\$339,000	\$4,598,600
	24	\$54,900	0	\$88,200	\$1,317,600	10.3	\$155,157	1	\$340,000	\$340,000	\$44,000	\$3,299,600
	38	\$54,900	0	\$88,200	\$2,086,200	21.4	\$121,262	0	\$340,000	\$0	\$44,000	\$4,730,200
PHASE II B	30	\$54,900	0	\$88,200	\$1,647,000	10.0	\$119,167	(1)	\$340,000	(\$340,000)	\$214,000	\$2,715,000
	42	\$54,900	0	\$88,200	\$2,305,800	18.8	\$114,473	(2)	\$340,000	(\$680,000)	\$44,000	\$3,821,800
	36	\$54,900	2	\$88,200	\$2,152,800	17.3	\$102,631	2	\$340,000	\$680,000	\$44,000	\$4,653,800
	44	\$54,900	4	\$88,200	\$2,786,400	20.2	\$125,617	(1)	\$340,000	(\$340,000)	\$44,000	\$5,009,400
PHASE II C	21	\$54,900	0	\$88,200	\$1,152,900	18.7	\$146,262	(9)	\$340,000	(\$3,060,000)	\$214,000	\$1,040,900
	28	\$54,900	0	\$88,200	\$1,537,200	15.3	\$149,983	4	\$340,000	\$1,360,000	\$44,000	\$5,236,200
	52	\$54,900	0	\$88,200	\$2,854,800	21.5	\$134,112	(3)	\$340,000	(\$1,020,000)	\$44,000	\$4,761,800
	31	\$54,900	5	\$88,200	\$2,142,900	13.1	\$256,231	1	\$340,000	\$340,000	\$44,000	\$5,883,900
PHASE II D	30	\$54,900	0	\$88,200	\$1,647,000	11.0	\$140,711	3	\$340,000	\$1,020,000	\$44,000	\$4,259,000
	34	\$54,900	0	\$88,200	\$1,866,600	16.5	\$182,279	2	\$340,000	\$680,000	\$44,000	\$5,598,600
	52	\$54,900	0	\$88,200	\$2,854,800	25.1	\$182,117	2	\$340,000	\$680,000	\$44,000	\$7,647,800
	19	\$54,900	0	\$88,200	\$1,043,100	10.8	\$174,245	1	\$340,000	\$340,000	\$44,000	\$3,269,100
PHASE II E	18	\$54,900	0	\$88,200	\$988,200	9.9	\$120,918	8	\$340,000	\$2,720,000	\$44,000	\$4,945,200
	38	\$54,900	2	\$88,200	\$2,262,600	12.1	\$149,474	1	\$340,000	\$340,000	\$44,000	\$4,455,600
	30	\$54,900	0	\$88,200	\$1,647,000	14.7	\$161,764	(1)	\$340,000	(\$340,000)	\$44,000	\$3,729,000
	28	\$54,900	0	\$88,200	\$1,537,200	13.5	\$156,659	(1)	\$340,000	(\$340,000)	\$44,000	\$3,356,200
PHASE II E	25	\$54,900	4	\$88,200	\$1,725,300	13.6	\$314,723	(6)	\$340,000	(\$2,040,000)	\$44,000	\$4,009,300
	24	\$54,900	0	\$88,200	\$1,317,600	12.8	\$120,918	0	\$340,000	\$0	\$44,000	\$2,909,600
	38	\$54,900	0	\$88,200	\$2,086,200	15.6	\$202,913	3	\$340,000	\$1,020,000	\$44,000	\$6,315,200
	18	\$54,900	0	\$88,200	\$988,200	12.1	\$118,509	1	\$340,000	\$340,000	\$44,000	\$2,806,200
<b>Total Phase II</b>	<b>752</b>		<b>27</b>	<b>\$43,686,200</b>	<b>356.5</b>	<b>\$157,047</b>	<b>1</b>	<b>\$340,000</b>	<b>\$340,000</b>	<b>\$1,861,000</b>	<b>\$101,856,200</b>	

All capital costs in FY2002 dollars

<sup>1</sup> These are individual stations; Table 1 shows station pairs. More than one Metro Rapid line may share a station; in these cases station costs are shown for the first line implemented.

Table 7  
Five Year Implementation Phasing

Metro Rapid Line	Total Miles of Metro Rapid Corridor									
	FY2002 - FY2003	FY2003 - FY2004	FY2004 - FY2005	FY2005 - FY2006	FY2006 - FY2007	FY2007 - FY2008	TOTAL			
South Broadway	10.5						10.5			
Vermont	11.9						11.9			
Florence		10.3					10.3			
Van Nuys		21.4					21.4			
Soto		10.0					10.0			
Crenshaw-Rossmore		18.8					18.8			
Pico			17.3				17.3			
Santa Monica			20.2				20.2			
Hawthorne			18.7				18.7			
Long Beach Blvd.			15.3				15.3			
Hollywood-Fairfax-Pasadena				21.5			21.5			
Western				13.1			13.1			
Beverly				11.0			11.0			
Vernon-La Cienega				16.5			16.5			
Atlantic					25.1		25.1			
Central					10.6		10.6			
San Fernando-Lankershim					9.9		9.9			
West Olympic					12.1		12.1			
Garvey-Chavez						14.7	14.7			
Manchester						13.5	13.5			
San Fernando (south)						13.6	13.6			
Sepulveda (south)						12.8	12.8			
Torrance-Long Beach						15.6	15.6			
Lincoln						12.1	12.1			
<b>Total Phase II</b>	<b>22.4</b>	<b>60.6</b>	<b>71.5</b>	<b>62.1</b>	<b>57.7</b>	<b>82.3</b>	<b>356.5</b>			

Table 8  
Five Year Plan Incremental Operating Costs<sup>1</sup>

Metro Rapid Line	Incremental Operating Costs (FY2002 Dollars)							
	FY2002 - FY2003 <sup>2</sup>	FY2003 - FY2004	FY2004 - FY2005	FY2005 - FY2006	FY2006 - FY2007	FY2007 - FY2008		
PHASE II A								
South Broadway	\$576,500	\$1,153,000	\$1,153,000	\$1,153,000	\$1,153,000	\$1,153,000	\$1,153,000	\$1,153,000
Vermont	\$539,500	\$1,079,000	\$1,079,000	\$1,079,000	\$1,079,000	\$1,079,000	\$1,079,000	\$1,079,000
Florence		\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000	\$440,000
Van Nuys		\$676,000	\$676,000	\$676,000	\$676,000	\$676,000	\$676,000	\$676,000
Soto		\$434,000	\$434,000	\$434,000	\$434,000	\$434,000	\$434,000	\$434,000
Crenshaw-Rossmore		\$390,000	\$390,000	\$390,000	\$390,000	\$390,000	\$390,000	\$390,000
PHASE II B								
Pico		\$623,000	\$623,000	\$623,000	\$623,000	\$623,000	\$623,000	\$623,000
Santa Monica		\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Hawthorne		\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000	\$397,000
Long Beach Blvd		\$871,000	\$871,000	\$871,000	\$871,000	\$871,000	\$871,000	\$871,000
PHASE II C								
Hollywood-Fairfax-Pasadena								
Western								
Beverly								
Vernon-La Cienega								
PHASE II D								
Atlantic								
Central								
San Fernando-Lankershim								
West Olympic								
PHASE II E								
Garvey-Chavez								
Manchester								
San Fernando (south)								
Sepulveda (south)								
Torrance-Long Beach								
Lincoln								
TOTAL PHASE II								
Incremental Operating Cost	\$1,116,000	\$4,172,000	\$6,783,000	\$6,602,000	\$11,545,000	\$11,555,000	\$11,555,000	\$11,555,000
Incremental Operating Revenue <sup>3</sup>	\$595,000	\$2,321,000	\$3,769,000	\$5,122,000	\$6,332,000	\$6,480,000	\$6,480,000	\$6,480,000
Net Required Operating Subsidy	(\$521,000)	(\$1,851,000)	(\$2,994,000)	(\$3,480,000)	(\$5,213,000)	(\$5,075,000)	(\$5,075,000)	(\$5,075,000)

<sup>1</sup> Incremental operating cost is the differential of the proposed operating cost and the existing operating cost.

<sup>2</sup> FY2002-2003 costs reflect mid-year implementation of Metro Rapid service.

<sup>3</sup> Incremental operating revenue is the estimated increase in patronage times the average fare of \$0.692.

Table 9  
Five Year Plan Capital Costs

Metro Rapid Line		Capital Costs (FY2002 Dollars)						
		FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
PHASE II A	South Broadway	\$2,800,200						
	Vermont	\$4,598,600						
	Florence		\$3,299,600					
	Van Nuys		\$4,730,200					
	Soto		\$2,715,000					
PHASE II B	Crenshaw-Rossmore		\$3,821,800					
	Pico				\$4,653,800			
	Santa Monica				\$5,009,400			
	Hawthorne				\$1,040,900			
	Long Beach Blvd				\$5,236,200			
PHASE II C	Hollywood-Fairfax-Pasadena					\$4,761,800		
	Western					\$5,883,900		
	Beverly					\$4,259,000		
	Vernon-La Cienega					\$5,598,600		
	Atlantic						\$7,647,800	
PHASE II D	Central						\$3,269,100	
	San Fernando-Lankershim						\$4,949,200	
	West Olympic						\$4,455,600	
	Garvey-Chavez							\$3,729,000
	Manchester							\$3,356,200
PHASE II E	San Fernando (south)							\$4,009,300
	Sepulveda (south)							\$2,909,600
	Torrance-Long Beach							\$6,315,200
	Lincoln							\$2,806,200
	<b>Total Phase II</b>		<b>\$7,398,800</b>	<b>\$14,566,600</b>	<b>\$15,940,300</b>	<b>\$20,503,300</b>	<b>\$20,321,700</b>	<b>\$23,125,500</b>

All costs are in FY2002 dollars.

**Table 10**  
**Metro Rapid Five-Year Implementation Plan**  
**Capital Expenditure and Funding Plan FY 03-08**  
 (\$ Escalated and in Millions)

Expenditure Plan	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	Total
BSP Installation	4.570	7.884	9.975	11.770	9.915	16.921	-	-	61.035
Station Construction	3.821	7.688	8.126	9.279	7.949	10.549	-	-	47.413
TOS vans	0.088	0.186	0.191	0.196	0.201	0.309	-	-	1.171
BOCC/Other ITS Hardware	0.025	0.824	-	-	-	-	-	-	0.849
<b>Total Expenditure</b>	<b>8.504</b>	<b>16.583</b>	<b>18.293</b>	<b>21.245</b>	<b>18.064</b>	<b>27.779</b>	<b>-</b>	<b>-</b>	<b>110.468</b>

Funding Plan	Funding Source	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	Total
BSP Installation	CFP	4.570	3.228	1.735	3.066	1.632	-	-	-	14.231
Station Construction <sup>1</sup>	Fed/Local	3.821	1.754	-	-	-	-	-	-	5.575
TOS vans	Local	0.088	-	-	-	-	-	-	-	0.088
BOCC/Other ITS Hardware <sup>2</sup>	Fed/Local	0.025	-	-	-	-	-	-	-	0.025
<b>Long Range Plan (LRTP)</b>	<b>Fed/Local</b>	<b>-</b>	<b>-</b>	<b>12.500</b>	<b>19.600</b>	<b>13.100</b>	<b>14.200</b>	<b>12.200</b>	<b>20.700</b>	<b>92.300</b>
<b>Total Funding</b>		<b>8.504</b>	<b>4.982</b>	<b>14.235</b>	<b>22.666</b>	<b>14.732</b>	<b>14.200</b>	<b>12.200</b>	<b>20.700</b>	<b>112.219</b>

Balance <sup>3</sup>	(11.601)	(4.058)	1.421	(3.332)	(13.579)	12.200	20.700	1.752

**Notes:**

1. Approved as STIP funds in the 2001 Call for Projects (Board report November 2001). Project has since been funded with CMAQ.
2. Funding comes from FY02 carryover funds.
3. It is anticipated that internal fund transfers and other short-term financing mechanisms will be used to annually balance FY04-08 of the Five-Year Implementation Plan.

**Abbreviations:**

- BSP = Bus Signal Priority
- TOS = Transit Operations Supervisor
- BOCC = Bus Operations Control Center
- ITS = Intelligent Transportation Systems
- STIP = State Transportation Improvement Program
- CMAQ = Congestion Mitigation and Air Quality Improvement Program
- CFP = Call for Projects