



Metro

Los Angeles County
Metropolitan Transportation Authority

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TO: BOARD OF DIRECTORS

THROUGH: PHILLIP A. WASHINGTON *PAW*
CHIEF EXECUTIVE OFFICER

FROM: JAMES T. GALLAGHER *JTG.*
CHIEF OPERATIONS OFFICER

**SUBJECT: METRO BLUE LINE SYSTEM DISRUPTIONS &
STATION INVESTMENTS**

ISSUE

Recent power outages along the Metro Blue Line (MBL) system have raised concerns regarding customer service delays, capital investments, and enhancements along all existing Metro rail lines.

BACKGROUND

Metro systemwide rail line power outage information dating back to 2014 shows that the majority of traction power problems experienced can be summarized into three groups. These, in order of frequency are as follows:

- 1) Manufacturing and commissioning issues related to new traction power substations - The MBL has suffered multiple and persistent tripping of circuit breakers, which our Rail Operations Control Center has been unable to reclose. This was found to be caused by incorrect relay settings and incorrect wiring. The problem has been diagnosed and was recently corrected at all substations. Wayside Maintenance and Engineering will continue to monitor substation operations.
- 2) Vulnerability of traction power system to utility outages – The MBL has not been able to continue operations during instances where there has been lost power to a single substation. This is due to the condition of the battery back-up systems and the configuration of the MBL Emergency Trip System (ETS) which is dependent on station back-up power, rather than traction power station batteries. Currently, the Wayside group is in the process of repairing MBL station battery back-up systems which will resolve this issue. The long-term remedy is to replace the MBL ETS system with a system that is more resilient to power issues. Currently, a Green Line ETS replacement project is underway in the early stages of

construction and Operations plans to submit a capital project proposal for an MBL ETS Replacement Program in late 2016.

- 3) State of Good Repair (SGR) of traction power underground parallel feeder cables in Downtown L.A. and in Long Beach – These cables are over 25 years old and have suffered due to poor drainage of manholes. Wayside Traction Power has commenced repairs along Washington Blvd.; however the cables around the Blue/Expo junction cannot be addressed without shutting down both lines for a 24-36 hour period. Wayside is finalizing the plan to perform this work.

Please see Attachment A for additional details.

Various capital projects are either underway or have recently been completed at the MBL in an effort to improve the reliability of critical systems, maintain State of Good Repair (SGR) assets, and reinvest in station enhancements and augmenting the safety and security of our rail network.

. These projects include:

- Traction power substations, turnout, and fire system rehabilitation
- Rail replacement and rebooting
- Replacement of life-expired track turnout switches
- Installation of new track crossovers and replacement of train control systems
- Replacement and upgrading of Overhead Catenary System (OCS) in Downtown Los Angeles and Long Beach
- Power control system back-up battery program
- Station improvements and refurbishment
- Reconstruction and replacement of the Long Beach Transit Mall track switch at the Long Beach to address rail-to-wheel interface safety issues
- Pedestrian and grade crossing gates safety review at 27 grade crossings between Washington and Willow Stations
- Wheel truing machine rehabilitation
- Fire control panel upgrade
- Public address and TPIS system rehabilitation

Please see Attachment B for additional details.

NEXT STEPS

Safety and security continue to be a top Metro priority in the development of all rail projects across Los Angeles County. Metro departments will continue to work in close coordination with partner agencies and law enforcement to ensure that all rail projects improve the safety, security, and meet the needs of our customers. In addition, Operations will continue to rely on our robust SGR program for critical predictive maintenance information to reduce maintenance costs, extend asset life, and reduce asset breakdowns that may impact daily service. Lastly, staff will return back to the full Board in June 2016 with a

comprehensive report regarding MBL safety, security, and SGR capital projects that address quality-of-life needs surrounding the MBL.

ATTACHMENTS

- A. Rail Incidents Recap
- B. MBL Capital Projects

**Rail Incidents Recap
July 1, 2014 - Present**

ATTACHMENT A

Fiscal Year	System	# of Incidents	% of Total
FY15	Electrical	25	20.7%
	OCS	6	5.0%
	Other	14	11.6%
	Utility	9	7.4%
<i>FY15 Total</i>		54	44.6%
FY16	Electrical	32	26.4%
	Mechanical	1	0.8%
	OCS	7	5.8%
	Other	11	9.1%
	Utility	16	13.2%
<i>FY16 Total</i>		67	55.4%
Grand Total		121	100.0%

Blue Line Only

Fiscal Year	System	# of Incidents	% of Total
FY15	Electrical	20	32%
	OCS	4	6%
	Other	3	5%
	Utility	1	2%
<i>FY15 Total</i>		28	44%
FY16	Electrical	25	40%
	OCS	4	6%
	Other	3	5%
	Utility	3	5%
<i>FY16 Total</i>		35	56%
Grand Total		63	100%

Existing Metro Blue Line State of Good Repair Capital Projects							
CP #	Project Name	Scope	Status	Beginning	End	LOP Budget	FY17 Budget
204128	Fire Control Panel Upgrade	Upgrade fire control panels (FCP) on rail station facilities for the Blue, Green and Red Lines. The current LOP is based on current infrastructure. LOP will be increased based on new codes recently issued. Revised LOP amount will be determined once procurement phase is completed.	Scope development	Apr-2012	Jun-2021	\$ 3,600,000	\$ 928,000
205088	Long Beach Duct Bank Upgrade Phase II	Refurbish or reconstruct the duct bank between L.A. River Bridge and Wardlow Station excluding the segment between Vault# 144 and #150.	Scope development	Jul-2013	Apr-2020	\$ 8,000,000	\$ 2,128,000
211029	Metro Blue Line Communication & Signal Building Rehabilitation	Rehabilitate the Metro Blue Line Communications and Signal (C&S) buildings and upgrade communication power systems.	In procurement	July-2011	Dec-2017	\$ 1,800,000	\$ 324,000
211005	Metro Blue Line Signal System Rehabilitation	Rehabilitate MBL Signal System. Add four new interlockings.	In procurement	Jun-2015	Feb-2020	\$ 64,000,000	\$ 8,580,000
205073	Metro Blue Line Yard Signal System Rehabilitation	MBL Long Beach Signal System Rehabilitation will provide for an upgrade to the existing yard train management system including automatic train control for the yard from the Yard Control Center and TWC, switch position indication, train ID system to indicate the locations of the trains in the yard and schedule trains for maintenance.	In procurement	Jun-2017	Jun-2020	\$ 4,600,000	\$ 2,315,000
211002	Metro Blue Line Overhead Catenary System Rehabilitation	Project is to upgrade and replace the Overhead Catenary System (OCS) wires and its associate components on Metro Blue Line which will include MBL yard.	In procurement	Jun-2017	Jun-2020	\$ 13,000,000	\$ 1,603,358
205092	Systemwide Corrosion Protection System Replacement	Rehabilitate aging Metro Rail Corrosion Protection (CP) systems with new CP systems to comply with local, state, federal regulations and Metro Fire-Life-Safety requirement including corrosion damage repair of 11 cross passages in Metro Red Line tunnels.	In construction	Dec-2011	Jun-2019	\$ 13,000,000	\$ 2,681,000
205093	Metro Blue Line Rail Replacement & Booting	Replace corroded rail in entire embedded track way portion of Metro Blue Line from Willow Station to Transit Mall Loop. A rail boot will be installed and all grade crossings will be reconstructed to accept booting and meet ADA compliance.	In procurement	Nov-2011	Jun-2019	\$ 13,000,000	\$ 4,112,000
206040	MBL Wheel True Machine	The Wheel True Machine is used to keep the steel tires on the Light Rail Vehicles (LRV) in proper specification required by the LRV manufacture. The Wheel True Machine is a critical part of the Light Rail Operation and is necessary to maintain reliability of the LRV fleets. This capital project is to replace the existing Wheel True Machine with a new State-of-the-Art Wheel True Machine that is capable of truing the steel tires on all of the different types of LRV's used by the various Light Rail Systems.	In procurement	Aug-2014	Dec-2016	\$ 2,200,000	\$ 800,000
205101	MBL Turnout Rehabilitation	Rehabilitate aging turnouts on the Metro Blue Line that are reaching end of useful life.	In construction	Feb-2013	Jun-2017	\$ 3,000,000	
211001	Metro Blue Line Traction Power Substation	Metro Blue Line Traction Power Substation	Closeout phase			\$	82,200,000
204071	MBL Station Enhancements	MBL Station Enhancements	Closeout phase			\$	33,430,000
Total						\$ 308,530,000	\$ 23,471,358

Planned Metro Blue Line State of Good Repair/Improvement Capital Projects							
CP #	Project Name	Scope	Status	Beginning	End	LOP Budget	FY17 Budget
TBD	Rosa Parks/Willowbrook Station Improvement Project	Provide important upgrades to the 25-year old station, where the Blue and Green Lines meet. The project plan will create an at-grade crossing and entrance to the Blue Line platform, upgrade elevators & escalators, stairs and mezzanine levels, add new canopies on platform along with other improvements.	In planning phase.	Mar-2016	Jun-2016	\$ 66,700,000	\$ 9,353,000
TBD	TPIS Replacement	TPIS Replacement	Field equipment replacement, platform and C&S. Obsolete, unintergrated C&C, poor performance.	TBD	TBD	TBD	TBD
TBD	Station Refurbishment	Station Refurbishment	SGR - To address existing canopies not addressed under prior CP.	TBD	TBD	TBD	TBD
TBD	Mid-Corridor OCS	Mid-Corridor OCS	SGR - Targetted replacement of contact wire and some insulators and terminations.	TBD	TBD	TBD	TBD
TBD	Del Amo Settlement Mitigation	Del Amo Settlement Mitigation	Requires study to determine full scope.	TBD	TBD	TBD	TBD
TBD	Downtown LA Ductbank drainage	DTLA Ductbank drainage	Requires study to determine whether project can provide better drainage.	TBD	TBD	TBD	TBD
TBD	Downtown LA parallel feeder replacement	DTLA parallel feeder replacement	SGR	TBD	TBD	TBD	TBD
TBD	ETS System Replacement	ETS System Replacement	SGR - Determine performance of new system for MGL first.	TBD	TBD	TBD	TBD
TBD	Crossing case replacement	Crossing case replacement	SGR	TBD	TBD	TBD	TBD
TBD	Rail Replacement & Booting between San Pedro and Washington	Rail Replacement & Booting between San Pedro and Washington	Enables track circuiting and to improve corrosion protection.	TBD	TBD	TBD	TBD
TBD	Switch machine replacement	Switch machine replacement	SGR	TBD	TBD	TBD	TBD
TBD	Anaheim Crossover replacement	Anaheim Crossover replacement	SGR and upgrade to controlled.	TBD	TBD	TBD	TBD
TBD	9th Street Diamond Replacement	9th Street Diamond Replacement	SGR	TBD	TBD	TBD	TBD