



**Metro**

Los Angeles County  
Metropolitan Transportation Authority


One Gateway Plaza  
Los Angeles, CA 90012-2952

213.922.2000 Tel  
metro.net

**APRIL 13, 2012**

**TO: BOARD OF DIRECTORS**

**THROUGH: ARTHUR T. LEAHY**   
**CHIEF EXECUTIVE OFFICER**

**FROM: FRANK ALEJANDRO**   
**CHIEF OPERATIONS OFFICER**

**SUBJECT: METRO BLUE LINE SERVICE DISRUPTIONS**

**ISSUE**

Several incidents in January and February on the Metro Blue Line system have resulted in serious service delays. The service delays are due to a combination of power system failures, accidents, and scheduled delays related to the construction and activation of the Expo light rail line.

The number of trips delayed or canceled in January and February appear to be anomalies caused by the spikes in accidents and construction related problems. Metro Blue Line service dependability during the first two weeks of March was better than the delay rate for the 2011 average; however, we had significant delays on March 26 largely caused by damaged overhead power lines.

The Metro Blue Line which opened in July 1990 is Metro's oldest rail line and one of the busiest light rail lines in the nation. The Blue Line transports an average of 80,000 riders per weekday, over 26 million riders in 2011, and ridership is growing. Metro delivered 87,000 scheduled trips, traveled 1.7 million miles, and provided 77,000 scheduled train revenue hours. The Metro Blue Line has 69 Rail assigned cars with an average age of 22 years and 1.28 million miles per car. The line's rail cars programmed revenue service life is 30 years. There are 22 rail stations, 46 miles of track, 46 miles of overhead electrification wire, and 20 traction power substations.

More frequent service was recently added to the Metro Blue Line to improve the headways from 20 to 10 minutes during late night. Safety and security of the service has also improved with the deployment of additional Los Angeles Sheriff Department deputies, specialized teams and security assistants. Additional

Metro Security Officer coverage was assigned to more evening shifts, and Friday nights and Saturdays to ensure a safer, more secure trip for our patrons.

In addition, we are working closely with Los Angeles Sheriff Department and other law enforcement agencies to reduce delays caused by crime scene investigations. A recent unrelated shooting at a park next to the Metro Blue Line Firestone Station, for example, caused service delays of more than five hours.

## **DISCUSSION**

An extensive review of service delays five minutes or more was recently conducted and noted that many of these service delays can be attributed to accidents, rail vehicle and rail operation incidents, and Expo construction. The delays or cancellations associated with downtown Expo construction, which accounted for most of the delays, took place late at night and bus bridges were established to minimize the impact on our patrons. With the Expo Line opening at the end of April, those impacts, which went on for almost three years, should be eliminated.

A total of (17) seventeen incidents on the Metro Blue Line caused the biggest delays in January and February 2012:

- Six delays due to equipment malfunction on rail vehicles;
- Five delays due to rail accidents;
- Two delays due to late completion of track work repair and operator error;
- Two delays due to traction power, power breakers tripped open and would not re-close and overhead cantenary system broken contact wires;
- One delay due to police/passenger activity;
- One delay due to track maintenance.

Fundamentally, the delays associated with car or traction power problems are the result of significant deferred maintenance. We expect this work to continue in the coming eight years.

Staff has been aggressively addressing the impact of deferred maintenance and is experiencing some improvement. More than \$64 million has already been spent and the agency has identified another \$494 million in projects through FY2020 on the Metro Blue Line. This problem was identified by staff and investments to recover the deferred maintenance were significantly increased in 2010 and 2011 (Attachment 1).

Accident related delays were unusually high during this time. Safety remains a top priority for the Agency and we are continuing outreach programs in the surrounding areas. We have reviewed the characteristics of the accident locations to determine if additional safety improvements are needed. Additionally, we are in the process of producing 250,000 door hangers with

safety messages and we have placed six rail safety ambassadors to educate the public about how to cross the tracks safely.

Track and traction power delays involved scheduled work which started late and damage to the overhead cantenary wires that failed multiple times. We will review scheduled work and reschedule accordingly to avoid any service impact to our customers. The overhead cantenary wires were repaired immediately following the delays and we have capital funding to complete refurbishment of the overhead cantenary system.

Deferred maintenance on the rail cars, power and other components has had an impact on service reliability as evidenced by the decline of miles between mechanical breakdowns, from 26,030 in fiscal year 2008 to 19,512 in fiscal year 2011.

In 2011, we identified \$1.3 billion in agency-wide deferred maintenance and replacements which included costs for the Metro Blue Line. Staff is aggressively addressing the deferred maintenance that built up over the last 8 to 10 years. The Metro Blue Line cost of deferred maintenance is \$239 million which includes \$138 million for rail cars (Attachment 2). This cost is for the mid-life rail car overhaul that was reprogrammed with the anticipated delivery of new rail cars. The new rail car delivery was delayed when the Breda rail car option deal was canceled. The work being done now on the rail cars is a component overhaul, including motors, electrical, brakes, communications, interior and exterior, which will keep the rail cars running in good order until scheduled replacement in six or seven years.

Improvements to the system began three years ago with multiple projects, in addition to the component overhaul, including traction power, track and communications improvements. It will take time to complete the replacement and deferred maintenance campaigns; however, it is a priority for the agency. Recent changes in Operations' top management will focus on improving service reliability on the Metro Blue Line and all other areas of the agency's extensive bus and rail operations.

### **NEXT STEPS**

Staff will continue to work on Fiscal Year 2012 budgeted operating and capital programs targeted at addressing deferred maintenance of the Metro Blue Line system. Additionally, future fiscal year budgets will include specific requests for operating and capital funding that will continue to reduce the level of deferred maintenance and improve system reliability.

## **ATTACHMENTS**

1. Annual Expenditure Summary of MBL Deferred Maintenance
2. Metro Blue Line Deferred Maintenance
3. List of Completed Deferred Maintenance and Other Improvements

ATTACHMENT 1

Annual Expenditure Summary of MBL Deferred Maintenance

Fiscal Year		
2005*	\$	1,783,000
2006*	\$	4,309,000
2007	\$	4,200,000
2008	\$	3,312,000
2009	\$	6,948,000
2010	\$	15,257,000
2011	\$	15,141,000
2012	\$	<u>19,292,000</u>
Effort Completed Through FY2012:		<u>\$ 64,150,000</u>

\*2005 and 2006 expenditures are shown for information only. They are not included in the total.

## ATTACHMENT 2

### Metro Blue Line Deferred Maintenance

BLUE LINE DEFERRED MAINTENANCE (\$000)				
	Backlog Amount	Effort Completed Thru FY2012	Spending Plan: FY2013 - FY2020	Total Funding
Communication Systems & Equipment	\$ 4,000	\$ 6,650	\$ 12,610	\$ 19,260
Signal Equipment	\$ 6,000	\$ 10,000	\$ 43,000	\$ 53,000
Track Equipment	\$ 13,000	\$ 13,600	\$ 14,475	\$ 28,075
Electrification (Traction Power)	\$ 64,000	\$ 29,500	\$ 71,150	\$ 100,650
Stations/Parking Areas	\$ 14,000	\$ 1,000	\$ 24,090	\$ 25,090
Midlife Overhaul	\$ 138,000	\$ 3,400	\$ 46,000	\$ 49,400
LRV Procurement (Option 4 of P3010 Purchase)	\$ -	\$ -	\$ 283,000	\$ 283,000
<b>Total Blue Line Deferred Maintenance</b>	<b>\$ 239,000</b>	<b>\$ 64,150</b>	<b>\$ 494,325</b>	<b>\$ 558,475</b>

- The total Blue Line backlog is \$239M
- \$64M has been spent to date (FY2007 through FY2012) on projects & component campaigns to reduce the backlog.
- The spending plan for FY2013 through FY2020 to complete projects & dedicate resources for preventative maintenance of critical system components totals an additional \$494M.
- The \$64M spent through FY2012 plus the \$494M identified for use in FY2013 - FY2020 shows that MTA will dedicate \$558M to address deferred maintenance effort.

*In summary, the total Blue Line backlog is \$239M. MTA has identified projects & campaigns totaling \$558M to address deferred maintenance. Full utilization of these resources will allow MTA to spend \$319M over the \$239M backlog.*

## **ATTACHMENT 3**

### List of Completed or In Process Deferred Maintenance and Other Improvements

#### **Completed projects**

1. Rehabilitated and rebuilt track and pavement at grade crossings along the Metro Blue Line between Washington and Willow
2. Overhauled all switch machines on the Metro Blue Line.
3. Replaced existing fiber optic cable along the entire rail line with a new higher-capacity cable
4. Replaced obsolete train control equipment
5. Completed - 5 friction brake overhauls, 47 traction motors on 23 cars, 16 vital relay on 4 cars, motor-alternator circuit breaker #1 train line reset on 42 cars
6. Added, upgraded and replaced station penal code, ADA, warning and station identification
7. Installed 132 sets of Between Car Barriers (BCBs)
8. Upgraded the UPS (Uninterruptible Power Source) cabinets along Long Beach loop
9. Implemented the Rail Station Cleanliness Program

#### **Projects in process**

10. Replace and re-insulate rail in Long Beach
11. Replace and upgrade passenger information equipment
12. Rehabilitate station canopies
13. Procuring a new digital radio system for all of rail operations
14. Assessment of train control equipment identified obsolete equipment in need of replacement
15. Replacing 20 existing traction power substations approaching their end-of-life and suffering from parts obsolescence
16. Retrofitting the overhead catenary system with straps to keep the wire up even if an insulator breaks
17. Performing continuous on-scene inspection and monitoring of the Metro Blue Line overhead catenary system
18. Began component level overhaul - to improve fleet reliability and appearance: car body, coupler, passenger doors, HVAC, propulsion, pantograph, motor alternator, trucks, friction brakes, and automatic train protection
19. Fleet appearance upgrades with interior and exterior graffiti removal and painting
20. Improving landscaping, vegetation and irrigation systems at all stations
21. Completing station painting rehab at 11 of 22 stations current projects

#### **Planned projects**

22. Commence replacement of all c. 400 existing overhead catenary system insulators that have been a cause of recent problems
23. Painting rehab at Imperial station and all Metro Blue Line stations

**ATTACHMENT 3** (continued)

24. Installing and fabricating mounting brackets for installation of LED monitors at all stations
25. Upgrading the compressors supporting the sewage ejectors at 7th Metro
26. Corrosion mitigation on all overhead structures
27. Full station flooring upgrades at Imperial and Artesia stations and partial upgrades at all other 20 stations
28. Improve station lighting at all stations