



Metro

Interoffice Memo

Date	October 19, 2017
To	Karen Gorman Inspector General
From	James T. Gallagher <i>JTG.</i> Chief Operations Officer
CC	Greg Kildare Chief Risk, Safety & Asset Management Officer
Subject	Management Response to the Draft Rail Service Disruption Review Report

Operations Management has received and reviewed the Rail Service Disruption Review Report issued by the Office of Inspector General. The report includes a total of 57 recommendations relative to Metro assets, State of Good Repair (SGR) efforts and projects, Enterprise Asset Management Plan initiatives, rail vehicles, rail operations, yard control, signals, traction power, and the mitigation, identification, tracking, and investigation processes of incidents that result in service delays.

The Operations and Risk, Safety & Asset Management Departments will begin the process to implement change recommendations over the next year; joining efforts with the Safety Culture Initiative that was launched in May 2017. Staff will provide regular updates to the OIG as recommendations are addressed and/or closed out.

Cc: Phillip Washington, Metro Chief Executive Officer
Metro Board of Directors
Andrew Lin, Audit Manager
Bernard Jackson, Sr. EO, Rail Operations
Errol Taylor, Sr. EO, Rail Maintenance & Engineering
Bob Spadafora, Sr. EO, Rail Fleet Services
Diane Corral-Lopez, EO, Operations Administration
Vijay Khawani, EO, Corporate Safety
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**Appendix B: Schedule of Recommendations and Metro's Proposed
Actions to Implement LA Metro Service Disruption Review – Report**

Rec. #	Recommendation Description	Related Finding #	Delay Category	Line	Assigned Staff in Charge	Action / Agree or Disagree	Proposed Action	Est. Date Completion
1	Instruct operators to report all alert indications shown on the console. This is especially important given the amount of information that is available on the console of the new trains. In addition, operators should assess whether passenger behavior caused an indication as opposed to a problem with the equipment.	A1, A2, A3, A4	Root Cause	System-wide		Operations		
2	Establish a dedicated, 24/7 “supertech” maintenance team full time in the ROC to provide expert support to the ROC for equipment, systems and infrastructure faults.	A5	Root Cause	System-wide	B. Spadafora - SEO	RFS	To be submitted in RFS' FY-19 Budget Submittal.	2 months after FY-19 Budget Approval
3	Ensure the Rail Vehicle Department records root cause for rail vehicle delay incidents, which are the highest number of incidents across all five rail lines. Instruct the ROC to record “Rail Vehicle Event” for subsequent update by the Rail Vehicle Department.	A6, A7, A8	Root Cause	System-wide	B. Spadafora - SEO & A. Huntley - Manager Training	OPS/RFS Action	Re-instruction	6-months
4	Maximize the redesign of the M3 software program logging module. All departments should work with the design expert to create a dropdown listing that would capture the most meaningful root cause categories for their area of responsibility. Ideally, the ITS department should also bring all fault reports into one environment, so that internal department reports of failures can be tracked along with those recorded through the ROC. This redesign of the M3 module should allow for automated tracking of delays and their root causes, reporting delay trends, identifying mitigations and tracking their impact.	A9	Root Cause	System-wide		ITS		
5	Include Train Operator Display (TOD) information, such as time of the incident, in the reporting of incidents.	A4	Root Cause	System-wide		Operations		
6	Review approach to Police/Health delay incidents (while not part of this analysis, these delay incidents warrant review based on their frequency and duration).	B1	Police/Health	System-wide		Operations Security		
7	Partner with law enforcement agencies to review process used for police/health incidents.	B1	Police/Health	System-wide		Security		

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8	Identify root cause for the top three categories of delay for each line to allow Metro to develop mitigations that have the potential to significantly reduce total delay incidents.	B2-B10	Top 3 causes by line overall	System-wide		RVE		
9	Set priorities based on Metro's asset assessment as soon as it is completed to reduce delay incidents.	B2-B10	Top 3 causes by line overall	System-wide	B. Spadafora - SEO M. Ornelas -Sr.Dir	RFS	Plan already implemented in M3	To start in January 2018
10	Given the large number of incidents where no root cause was identifiable, establish a procedure to instruct vehicle maintenance personnel on providing consistent and complete detailed information related to vehicle failures in the WO reports. While awaiting a new log-in system with a consistent and nested drop down of primary causes of vehicle failure on incident reports, redesign work order forms along these lines, with a consistent section and checklist for identifying root cause.	C2	Rail Vehicle	System-wide	B. Spadafora - SEO M. Ornelas - Sr. Dir N. Madanat - Sr. Dir.	RFS/RVE	To develop sustainable follow-up and tracking measures in M3	6 months
11	Identify the funding and timeline for the new M3 system and move the project forward expeditiously.	C1-C5	Rail Vehicle	System-wide		ITS		
12	Establish a procedure for collecting the root cause of every vehicle failure even if it does not result in a service delay so that robust trends can be generated, tracked and mitigated.	C1	Rail Vehicle	System-wide		RVE		
13	Conduct periodic condition surveys on vehicles and components in advance of and complementary to the asset inventory that will be undertaken soon and refreshed every three years.	C1-C5	Rail Vehicle	System-wide	ALL RFS nDivision Directors and Managers	RFS	Already in M3 - Part of the State of Good Repair Inspections	On-going
14	Establish a process and a criterion for replacement of existing vehicles and vehicle components that include useful life, failure rate, obsolescence, service needs, and available funding. While the Metro asset inventory will provide an important resource to this end when it is finished, this system of prioritization should be formalized and implemented in current vehicle procedures.	C1-C5	Rail Vehicle	System-wide	R. Lorzano - Sr. Dir	RFS	Already in-process, decommissioning plan establish and is in full swing	Completed
15	Continue funding for daily maintenance and up-keep of the P865/2020 fleets although no major capital investment is recommended at this time.	C15-C18	Light Rail Vehicle	MBL, Expo Line	R. Lorzano - Sr. Dir	RFS	Just for the P2020 cars. The P865 are being decommission	Aug-18

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16	Identify the P865 cars in the worst condition for decommissioning and use them as spare part suppliers to support more reliable cars.	C12-C14	Light Rail Vehicle	MBL, Expo Line	R. Lorzano - Sr. Dir	RFS	Criteria already established	Completed
17	Keep enough P865 cars as floats to improve the availability of P2000 vehicles, which have a higher incident rate, for refurbishment.	C5	Light Rail Vehicle	MBL, Expo Line	B. Spadafora - SEO	Disagree	The P865 cars can no longer be support and have to be replaced with the new P3010	Completed
18	Review the decommissioning process of the P865 fleet given the lower incident rate for the P865 fleet. P865 cars with low to no incidents should be kept in service during the P2000 overhaul to expedite the overhaul, replacing some P2000 services with P865 cars to increase the vehicle availability during the overhaul.	C5, C14	Light Rail Vehicle	MBL, Expo Line	R. Lorzano - Sr. Dir	RFS	P3010 cars will be used to supplement P2000 OH cars See Rec#17 above	Completed
19	Maintain the remaining P865 cars only out of the MBL maintenance shop, which has the best expertise, logistics and parts inventory to maintain the P865 fleet.	C6, C17	Light Rail Vehicle	MBL, Expo Line	B. Spadafora - SEO	Disagree	The P865 cars can no longer be support and have to be replaced with the new P3010 cars	Completed
20	Continue with the P865 component upgrades to keep a reduced fleet with increased reliability in service until replaced by the P3010. Areas of upgrades still useful are contactors, relay panel and ECU power supply.	C7-C11, C15, C16, C18	Light Rail Vehicle	MBL, Expo Line	B. Spadafora - SEO	Disagree	The P865 cars can no longer be support and have to be replaced with the new P3010 cars	Completed
21	Evaluate overhaul needs of select main components. Depending on how long Metro intends to keep cars of the P865/2020 fleet, some of the main components, such as gears and traction motors, of selected well-performing cars might have to be overhauled.	C7-C11, C15, C16, C18	Light Rail Vehicle	MBL, Expo Line	B. Spadafora - SEO	RFS	RFS has already established the usefull life of P865 = decommission; P2020 component overhaul continue 5 years	On-going
22	Continue the refurbishment program to reduce fuse failures, such as upgrades to the chopper control unity, contactor and relay replacements, in place as needed for some of the P865 cars.	C16, C18	Light Rail Vehicle	MBL, Expo Line	B. Spadafora - SEO	Disagree	The P865 cars can no longer be support and have to be replaced with the new P3010 cars	Completed
23	Plan the midlife overhaul to first upgrade the worst vehicles, such as cars #220, 205, 208. 212, 229, 242 & 247.	C23-C28	Light Rail Vehicle	MGL, MBL, Expo Line	R. Lorzano - Sr. Dir	RFS	Already done.	Completed

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24	Analyze the float vehicle needs for the P2000 vehicle midlife overhaul and ensure that the overhaul contractor has enough cars to expedite the overhaul. On the MBL, P865 vehicles being decommissioned could be reduced temporarily to provide enough vehicles to the overhaul contractor.	C5, C14, C28	Light Rail Vehicle	MGL, MBL, Expo Line	R. Lorzano - Sr. Dir	RFS	Already done.	Completed
25	Consider converting some P2000 cars running on the MBL/Expo lines back to the MGL operation if the ATO/ATP packages removed earlier are still available. The critical float will be the P2000 MGL cars with their line specific ATO/ATP equipment.	C5, C14, C28	Light Rail Vehicle	MGL, MBL, Expo Line		RVA		
26	Improve the diagnostic capabilities of the propulsion system.	C19	Light Rail Vehicle	MGL, MBL, Expo Line		RVA		
27	Use information from TODs on the P2550 vehicles for improved incident reporting. The P2550 cars are the first Metro vehicles that have a sophisticated TOD and diagnostics.	C35	Light Rail Vehicle	MGDL		Operations		
28	Modify the incident reports for P2550 vehicles to include the information provided by the TOD at the time of the incident, in addition to the Operator reports.	C35-C36	Light Rail Vehicle	MGDL		Operations		
29	Accurately report the time of the incidents as shown on the TOD, not by the system time at the ROC.	C35-C36	Light Rail Vehicle	MGDL		Operations		
30	Use the time of the incident displayed on the TOD in evaluating the delay incident to improve accuracy and turnaround time of the affected vehicle.	C35-C36	Light Rail Vehicle	MGDL		Operations		
31	Keep the Base Buy subway cars running by planning enough funding for Rail Fleet Services to maintain this fleet.	C46-C47	Subway Vehicle	Subway	Division Director and Manager	RFS	Will maintain until new cars arrive - already discussed	Completed
32	Ensure that the knowledge of the chopper controls is not lost before the new cars arrive.	C38, C46	Subway Vehicle	Subway	Rail Instruction	RFS	Already known	Completed
33	As the new HR4000 vehicles arrive, take the Base Buy cars out of service as early as possible to reduce maintenance costs. The cars in the worst condition should be replaced first.	C42-C45, C47	Subway Vehicle	Subway	Division Director and Manager	RFS	Already known	Completed
34	Perform the midlife overhaul on GE subway vehicles as planned.	C53-C55	Subway Vehicle	Subway		RVA		
35	Assess current mitigation measures to address operator absenteeism and late reports, and initiate management enhancements as appropriate.	D3, D7, D8	Rail Ops					

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36	Re-assess the level, allocation, and scheduling of Rail Operations Extraboard Operators as an opportunity to mitigate the impact of all service incident related delays resulting from service recovery, operator late or no show, station terminal and yard operator related delays, "gap trains" staffing (extra trains added to the schedule to supplement service capacity as needed), etc.	D7, D8	Rail Ops					
37	Reinforce desired practices to mitigate future "Operator Error" service impact events including additional focus on operator vehicle troubleshooting tactics. Given that vehicle defects represent the most significant factor impacting Metro Rail service delays, assess operator awareness of common vehicle troubleshooting methods to expedite the safe movement of the vehicle and reduce service delays resulting from vehicle defects.	D9	Rail Ops					
38	Consider the development of an Operations pocket size vehicle defect troubleshooting guide that reinforces what operators are trained to perform and summarizes the desired tactics to follow when confronted with vehicle related defects. Common vehicle troubleshooting methods and other lessons learned from operator errors that resulted in service delays should continue to be reinforced in current operator training programs.	D9	Rail Ops					
39	Continue to hone service recovery contingency plans, which are key to minimizing the impact of all Rail Operations incidents.	D7, D8	Rail Ops					
40	Assess the designation of Rail Operations incidents and allocate accordingly to reflect only those accountable to that Division.	D10, D11	Rail Ops					
41	Continue to assess service contingency plans and related staff training to implement the service restoration contingency provisions. Document current effective service restoration practices and reinforce staff awareness through training.	D12	Rail Ops					
42	Assess running time schedule needs by Line to confirm the adequacy of layover time at station terminals.	D13	Rail Ops					

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43	Utilize the recommendations (numbers 1-4 and 7) relative to determining root cause for vehicle caused operations delays to better instruct operators in troubleshooting and to identify the cause of the vehicle related incident. Allocate cause accordingly.	D14, D15	Rail Ops					
44	Utilize the recommendations (numbers 1-4 and 7) relative to determining root cause to better identify the cause of the incident. Allocate accordingly so that incidents not caused by the operator are appropriately characterized and mitigated.	D16	Rail Ops					
45	Limit the designation of Yard Control incidents to those actually attributed to yard issues.	E1, E2	Yard Control	Yards				
46	Review Yard vehicle availability constraints and evaluate options designed to further support the consistent achievement of 100% equipment schedule availability.	E1	Yard Control	Yards				
47	Establish a procedure to instruct signal maintenance personnel on providing consistent and complete detailed information on the cause of signal failures and the repair action taken in the WO reports. While awaiting a new log-in system with a consistent and nested drop down of primary causes of signal failures on incident reports, redesign work order forms along these lines, with a consistent section and checklist for identifying root cause.	F1, F2, F3, F15	Signals	MGL, MRL				
48	Identify the funding and timeline for the new M3 system and move the project forward expeditiously.	F4	Signals	MGL, MRL				
49	Perform more investigations and analysis to determine the root causes for high frequency signal failures even if they do not result in service delays.	F15, F16	Signals	MGL, MRL				
50	Establish a procedure for operating personnel to reflect the impact of any signal failure on normal operation even if it does not result in a service delay.	F1-F3, F5, F6, F13	Signals	MGL, MRL				
51	Conduct periodic condition surveys on signal installations in advance of, and complementary to, the asset inventory that will be undertaken soon and refreshed every three years.	F4, F16	Signals	MGL, MRL				

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52	Establish a process and a criterion for replacement of existing signal installations that includes useful life of installation, failure rate, obsolescence, service needs, and available funding. While the Metro asset inventory will provide an important resource to this end when it is finished, this system of prioritization should be formalized and implemented in current signal procedures.	F17, F18	Signals	MGL, MRL				
53	Perform more investigations and analysis to determine the root causes for traction power failures, including a review of the catenary design, installation standards, and operating condition of TPSS equipment.	G7	Traction Power	MBL				
54	Establish a procedure to instruct traction power maintenance personnel on providing complete detailed information related to traction power failures in the WO reports. While awaiting a new log-in system with a consistent and nested drop down of primary causes of traction power failures on incident reports, redesign work order forms along these lines, with a consistent section and checklist for identifying root cause.	G7	Traction Power	MBL				
55	Investigate the high level of failures that occurred at San Pedro Traction Power Substation.	G5	Traction Power	MBL				
56	Conduct periodic condition surveys on traction power equipment in advance of, and complementary to, the asset inventory that will be undertaken soon and refreshed every three years.	G8	Traction Power	MBL				
57	Establish a process and a criterion for replacement of existing traction power equipment that includes useful life of installation, failure rate, obsolescence, service needs, and available funding. While the Metro asset inventory will provide an important resource when it is finished, this system of prioritization should be formalized and implemented in current signal procedures.	G7-G9	Traction Power	MBL				