



Rail Fleet Services Monthly Report September 2013



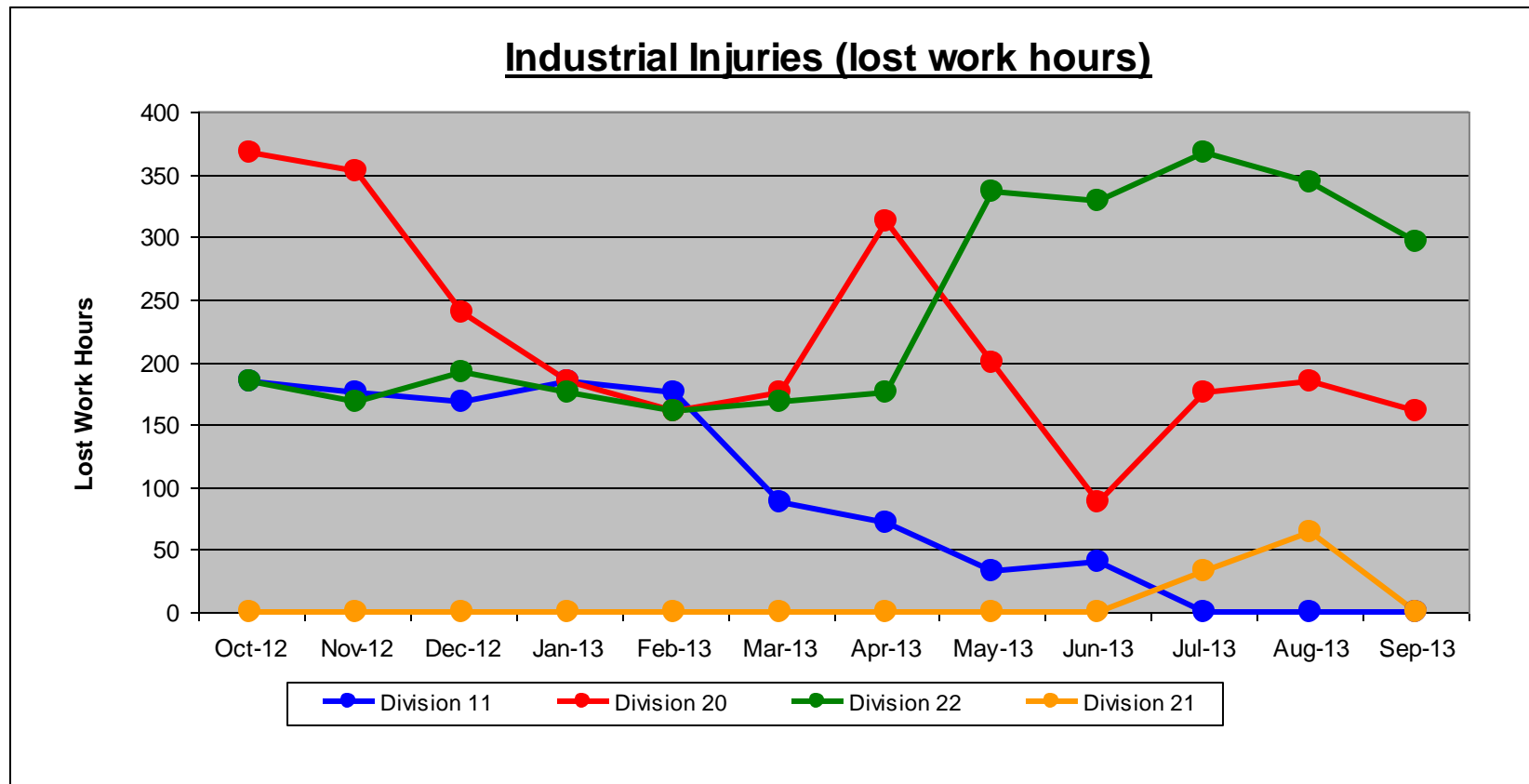
Metro

Table of Contents

•	Safety		
	- Industrial Injuries	Page	3
	- Rail Vehicle Accidents & Major Incidents	Page	4
•	Customer Service		
	- Service Delivery – AM/PM Pull-Outs	Page	5
	- Vehicle Utilization – Blue Line & Green Line	Page	6
	- Vehicle Utilization – Red Line & Gold Line	Page	7
	- All Train Delay Incidents	Page	8
	- Mean Miles Between Failures (Major)	Page	9
	- Mileage Between Data Range (by month)	Page	10
•	Business Processes		
	- Major Incidents	Page	11
	- Preventive Maintenance Compliance	Page	12
	- Wrench Turning	Page	13
•	Finance		
	- Vandalism & Graffiti Costs	Page	14
	- Graffiti Pictures	Page	15
	- Labor & Material Costs	Page	16
	- Cost per mile	Page	17
	- Absence vs. Overtime	Page	18
•	Engineering		
	- Rail Vehicle Engineering Project Summary	Page	19-23
•	Quality Assurance		
	- Warranty Program Projects Summary	Page	24
•	Growth		
	- RFS Instruction Department Activities	Page	25

Industrial Injuries – Lost Work Hours September 2013

	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	12-Month Period
Division 11	184	176	168	184	176	88	72	32	40	0	0	0	1,120
Division 20	368	352	240	184	160	176	312	200	88	176	184	160	2,600
Division 22	184	168	192	176	160	168	176	336	328	368	344	296	2,896
Division 21	0	0	0	0	0	0	0	0	0	32	64	0	96
Totals	736	696	600	544	496	432	560	568	456	576	592	456	6,712



Rail Vehicle Accidents & Major Incidents

September 2013

Repair Costs	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	12-Month Period
Blue/Expo Line	\$1,668	\$494	\$5,262	\$18,740	\$3,288	\$2,959	\$237,017	\$11,700	\$4,926	\$14,951	\$2,338	\$3,700	\$307,043
Red/Purple Line	\$0	\$0	\$0	\$2,244	\$0	\$0	\$4,165	\$0	\$0	\$0	\$1,358	\$0	\$7,767
Green Line	\$0	\$0	\$503	\$202	\$126	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$831
Gold Line	\$0	\$0	\$0	\$176	\$0	\$0	\$0	\$261	\$8,220	\$0	\$537	\$0	\$9,194
Totals	\$1,668	\$494	\$5,765	\$21,362	\$3,414	\$2,959	\$241,182	\$11,961	\$13,146	\$14,951	\$4,233	\$3,700	\$324,835

Rail Vehicle Accident Costs - September 2013				
Date	Incident #	Problem code	Incident Description	Cost
Metro Blue Line				
9/18/13	2365935	Train vs. Vehicle	A 10-73 was reported at Intersection of Washington/Main.	\$ 1,196
9/25/13	2368692	Train vs. Pedestrian	A 10-72 was reported involving a patron hit by the doors of a northbound train at Florence Station.	\$ -
9/27/13	2369512	Train vs. Vehicle	A 10-72 was reported at Vernon Grade Crossing.	\$ 378
Total				\$ 1,574
Metro Expo				
9/14/13	2364539	Train vs. Vehicle	A 10-73 was reported at Intersection of Exposition and Raymond.	\$ 2,126
Total				\$ 2,126
GRAND TOTAL				\$ 3,700
(10-71) = Train vs. Object, (10-72) = Train vs. Pedestrian, (10-73) = Train vs. Vehicle (10-74) = Train vs. MTA Vehicle, (10-75) = Derailment				

Note: Repair costs are only the expenses captured during the time period of the report. Actual costs may be significantly higher, if repairs are spread out over several months.

Service Delivery September 2013

Blue/Expo Line Fleet Size:

92

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
Pull Out			
Weekday:	78	80	103%
Weekend:	60	71	118%
Late Pullouts: 0*			
Monthly Mileage:	657,276		

Red/Purple Line Fleet Size:

104

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
Pull Out			
Weekday:	74	84	114%
Weekend:	54	76	141%
Late Pullouts: 0*			
Monthly Mileage:	638,466		

Green Line Fleet Size:

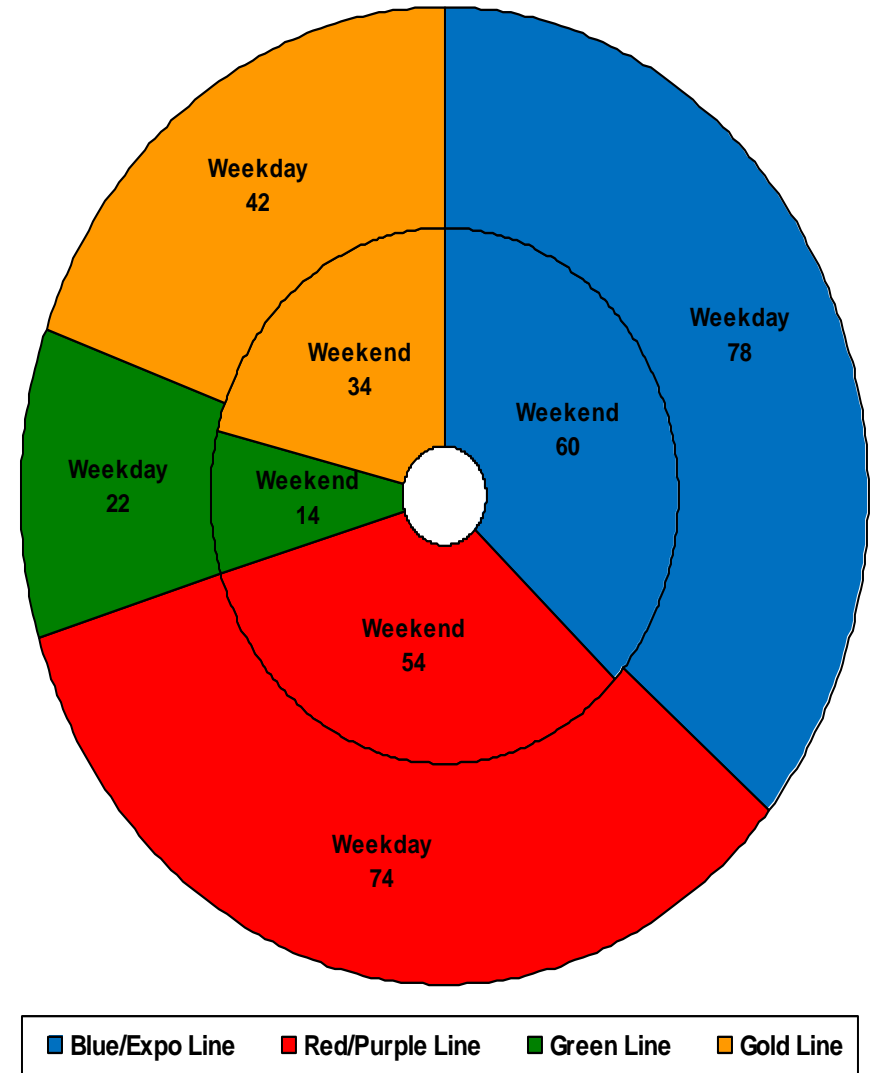
29

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
Pull Out			
Weekday:	22	23	105%
Weekend:	14	20	143%
Late Pullouts: 0*			
Monthly Mileage:	227,858		

Gold Line Fleet Size:

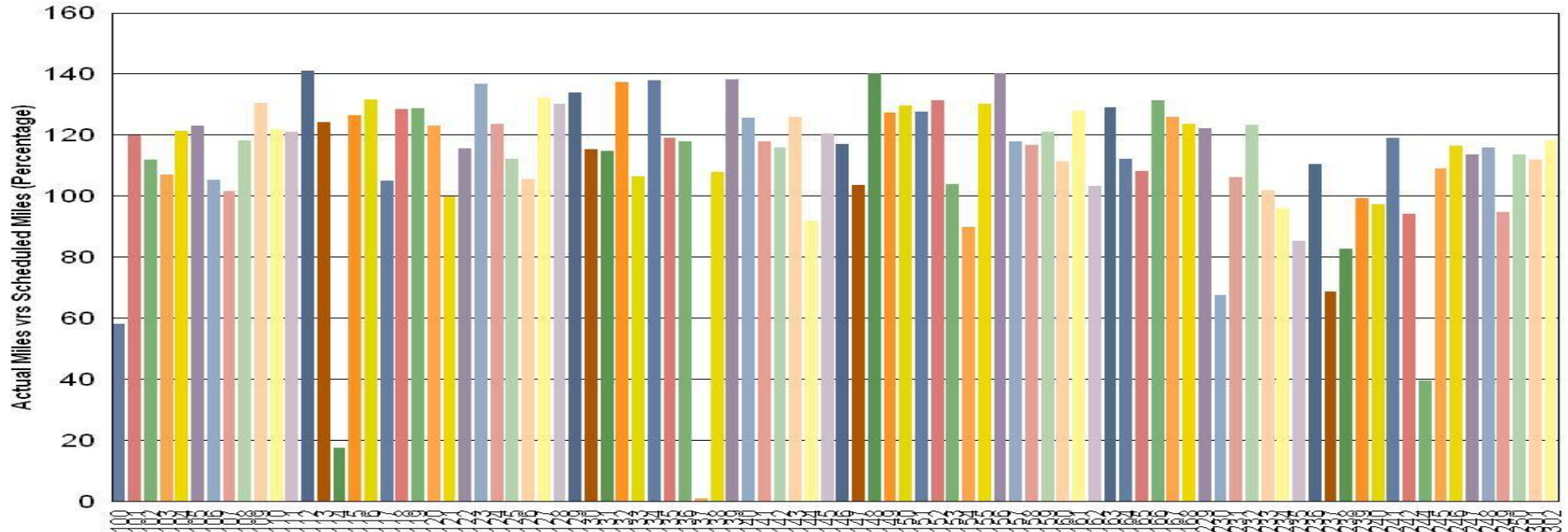
50

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
Pull Out			
Weekday:	42	43	102%
Weekend:**	34	40	118%
Late Pullouts: 0*			
Monthly Mileage:	319,399		



Vehicle Utilization September 2013

Metro Blue/Expo Line



Blue/Expo
Lines:

- 114 Vehicle was held out of service for a 60K inspection and for graffiti window abatement.
- 137 Vehicle was out of service for accident repairs.
- 244 Vehicle was out of service for multiple Propulsion/Dynamic Fault troubleshooting and repair.

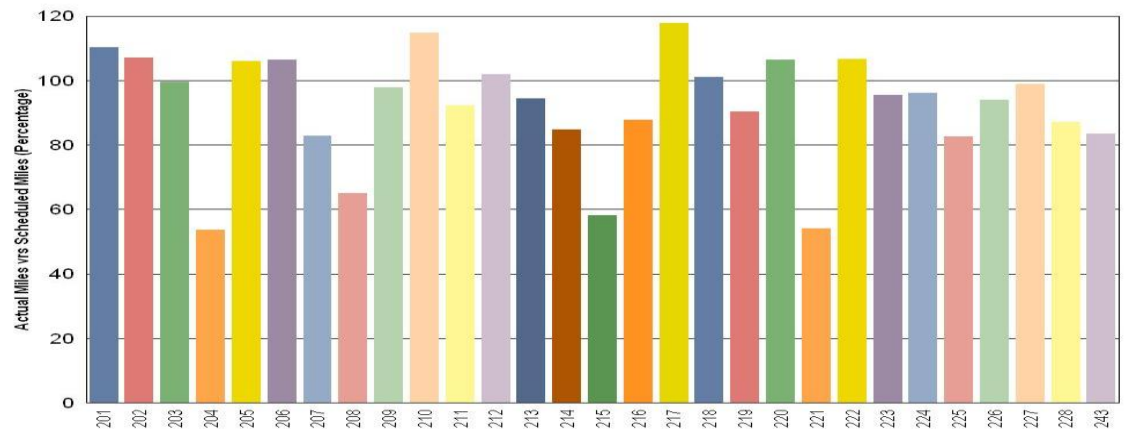
Green Line:

The fleet has met the daily maximum utilization requirements for the month of September.



Metro

Metro Green Line



Note: Percentage includes an average 4% mileage deduction for yard mileage and vehicle testing.

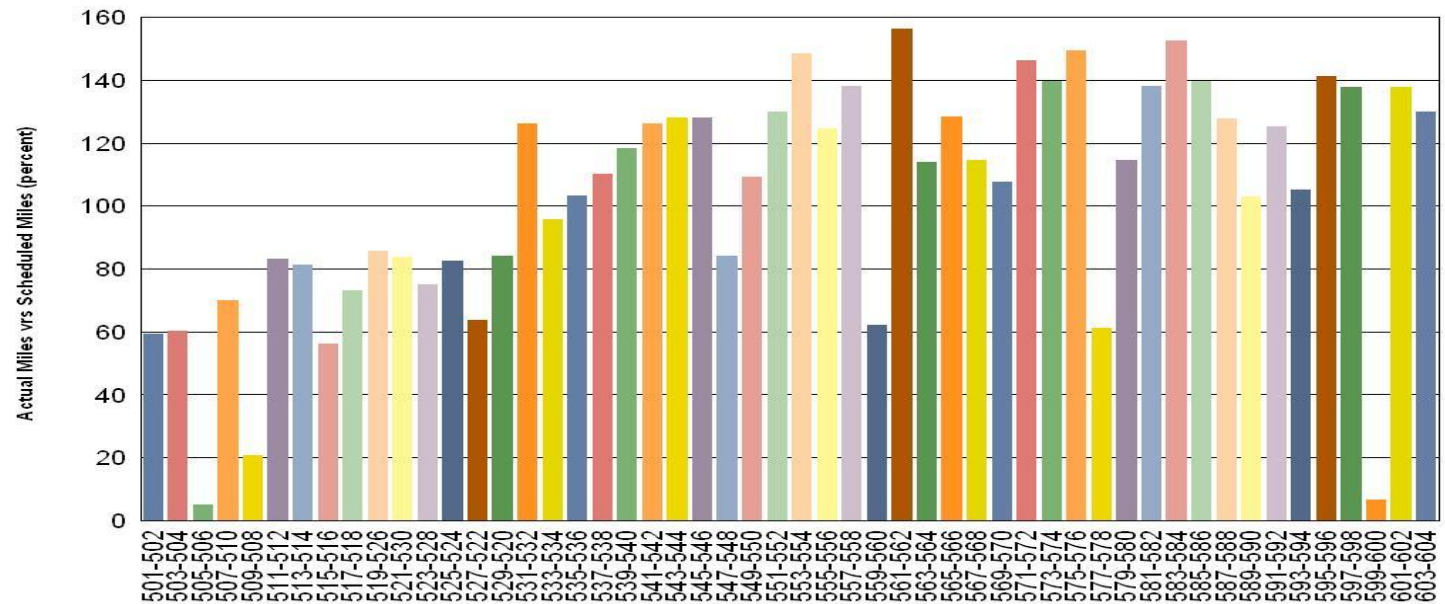
Vehicle Utilization September 2013

Red/Purple Lines:

505-506 Vehicle was held out of service due to metal found in gearbox.

599-600 Vehicle was held out of service due to Friction Brake Overhaul, HVAC Servicing and GTO Cleaning.

Metro Red/Purple Lines

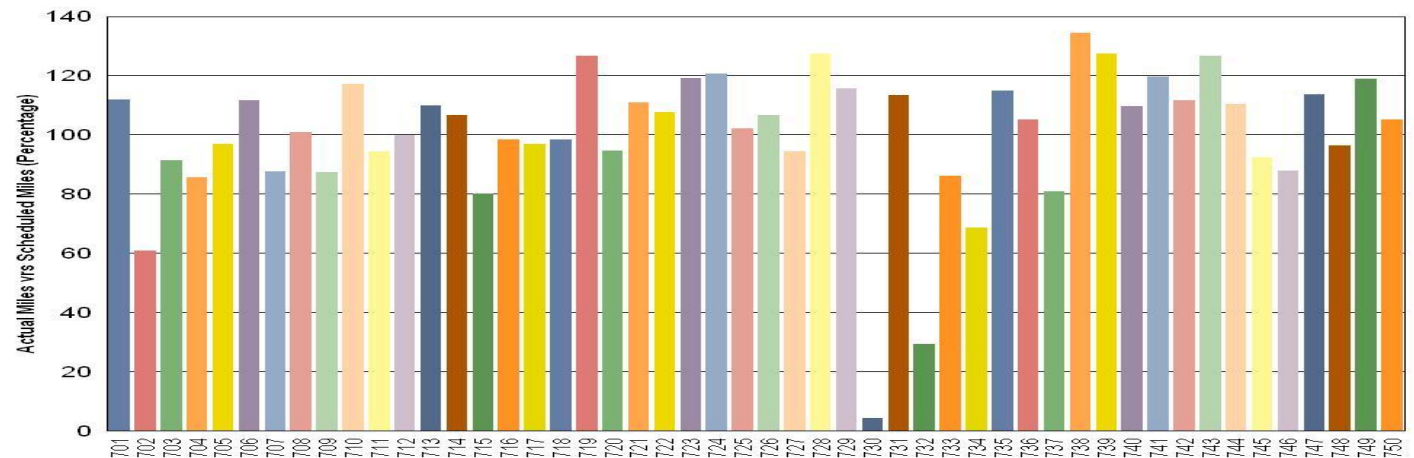


Gold Line:

730 Vehicle was out of service for a 30K PM Inspection, Burnt Traction Motor cables, and wheel truing.

732 Vehicle was out of service due to a Propulsion Fault, and a bad air compressor.

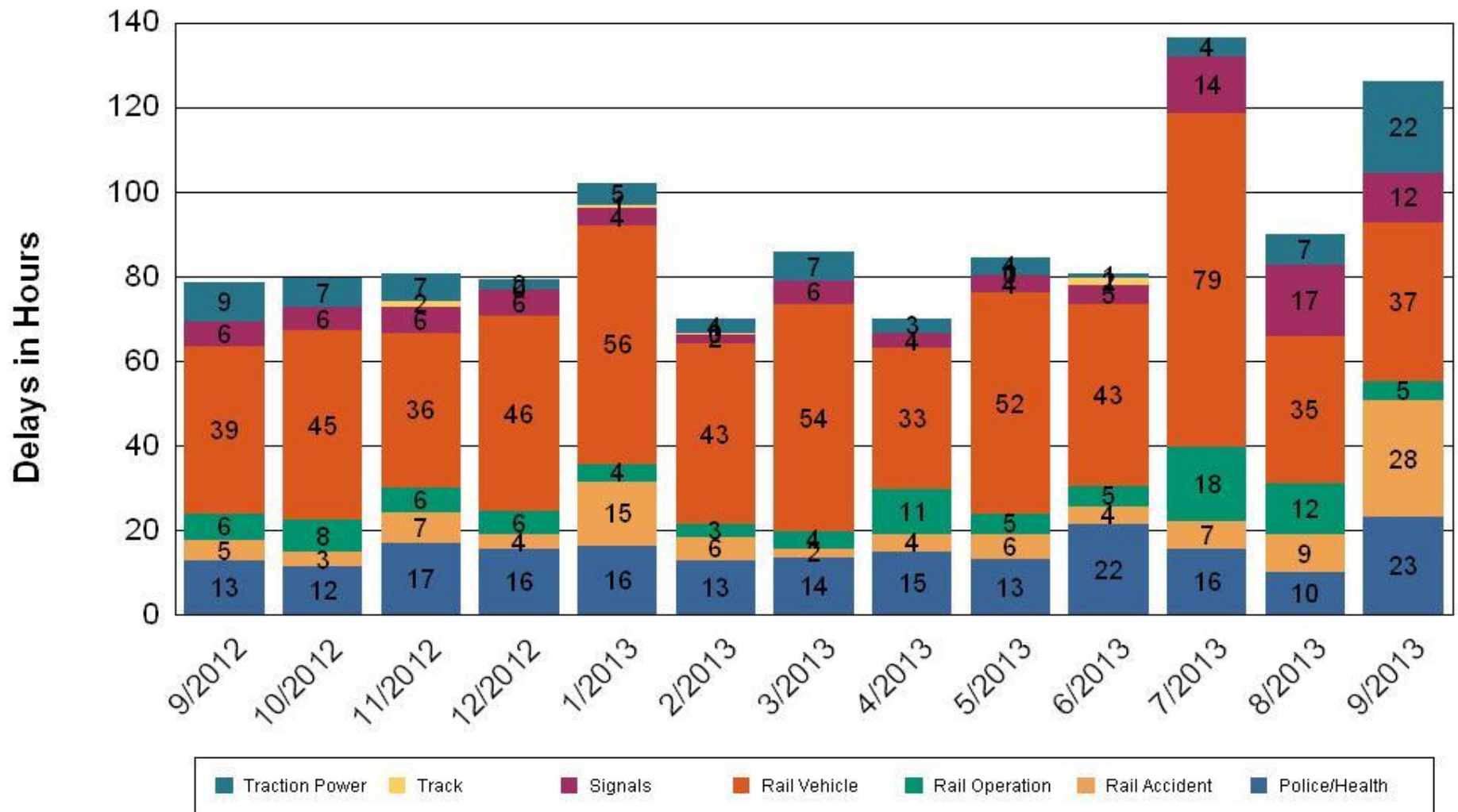
Metro Gold Line



All Train Delay Incidents September 2013

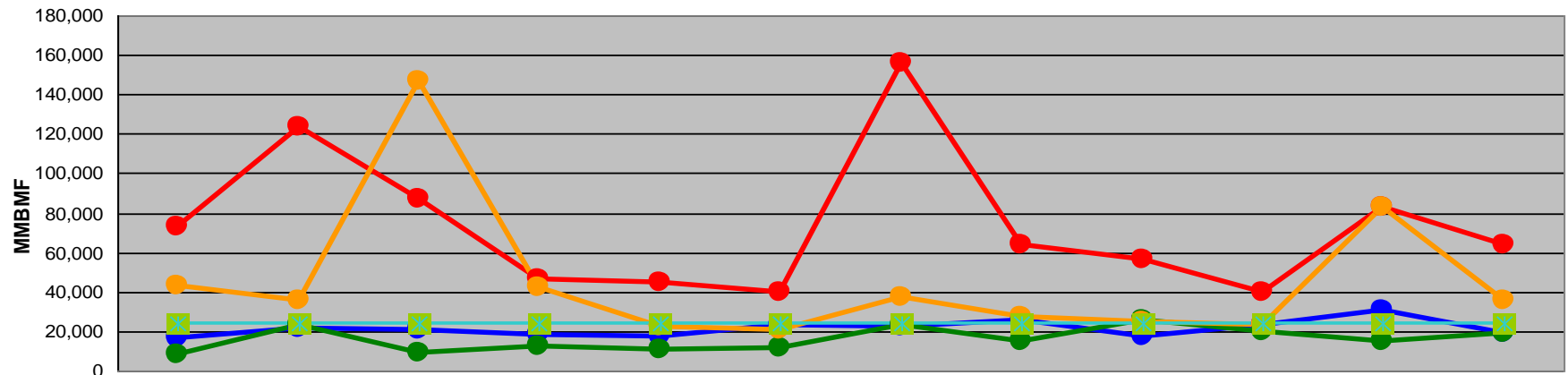
All Train Delays

Totals Include the delay to all trains involved (not just the primary incident)

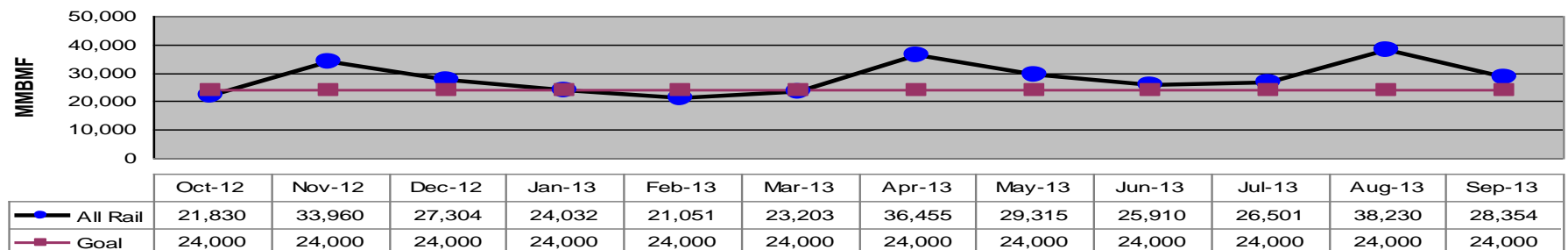


Mean Miles Between Failures (Major) Year to Date

Mean Miles Between Major Failures (12 months)



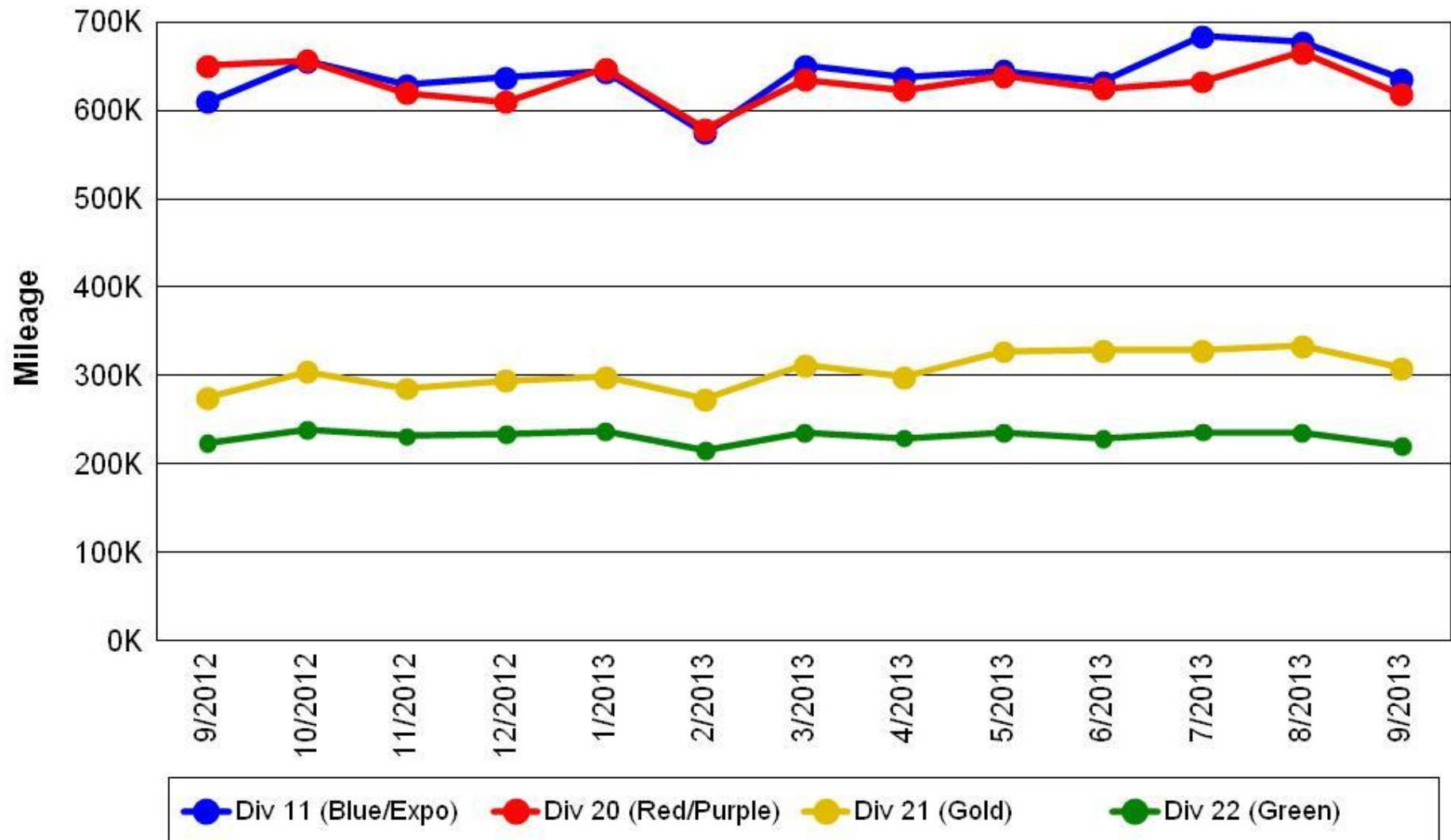
Mean Miles Between Major Failures (all)



Mileage Between Data Range (by month)

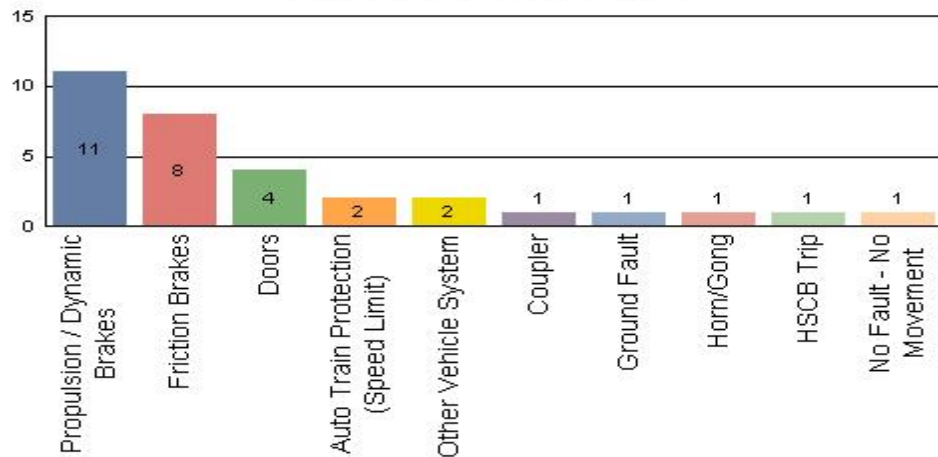
September 2013

Rail Division Monthly Mileage

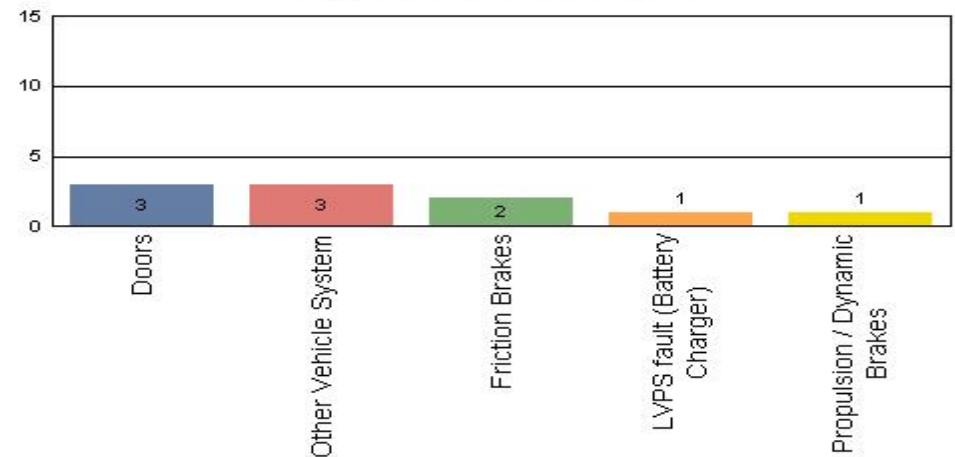


Major Incidents September 2013

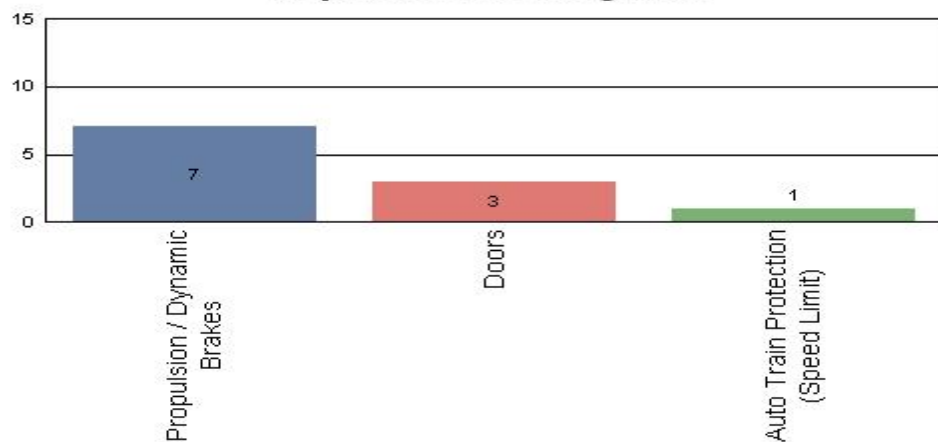
Metro Blue/Expo Line
Top Incident Categories



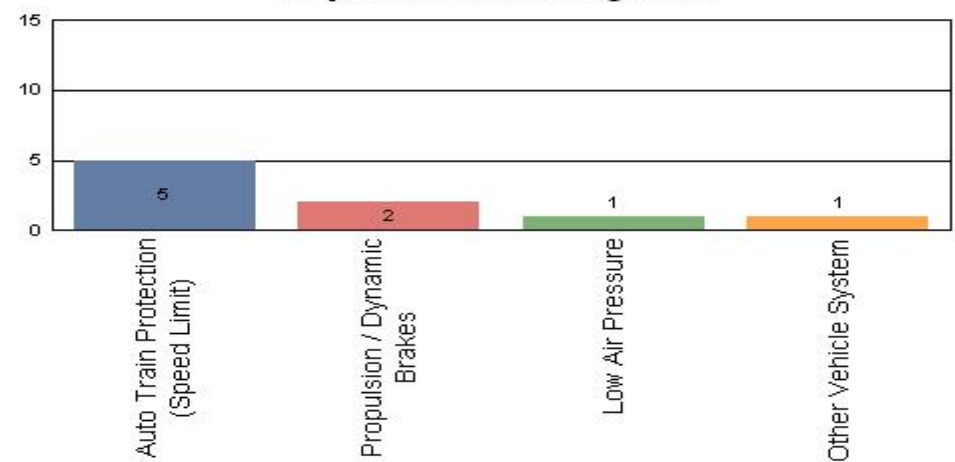
Metro Red/Purple Line
Top Incident Categories



Metro Green Line
Top Incident Categories



Metro Gold Line
Top Incident Categories

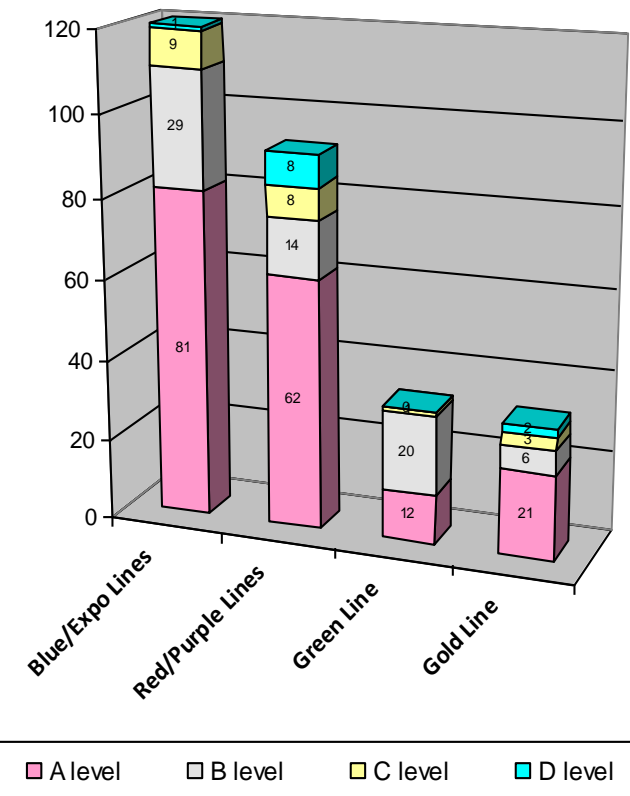


Preventive Maintenance Compliance September 2013

PM Compliance	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13
Blue/Expo Lines	100%	100%	100%	99%	100%	100%	100%	100%	100%	100%	100%	100%
Red/Purple Lines	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Green Line	100%	100%	100%	100%	100%	100%	100%	91%	100%	100%	100%	100%
Gold Line	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

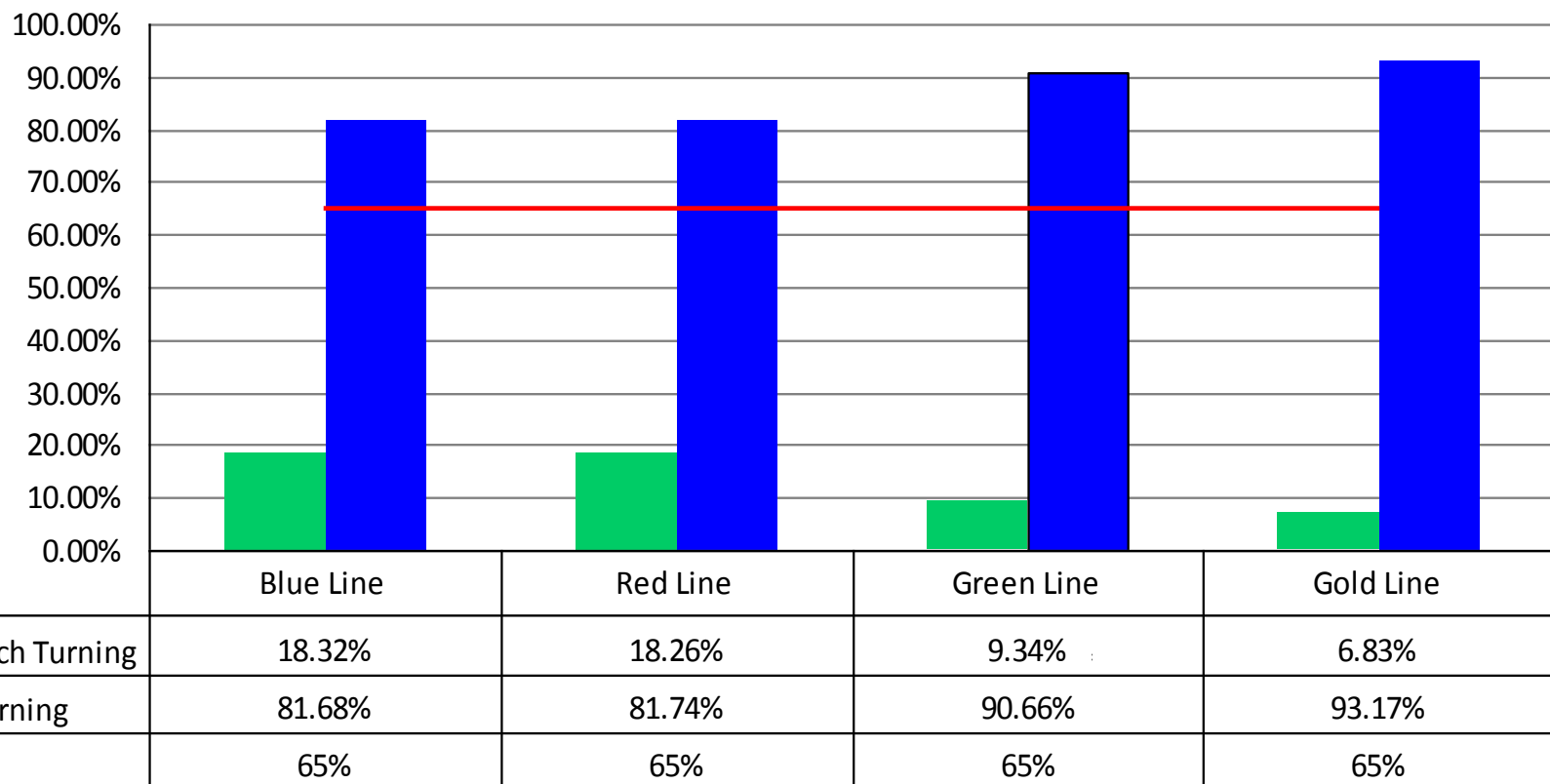
Number of Preventive Maintenance Inspections - September 2013					
Line	A level	B level	C level	D level	Totals
Blue/Expo Lines	81	29	9	1	120
Red/Purple Lines	62	14	8	8	92
Green Line	12	20	1	0	33
Gold Line	21	6	3	2	32
Totals:	176	69	21	11	277

Explanation of PM Inspection levels		Miles			
Line	Type	A level	level	C level	D level
Blue/Expo Lines	P865/P2020	5,000	15,000	30,000	60,000
Blue/Expo Lines	P2000	7,500	22,500	45,000	90,000
Red/Purple Lines	A650	7,500	22,500	45,000	90,000
Green Line	P2000	7,500	22,500	45,000	90,000
Gold Line	P2550	10,000	30,000	60,000	120,000



RFS Wrench Turning September 2013

RFS - Wrench Turning September 2013

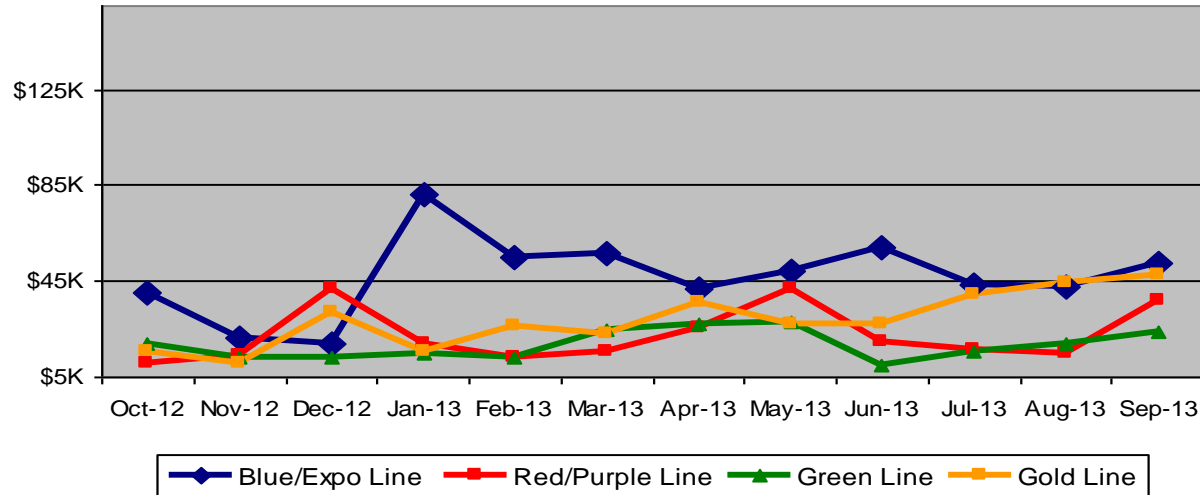


Vandalism & Graffiti Report

September 2013

Graffiti Costs

	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	12-Month Period
Blue/Expo Line	\$40K	\$21K	\$19K	\$81K	\$55K	\$57K	\$42K	\$49K	\$59K	\$44K	\$43K	\$53K	\$563K
Red/Purple Line	\$10K	\$14K	\$42K	\$19K	\$13K	\$15K	\$26K	\$42K	\$19K	\$16K	\$14K	\$37K	\$270K
Green Line	\$19K	\$13K	\$13K	\$15K	\$13K	\$24K	\$27K	\$28K	\$10K	\$15K	\$19K	\$24K	\$220K
Gold Line	\$15K	\$11K	\$32K	\$15K	\$26K	\$23K	\$36K	\$27K	\$27K	\$39K	\$44K	\$48K	\$344K
Totals:	\$84K	\$59K	\$106K	\$130K	\$108K	\$119K	\$131K	\$146K	\$116K	\$115K	\$121K	\$162K	\$1,398K



September 2013 Vandalism & Graffiti - All Rail				
	Qty	Labor	Materials	Totals
Windows replaced	91	\$14,931	\$20,105	\$35,036
Vandal Shields	554	\$17,262	\$7,724	\$24,986
Seats Cleaned	620	\$2,826	\$0	\$2,826
Seats Replaced	472	\$14,869	\$17,891	\$32,760
Graffiti removal - other	1,026	\$29,827	\$1,000	\$30,827
Repainting panels	450	\$31,941	\$3,647	\$35,588
Totals	3,213	\$111,656	\$50,367	\$162,023

Graffiti Pictures September 2013

Blue Line



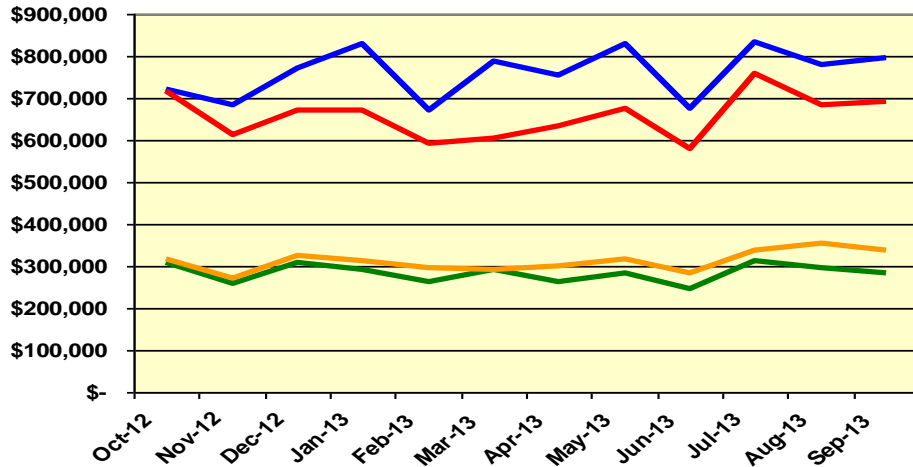
Green Line



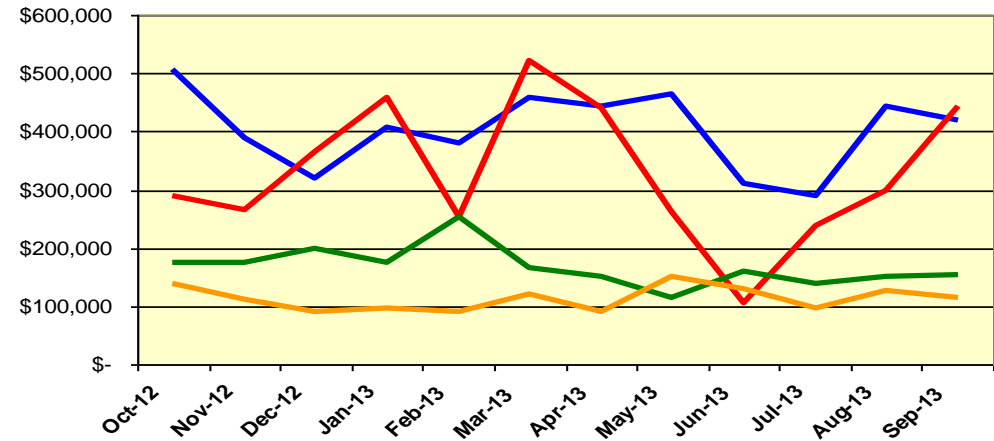
Labor and Material Costs

September 2013

Labor Costs



Material Costs



Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13
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LABOR COSTS

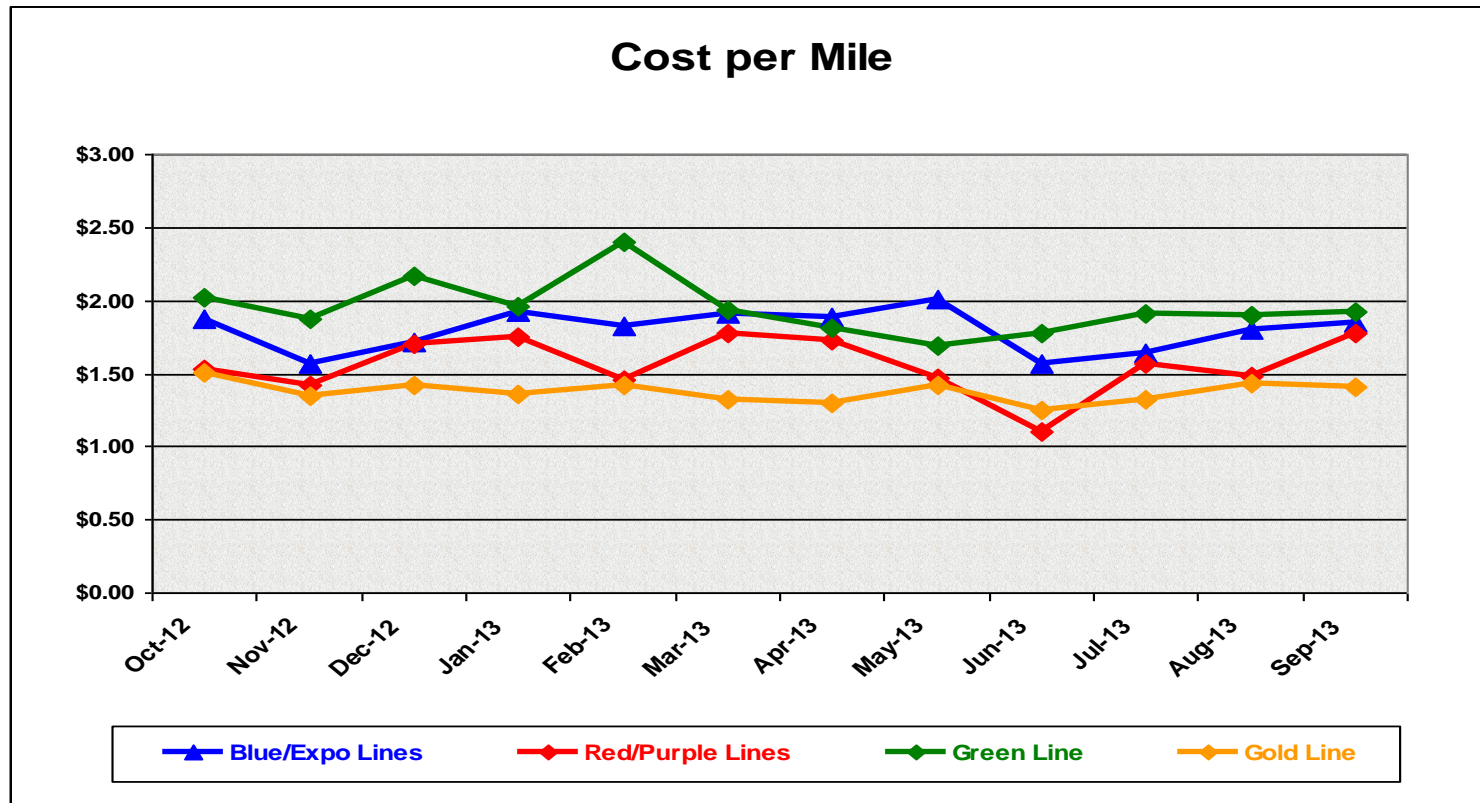
Blue/Expo Lines	\$ 722,379	\$ 683,896	\$ 772,382	\$ 827,656	\$ 671,298	\$ 788,111	\$ 755,561	\$ 829,721	\$ 675,752	\$ 833,333	\$ 777,432	\$ 794,828
Red/Purple Lines	\$ 718,139	\$ 610,872	\$ 671,039	\$ 671,792	\$ 590,750	\$ 605,903	\$ 631,518	\$ 675,950	\$ 579,395	\$ 756,262	\$ 684,850	\$ 693,597
Green Line	\$ 309,399	\$ 258,637	\$ 306,761	\$ 290,453	\$ 261,863	\$ 289,639	\$ 263,955	\$ 282,841	\$ 247,129	\$ 312,740	\$ 295,374	\$ 284,105
Gold Line	\$ 318,284	\$ 272,259	\$ 326,736	\$ 311,060	\$ 297,422	\$ 292,452	\$ 298,759	\$ 317,387	\$ 282,541	\$ 338,719	\$ 352,473	\$ 336,795
Totals	\$ 2,068,201	\$ 1,825,664	\$ 2,076,918	\$ 2,100,961	\$ 1,821,333	\$ 1,976,105	\$ 1,949,793	\$ 2,105,899	\$ 1,784,817	\$ 2,241,054	\$ 2,110,129	\$ 2,109,325

MATERIAL COSTS

Blue/Expo Lines	\$ 506,591	\$ 388,758	\$ 320,127	\$ 407,585	\$ 379,796	\$ 457,700	\$ 444,569	\$ 463,311	\$ 311,415	\$ 288,894	\$ 442,803	\$ 419,133
Red/Purple Lines	\$ 289,365	\$ 265,900	\$ 365,489	\$ 458,038	\$ 254,026	\$ 522,856	\$ 440,708	\$ 263,158	\$ 105,805	\$ 238,207	\$ 298,670	\$ 441,927
Green Line	\$ 174,361	\$ 175,923	\$ 200,257	\$ 173,693	\$ 254,286	\$ 166,766	\$ 151,982	\$ 114,311	\$ 159,526	\$ 138,190	\$ 152,243	\$ 154,678
Gold Line	\$ 138,235	\$ 111,198	\$ 90,479	\$ 95,355	\$ 91,890	\$ 120,086	\$ 89,212	\$ 149,564	\$ 129,742	\$ 95,664	\$ 126,942	\$ 114,461
Totals	\$ 1,108,552	\$ 941,779	\$ 976,352	\$ 1,134,671	\$ 979,998	\$ 1,267,408	\$ 1,126,471	\$ 990,344	\$ 706,488	\$ 760,956	\$ 1,020,659	\$ 1,130,199

Cost Per Mile September 2013

Cost per mile:	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13
Blue/Expo Lines	\$1.87	\$1.57	\$1.72	\$1.92	\$1.83	\$1.92	\$1.88	\$2.01	\$1.56	\$1.64	\$1.80	\$1.85
Red/Purple Lines	\$1.53	\$1.41	\$1.70	\$1.75	\$1.46	\$1.78	\$1.72	\$1.47	\$1.10	\$1.57	\$1.48	\$1.78
Green Line	\$2.02	\$1.88	\$2.17	\$1.96	\$2.40	\$1.94	\$1.81	\$1.68	\$1.78	\$1.91	\$1.90	\$1.93
Gold Line	\$1.50	\$1.34	\$1.42	\$1.36	\$1.42	\$1.32	\$1.30	\$1.43	\$1.25	\$1.32	\$1.44	\$1.41



No facility costs are included

ATU Absences vs. Overtime

September 2013

ABSENCE TYPE and HOURS	3940 Admin.	3941 Blue	3942 Red	3943 Green	3944 Gold	3947 Expo	Total
AWP-ABSENT W/O PERMISSION	-	8	-	16	-	-	24
BER-BEREAVEMENT	-	24	-	-	40	-	64
CTO-COMPENSATORY TIME OFF	-	321	260	64	96	-	741
CUT-EMPLOYEE LEAVES EARLY	-	1	0	1	1	-	3
CVA - CASUAL VACATION	-	122	497	52	181	-	852
DSL-DISABILITY LEAVE/LONG	-	512	352	40	-	32	936
EFH-EMG. FLOAT HOL.	-	8	56	8	72	-	144
ETO-EXCUSED TIME OFF	3	80	34	15	43	2	177
FMI-FAM IND INJURY	-	-	16	-	192	-	208
FML-FAMILY CARE LEAVE	-	104	190	172	432	-	898
FMS-FAMILY LEAVE SICK	-	8	136	16	68	-	228
HLF-HOLIDAY FLOATING	40	336	316	160	160	-	1,012
HOL-HOLIDAY LEGAL	64	568	560	128	112	16	1,448
II-INDUSTRIAL INJURY	-	-	-	168	-	-	168
IIR-INDUS INJURY -REOCCUR.	-	-	160	-	-	-	160
JUR-JURY DUTY	-	16	-	-	-	-	16
LC1-LABOR CODE 233	-	137	79	40	24	-	280
LTI-OCCPIL/LONGTRM INJ LEAVE	-	-	-	128	-	-	128
MLN-MILITARY ABSENCE-UNPAID	-	8	-	-	-	-	8
OWP-OFF WITH PERMISSION	-	-	48	-	-	-	48
RTO-REQUESTED TIME OFF-NO PAY	-	56	-	-	-	-	56
SCK-SICK PAY	-	128	256	96	88	-	568
SCW-SICK WITHOUT PAY	-	64	-	88	40	-	192
TAR-TARDY	-	2	1	1	0	-	4
UB-UNION BUSINESS	-	-	-	-	16	-	16
VAC-VACATION	92	742	596	480	384	10	2,304
VAS-VACATION WHILE SICK	-	-	8	-	-	-	8
Total Absence Hours	199	3,245	3,565	1,672	1,949	60	10,690
ATU Number of Work Force (assigned)	9	121	111	47	50	5	343
Full Work Force hours/month	1,560	20,969	19,236	8,145	8,665	867	59,442
Absence as a % of Work Force	13%	15%	19%	21%	22%	7%	18%

OVERTIME TYPE and HOURS	3940 Admin.	3941 Blue	3942 Red	3943 Green	3944 Gold	3947 Expo	Total
CTB-COMPENSATORY TIME TO BANK	24	171	279	42	80	-	596
OTP-PREM OVERTIME	793	5,640	5,354	2,333	1,897	170	16,186
WLO-Worked Lunch Overtime	79	145	175	136	93	17	644
Total	896	5,956	5,808	2,510	2,070	187	17,426
Overtime as a % of Work Force	57%	28%	30%	31%	24%	22%	29%
FTE Calculation - Absence & OT Hours	3940	3941	3942	3943	3944	3947	Total
Absences FTE	1	19	21	10	11	0	62
OTP FTE	5	34	34	14	12	1	101
FTE Difference	-4	-15	-13	-4	-1	-1	-39

Note: Overtime also covers other required activities.



Metro

Rail Vehicle Engineering Project Summary

September 2013

Engineering Technical Specifications

Specification Completion 100%

Line	Project	Stage	Total
All lines	EMI and OCS voltage testing on all LRV	Completed at AW0 on all lines accept EXPO. No level 2 or 3 EMI or overvoltage seen.	1
	New Radios installed to replace old radios	Meeting 3/7/2012-Contract awarded, MBL and P2000 completed. A650 in installation process P2550 in prototype completed.	1
	P2550 & P2000 OCS & EMI measurements Gold, Green, Blue	Completed Final Test Report	1
	Roadway Worker Protection	CPUC/Installing ProTran1 Device-P865/P2020/P2000 completed, A650/P2550 in	1
	Vandal shield - A650-P865-P2000-P2550/TS/012	Released to Procurement- Contract awarded	1
	Vital Relay Calibration, Alstom - Sole Source	In Process by Procurement	1
All lines Total			6
Red line	Air springs	OTB complete.	1
	Base buy DC traction motor overhaul - P650/TS/041	IFB 13-0009, HMI is the low bidder - HMI declined the bid. Proceed with Swiger Coils, the 2nd low bid.	1
	Base buy gearbox, new design - A650/TS/044 Rev. 0	In Process by Procurement and OMB	1
	Battery set - A650/TS/039	Hoppeke 1st article is approved. Proceed with contract.	1
	Blower Motor and Chopper AC-Inverter A650-TS-047	Released to Procurement for bidding process	1
	Brake electronic unit H4 Power supply	OTB complete.	1
	Braking resistor grids	Post Glover tested and approved.	1
	Chevron springs	Released to Procurement	1
	Coupler overhaul A650-TS-048	Released to Procurement	1
	DC Propulsion Capacitors replacement	3 Suppliers were tested and approved. OTB complete.	1
	Flooring	Received 48 rolls from PRF the OEM. Procurement to find local supplier.	1
	GE Gearbox Overhaul - A650/TS/026	IFB 12-0024, Low bidder IM&E - Evaluation of IM&E capability and capacity is in process	1
	HVAC Compressor overhaul A650/TS/049	Released to Procurement	1
	HVAC Evaporator AC Motor.Inverter A650-TS-046	Released to Procurement for bidding process	1
	Investigate car 505/506	Static test completed, dynamic yard test completed, mainline dynamic test scheduled the week of 12/10.	1
	New LED Destination sign A650/TS/045	Released to Procurement	1
	Traction motor Blower- AC motor/Inverter	Testing 1st article from ATS on one car. Spec in development for Procurement.The shop ordered 6 kit sets to replace the resistor and junction box problems.	1
	Wheel	TSS tested and approved.	1
Red line Total			18
Blue line	"G" force measurement on Transponder installed on P865/P2020	H&K installed "G" sensor on transponder and collected data for analysis - 03/08/12. New carbody mounted bracket were tested and completed fleet modification. New antennas are in installation progress.	1
	Air compressor motor Overhaul P865P2020-TS-057	IFB 130017 - P865/P2020 LRV Air Compressor Motor Overhaul	1
	Articulation - New Diaphragm P865-P2020-TS-060	IFB No 12-0042 Single bid (A & A Manufacture. Prototyping new Bonnett Bellow.	1
	ATP Antenna investigation	Survey 100% of the fleet - Recommend to replace all ATP antenna. Installed 2 each, new antennas on car 129 and 160. Data on 160 loop test was too high for series old new installation. ALSTOM did not release any antenna schematic or testing procedures.	1
	Chevron Springs - P865/P2020/TS/068 Rev. 0	Released to Procurement for bid - IFB 13-0015 In Process by Procurement -GMT is the low bidder. Required 1st article for testing and approval.	1
	conversion of the TWC's from "R" to "R+V"	Conversion was tested on one station, expanded to two more stations, and now is	1
	Door sensitive edge P865-P2020/TS/071 Rev. 0	Released to Procurement	1
	Glass Windows - P865-P2020/TS-066	Single bid - NASG	1
	Ground return unit (GRU)	Casram, the low bidder was disqualified. Proceed with Frost.	1
	HVAC Compressor - P865/P2020/TS/067 Rev. 0	IFB 13-0015- Transicold is the low bidder	1

Rail Vehicle Engineering Project Summary (cont'd)

September 2013

Engineering Technical Specifications Specification Completion 100% (Continued)

Line	Project	Stage	Total
Blue line	New LED Destination Signs	IFB No. 100011- Luminator. Prototype completed. 1st production unit 09/20/13, and 25 car sets per month thereafter.	1
	Powered axle overhaul - P865-P2020/TS/063 and 052	IFB 13-0030, ORX is the low bidder - Proceed with ORX.	1
	Remove the remotely reset CB1 Breaker	Fleet modification completed.	1
	Seat inserts P865-P2020/TS/062	Released to Procurement - Awarded to Sardo	1
	Static Inverter APSE - P865-P2020/TS/065 Rev. 0 [2 Parts]	IFB 13-0028 - ABB is the low bid.	1
	Tire Kit - P865-P2020/TS/064	IFB-13-0043 Globe Electric is the low bidder - under Procurement investigation	1
	Under seat - No motion relays	ABB Prototype installed on 07/24/12 for one month test period. Test was successful. In process of procuring kits.	1
Blue line Total			17
Expo Line	35 Cab Flips @ Culver City Platform and La Cienega Interlocking	Coordinate with Wayside to resolve the problems. GE vendor get involved to resolve a system design problem on E2C. (diode vs. no diode) Latest updated from BNC: No Diode for EXPO. Awaiting GE&BNC completion to finalize this issue. Repair tested on 03/06/1	1
	45mph Loss of Cab @ Culver City Platform	B&C installed new software and readjust the code Track CKT but it did not resolve the problem. Engineering supported the effort by providing the 45mph chart recorder at the site. We also provided the 45mph speed code charted from the Gold line to Michael	1
	Junction of Blue line and Expo line Testing - ATP	Testing indicated signal track problem at Culver City. Wayside are recertify track circuits. Testing completed on 10/18/12 indicated track circuit installation problem. GE investigating. Wayside replaced the transponder, fine tuning take place 02/14/1	1
	Loss of Cab signal, speed code 45 mph. Support GE, B&C, Wayside to resolve problems at La Cienega Station Expo line	In Progress to follow up, Update Project: GE replaced New Impedance Bond and verify that 90% of Blue line had been resolved. Repair tested on 03/06/13 - failed test. No flips at 35 MPH however flips at 45 MPH. Report written Expo test report findings 0306	1
	Mapping entire MBL and Expo line	Mapped entire MBL and Expo line ATP/ATO/Line voltage/ track signals.	1
	P2000 Couple/un-couple issues	Investigation completed - Test was successful - Fleet modification in process.	1
	Support B&C by testing car on La Cienega	B&C Engineer and Wayside will be on site to adjust cab signals.	1
Expo Line Total			7
Green and Blue line	Mapping mainline	Conducted mapping the entire line in 2 weeks for ATP/ATO/TWC - Correction made	1
	P2000 (MGL) LRV225 Base Measurement Performance Test	Final Test Report completed. Review completed.	1
	P2000 Axle journal bearing	OTB completed	1
	P2000 Coupler Overhaul Specification P2000-TS-038	Released to Procurement for bidding process	1
	P2000 Friction brake disc CT WAS-21	Contract awarded to Wabtec.	1
	P2000 Friction brake kit overhaul less air compressor - P2000/TS/035 Rev 0	Released to Procurement for bid - SS was signed - Awarded to Wabtec	1
	P2000 LED destination sign - P2000/TS/037 Rev. 0	Released to Procurement	1
	P2000 Powered axle overhaul	Contract awarded to PAMCO.	1
	P2000 Tire Kit - P2000/TS/018	IFB-13-0043 Globe Electric is the low bidder - under Procurement investigation	1
	Prototype "smart" automatic sanding circuit on P2000 vehicle.	Completed	1
	TWC Calibration procedure.	TWC calibration procedures completed. Issued and Training completed at Division.	1
Green and Blue lines Total			11
Gold line	Cyclope light and Destination Sign Glass	In Progress - NASG	1
	Lateral shock absorber	Investigating the failure of the resilient bushing. ABI will change the Gimo to ZF type on the entire fleet.	1
	Rubber Boots (High Voltage)	In Progress - Vulcanite. Bought from OEM through A&E Telecom.	1
	Vehicle Acceptance	Fifty cars have been Final Accepted.	1
Gold line Total			4
Total - Specification Completion 100%			63

Rail Vehicle Engineering Project Summary (cont'd)

September 2013

Engineering Technical Specifications

Specification Completion <100%

%Completion	Line	Project	Stage	Total
0%	Blue line	Plot response of new ATP Antenna	In Progress	1
0% Total				1
10%	All lines	Proposed Spread Spectrum Frequency Hopping technology for vehicle door control safety system all lines.	Consider Protran system (FCC15 passed) as the first prototype to try. Work in progress to consider system design, test and installation. Estimate cost completed minimum cost MBL/EXPO/MGLD \$ 3.2 M. One prototype will be designed and installed coordinated with Protran Engineering.	1
	Red line	End Door Seals (Mechanical Rubber)	Awaiting samples from vendor.	1
		H-4 electronic units	Unit upgrade - Fleet issues (Wabtec) to provide new unit proposal.	1
		Inner car Barrier	Awaiting samples from vendor	1
		MRL ATP support Cab flips and Penalty Brake/EB application	In progress Test loop procedures, ATP procedures, Coordinate with Wayside	1
		Write EP for caliper gauge	In Progress	1
	Blue line	3-way valve project with Norgren	In Progress	1
		A & A Water bonnet prototype installation support	In Progress	1
		Cardan Failure Investigation	Lab testing failed components and evaluate those in service - Kar's Lab	1
		Replace air compressor DC motor with AC motor	Knorr prototype in Modifying 1 unit is received - Scheduling Knorr field visit to install and test on the car.	1
	Gold line	Brake pad	In development	1
		Find alternative Vendor for Reverse Engineer PCB Boards P2550	In Progress	1
		GPS intermittent working and failures	In Progress	1
		Pantograph - P2550/TS/006	In development	1
	Foot Hill Shop	Truck Tramming Table	(blank)	1
	Santa Monica Shop	Car Hoist	(blank)	1
10% Total				16
15%	Red line	Front and Rear End Door Seals/Front and Rear Window Seals (Central Sales and Services)	First samples did not meet form/fit. Awaiting new samples from vendor	1
15% Total				1
20%	Gold line	Revise Horn and Gong	Generate TB	1
20% Total				1
30%	Red line	Ribbed Rubber Flooring PRF	Dealing with OEM - PRF. Delivery schedule by end of May.	1
		Silent Block (Global Manufacturing Network)	not complying to our documentation requirement	1
		Wheel measurement investigation and measuring devices	Work with CH2M, approve correct tools for measuring wheel diameter, and search for electronic measuring devices.	1
	Blue line	Battery set - P865/P2020/TS/069	Draft in review	1
		Soft battery prototype installation project	In Progress	1
		Smart Drive Prototype at Blue Line	The project is currently under reviewed for EMI/EMC compliance. Project will be started the week of 8/11/13. Request a P865 for Smart Drive hardware interface. Review Cable design. Completed Installation and testing 4 out of 6 interfacing signals including Signal by-passed, Track Brake, High Horn, Emergency Brake. ATP Overspeed, and Intercomm. signal. Smart Drive will consider another visit to complete the other 2 signals (ATP overspeed and Intercomm.)	1
		Bombardier Engineering Team visit and provide OEM support on Speed Sensor, EMI, MC,...and other issues	In Progress	2

Rail Vehicle Engineering Project Summary (cont'd)

September 2013

Engineering Technical Specifications Specification Completion <100% (Continued)

%Completion	Line	Project	Stage	Total
30%	Gold line	Compressor Desiccant Material	Prototype Canister fitting manufactured and tried at MGLD. Air leak present. Knorr to investigate installation procedure or O ring issues.	1
		HVAC investigation	Water drain and smoking filter issues - Dealing with Thermoking and ABI. TK performing 3 FMI across the fleet. Modification Bulletin for HVAC SS filter issued for signature.	1
		Wayside signal investigation @ Union Station	Performed testing with Wayside. Work in progress.	1
30% Total				11
40%	Red line	Base Buy A2 Board PSI Repair	Awaiting repaired first article samples from PSI	1
	Blue line	ATP Ultratech testing of Overrepeed	In Progress	1
	Green and Blue lines	RSS and EOSS Bundle Cables/Connectors	In Progress - Glenair	1
	Gold line	Bike Hand Rail Support of parts	Parts are not available	1
		Ground Brush Schunk (Lamellar Seal failure investigation)	Awaiting ABI/Schunk final update. ABI/Schunk recommended to remove all Lamellar seals, Metro requested an FMI.	1
40% Total				5
50%	All lines	St. Louis LRV	Testing flooring for fire rating - investigating computability.	1
	Red line	Door Operator Gearbox and Rollers Overhaul	In Progress - Buying kits from Vapor Stone to overhaul GB and motor in house.	1
		Equipment Procedure for AC tester	Paper work in process	1
		Hi-Power Cable crimp-New Die & Procedures	In Process	1
	Red line	HVAC Evaporator AC motor/Inverter	Testing 1st article from Vapor Stone on one car. Spec in development for Procurement. EMI document including test plan and test data was not submitted by Vapor Stone. Problems shutdown on Gap voltage had been resolved temporarily. We are awaiting for Vapor to resubmit the circuit to solve this problem.	1
		Investigate 533/534-GTO Thermister heat up	Found Fiber optic miswire/ mislabel.Tested on main line	1
		Tyco Connector Modification on Base Buy to match T/M	In Process	1
		Window Seals (West Coast Gasket)	In Process	1
	Blue line	Door Threshold Step Mod	In Progress	1
	Green and Blue lines	Master Controller - Bombardier Refurbish	Ongoing Program	1
		Speed Sensors	Testing new speed sensors from Smith System	1
	Green line	Wiper Assembly	In Progress	1
	50% Total			
59%	Red line	ABI New Traction Motor Mount	ABI for Fleet Modification in progress. A total of seventy seven (128) trucks were completed.	1
59% Total				1
60%	Blue line	Luminator First Article Installation and testing at Blue line	Awaiting Luminator for EMI/EMC test plan and results. Engineering Documents resulted from Testing and installation are being reviewed. Luminator re-submitted documents for EMI/EMC, ESD, Vibration. Project installed scheduled for Sept 18, 2012. Yard test and main line test will follow after instalaltion.	1
		P865/P2020 Threshold Modification	Prototype made. Sent to mold maker to create mold. Then it will be sent to foundry to create 1 vehicle set to test.	1
	Green and Blue lines	P2000 Air compressor overhaul	Spec in review process	1
	Green line	Car 201 door problem	In Progress	1
60% Total				4
70%	Red line	HPT Upgrade	Wabtec Proposal received. NTP issued 08/08/12. .One car set prototype in testing. First delivery of 16 units scheduled for 02/22/13.	1
	Gold line	HSCB Failure	Awaiting strip down kit to arrive. Then review inspection procedure and work with QA for final inspection of fleet.	1
		P2550 Software Configuration	Update all software and release on share drives only the latest version.	1
70% Total				3

Rail Vehicle Engineering Project Summary (cont'd)

September 2013

Engineering Technical Specifications

Specification Completion <100% (Continued)

%Completion	Line	Project	Stage	Total
75%	All lines	Bike Space	P2000/P2550/A650 Fleet modification completed - MBL on hold.	1
	Red line	Base Buy Lead Free Axle Ground Brushes	Installed and began testing on vehicle 523	1
75% Total				2
80%	Green and Blue lines	Friction Brake failure investigation	Metro technical team with Wabtec (OEM) ongoing investigation.	1
	Green line	Gear boxes thermo stickers installation support	In Progress	1
	Gold line	3P Flip Up Seat Finger Guard	Submitted SS to Procurement - Testori - 2nd prototype received and requires modification to Exec Officers comments.	1
		Knorr Braking TVS connector failed shorted	Work in progress. Conference call with Knorr engineer. They requested the voltage polarity to be changed as in the schematic. Breda to response to the request.	1
		Lubrication stick improved interlocking	Test installed and TB issued.	1
		Marine Valve HVAC	To be revised by Thermoking comment, new installation to be witnessed, and procedure updated.	1
		Wheel measurement consultant support	In Progress	1
	80% Total			
85%	Red line	PECE Test Procedure	In the process of listing all the steps that were modified or that we have questions on to send to LJ.	1
85% Total				1
90%	Red line	Base Buy DC fleet investigation	LJ-CH2M and engineering addressing PECE testing, Capacitors replacement, and modifying A17-A22-A23 boards. Field power supply calibration completed. PECE test procedure. Replacing all system capacitors.	1
		Luminator Lights day time color	Final phase needs management approval or rejection.	1
	Blue line	Chopper air filter P865-P2020/TS/050	In signature	1
		Inverter air filter P865-P2020/TS/036	In signature	1
		Motor alternator filter P865-P2020/TS/051	In signature	1
	Gold line	Operator Side Window Glass	Awaiting QA FA	1
		TWC Testing	Investigate TWC performance issue on B end of Vehicle. LTK to issue final report of findings to date.	1
	90% Total			
95%	Gold line	Desiccant Disposable Filter	Generated TB/PR, MB/VMI followed	1
		Finger Guard	Complete FA once parts are manufactured	1
95% Total				2
On Going	Red line	Support Wheel&GB Pressing	In Progress	1
On Going Total				1
Total - Specification Completetion <100%				75

QA-Warranty Program Projects Summary

September 2013

QA-WARRANTY ACTIVITIES

- On-Going, P2550 parts tracking: Contract Spares, Capital Spares, Metro Loaned Parts status to ABI
- On-Going, Division Warranty Parts Claims Processing
- P2550 Fleet High Speed Coupling failure investigation (Action pending ABI)
- P2550 Shock Absorber fleet failure declared, ABI will replace 336 lateral shock absorbers under warranty conditions. 45 vehicles of 50 new shock absorbers installed
- P2550 (Lamellar Seal) Truck Resilient Pin Bushing fleet failure declared (Action pending ABI)
- P2550 17 of 50 Cars have new profile connection beam installed with original resilient pins and bushings
- A650 Base Buy & Option Car Fleet Warranty Truck Frame Mod Campaign (131 of 216 Trucks modified to date). MRL Warranty Cost Avoidance savings accrued to date \$1.97 million.
- On-Going, Management's Special Interest Phase-2 Supplemental Inspections, MBL & MGL P2000 Fleet 7 of 52 cars completed
- Rail System wide Oil sample and Analysis in progress
- QA PMI Audits, Spot Checks, Unannounced Audits performed (24)
- On-Going Warranty-QA interest oversight & tracking: Overhauls / Mod Programs, (A650/P2000/P2020/865/P2550) Propulsion System, Master Controllers, Capacitor Banks, Air Compressors, Aux Power, Couplers, Gearboxes, Articulation Diaphragms, Friction Brakes, HPT's, Brake Resistor Grids, T/M's, MA's, HVAC, Doors, A/C Motors – (Blowers & Evaporators)

RFS Instruction Department Activities

September 2013

Training classes completed during the month of September 2013

Description	Course Hours	Student Count	Training Hours
<u>Blue & Expo Line Training - (P865/2020 & P2000 LRV):</u>			
RFS SIEMENS 2000 FRICTION BRAKES	48	7	336
RFS SIEMENS 2000 T/B, SANDERS	8	7	56
RFS SIEMENS MAINLINE DUTY, DEAD TOW AND VEHICLE REC	24	4	96
RFS 865/2020 MAINLINE DUTY, DEAD TOW AND VEHICLE RECC	32	8	256

Total Blue Line Training (Hours): 744

Red Line Training (Breda A650 HRV):

RFS 2-WEEK RAIL INTRODUCTION	80	2	160
HAZARD COMMUNICATION FOR EMPLOYEES	2	6	12

Total Red Line Training (Hours): 172

Green Line Training (P2000 LRVs):

RFS 2-WEEK RAIL INTRODUCTION	80	1	80
RFS SIMMONS WHEEL TRUE	24	5	120
RFS SIEMENS 2000 US&S ATP/ATO/TWC	48	5	240
RFS LRV RE-RAILING	8	5	40

Total Green Line Training (Hours): 480

Gold Line Training (P2550 LRVs):

RFS SIMMONS WHEEL TRUE	24	2	48
RFS ANSALDOBREDA 2550 MAINLINE DUTY, DEAD TOW AND V	24	9	216

Total Gold Line Training (Hours): 264

Total RFS Instruction for the month of September 2013 (Hours): 1,488

Other Instruction Activities

P2000 Vehicle Course Preparation	120
P865/P2020 Main Line Troubleshooting Preparation	40
Red Line Engineering Support & PM Review	64

Total Other Instruction Activities 224.0

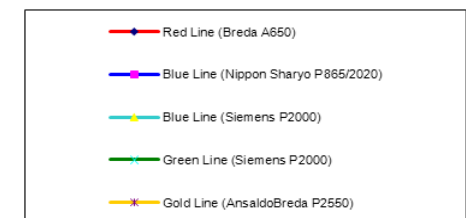
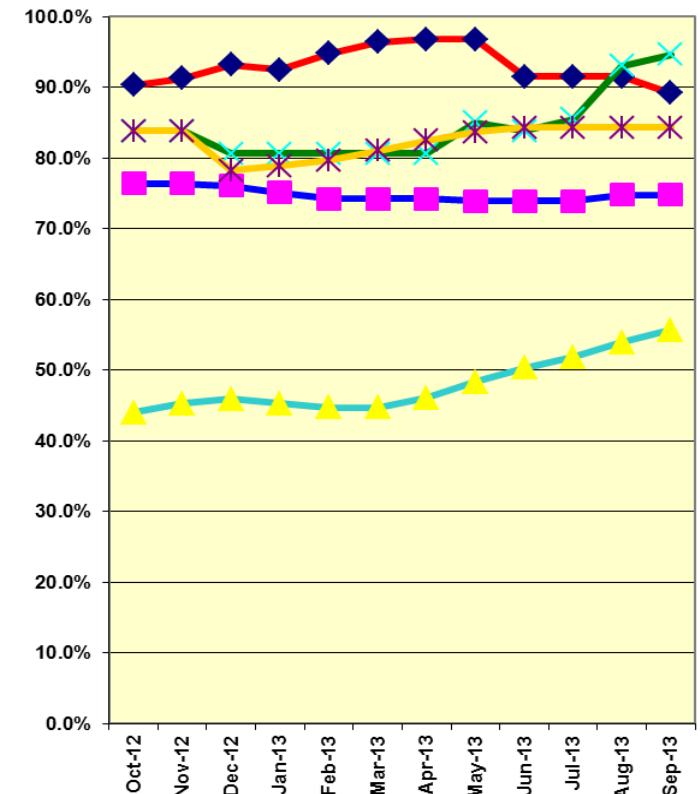
Core Vehicle Training Completed: BLUE RED GREEN GOLD

Percentage of core vehicle training complete: 74.8% 89.2% 94.6% 84.3%

Siemens P2000 training complete: 55.7% N/A N/A N/A

Average Specialist Rail Experience Level in Years: 11.3 9.6 9.5 10.1

Core Training Completed



Variations caused by new hires, employee transfers, & training completed