



Rail Fleet Services Monthly Report August 2013



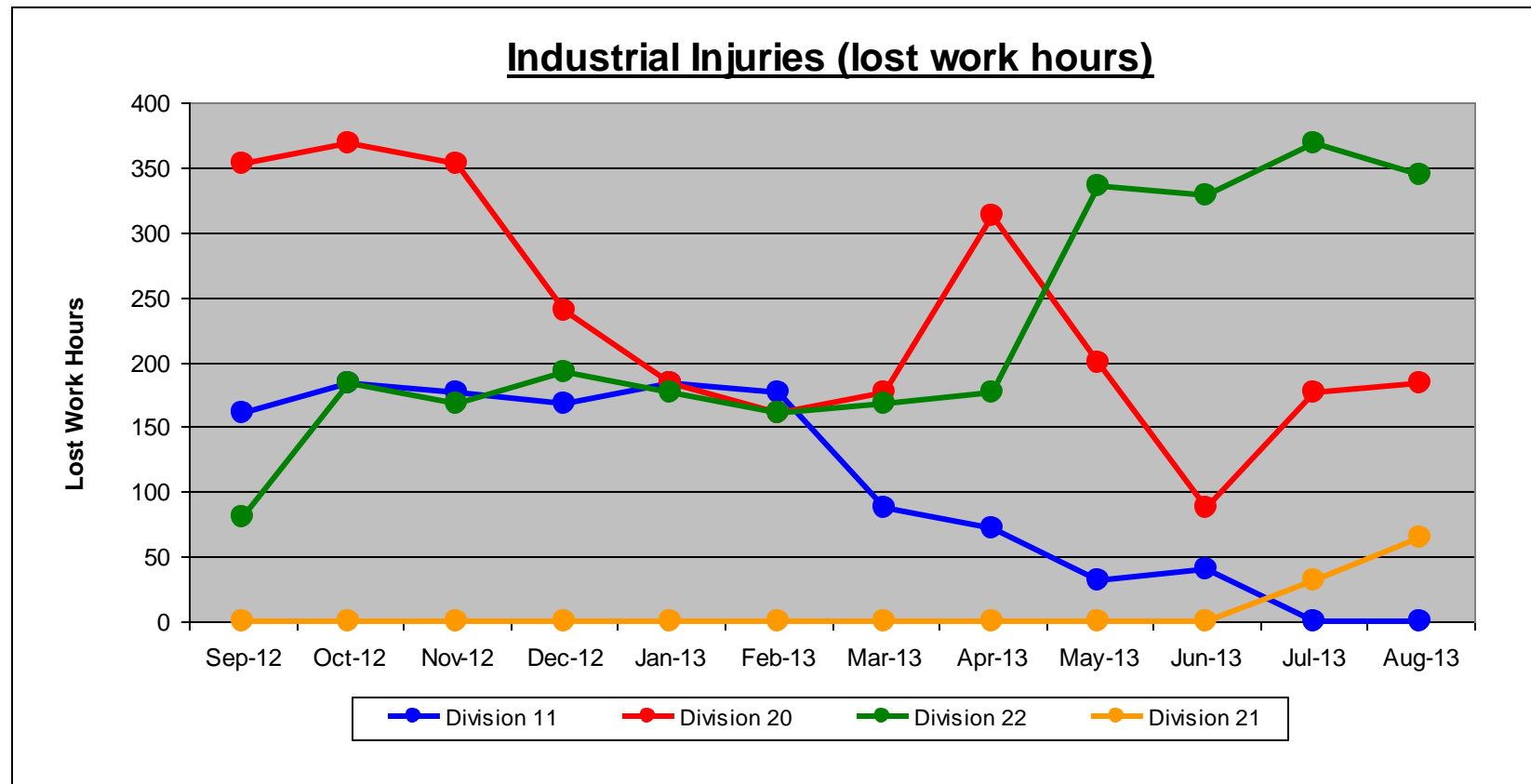
Metro

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Industrial Injuries – Lost Work Hours August 2013

	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13
Division 11	160	184	176	168	184	176	88	72	32	40	0	0
Division 20	352	368	352	240	184	160	176	312	200	88	176	184
Division 22	80	184	168	192	176	160	168	176	336	328	368	344
Division 21	0	0	0	0	0	0	0	0	0	0	32	64
Totals	592	736	696	600	544	496	432	560	568	456	576	592



Rail Vehicle Accidents & Major Incidents

August 2013

Repair Costs	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	12-Month Period
Blue/Expo Line	\$4,726	\$1,668	\$494	\$5,262	\$18,740	\$3,288	\$2,959	\$237,017	\$11,700	\$4,926	\$14,951	\$2,338	\$308,069
Red/Purple Line	\$778	\$0	\$0	\$0	\$2,244	\$0	\$0	\$4,165	\$0	\$0	\$0	\$1,358	\$8,545
Green Line	\$0	\$0	\$0	\$503	\$202	\$126	\$0	\$0	\$0	\$0	\$0	\$0	\$831
Gold Line	\$0	\$0	\$0	\$0	\$176	\$0	\$0	\$0	\$261	\$8,220	\$0	\$537	\$9,194
Totals	\$5,504	\$1,668	\$494	\$5,765	\$21,362	\$3,414	\$2,959	\$241,182	\$11,961	\$13,146	\$14,951	\$4,233	\$326,639

Rail Vehicle Accident Costs - August 2013				
Date	Incident #	Problem code	Incident Description	Cost
Metro Blue Line				
8/7/13	2350255	Train vs. Vehicle	A 10-73 was reported at Washington/Long Beach.	\$ 945
Total				\$ 945
Metro Expo				
8/26/13	2357217	Train vs. Vehicle	A 10-73 was reported at Intersection of Exposition and Raymond.	\$ 1,127
8/28/13	2358274	Train vs. Object	A 10-71 was reported involving Train # 123, at Hauser grade crossing, track #3, Northbound.	\$ 266
Total				\$ 1,393
Metro Red Line				
8/12/13	2351619	Derailment	A 10-75 was reported involving high rail vehicle train 74 derailed on the AL West Union Interlocking.	\$ 1,358
Total				\$ 1,358
Metro Gold Line				
8/28/13	2358284	Train vs. Object	A 10-71 was reported.	\$ 537
Total				\$ 537
GRAND TOTAL				\$ 4,233
(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 August 2013

Blue/Expo Line Fleet Size:

92

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
<u>Pull Out</u>			
Weekday:	78	80	103%
Weekend:	60	67	112%
Late Pullouts: 3 *			
Monthly Mileage:	677,000		

Red/Purple Line Fleet Size:

104

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
<u>Pull Out</u>			
Weekday:	74	83	112%
Weekend:	55	79	144%
Late Pullouts: 0*			
Monthly Mileage:	665,828		

Green Line Fleet Size:

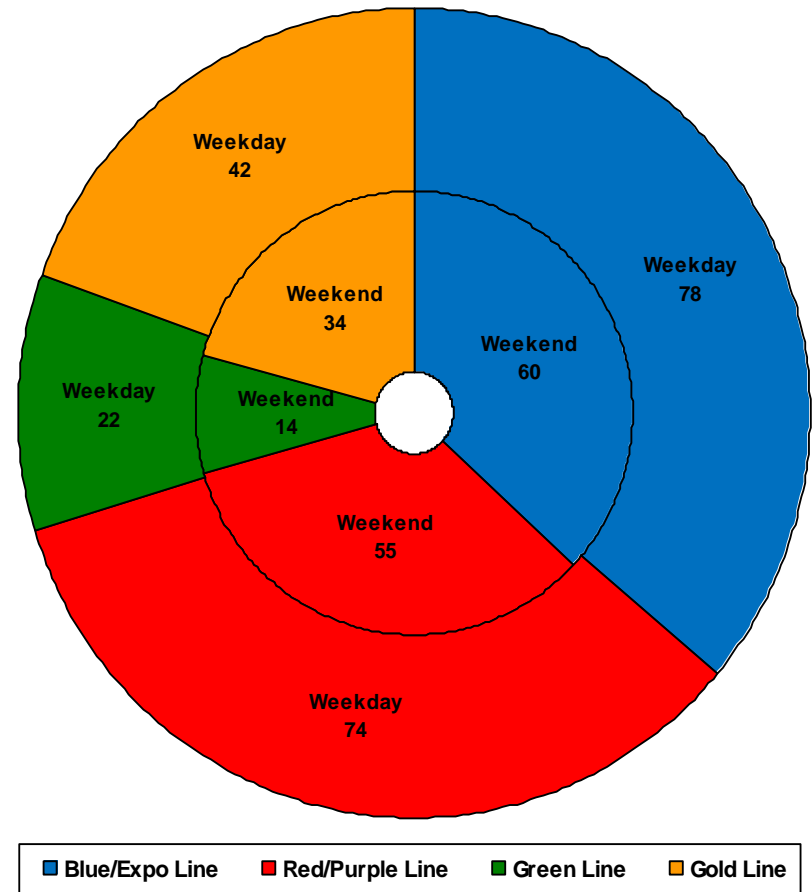
29

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
<u>Pull Out</u>			
Weekday:	22	23	105%
Weekend:	14	20	143%
Late Pullouts: 0 *			
Monthly Mileage:	235,389		

Gold Line Fleet Size:

50

	<u>Vehicles Required</u>	<u>Average Available</u>	<u>% Up (Down)</u>
<u>Pull Out</u>			
Weekday:	42	44	105%
Weekend:	34	43	126%
Late Pullouts: 0 *			
Monthly Mileage:	333,281		



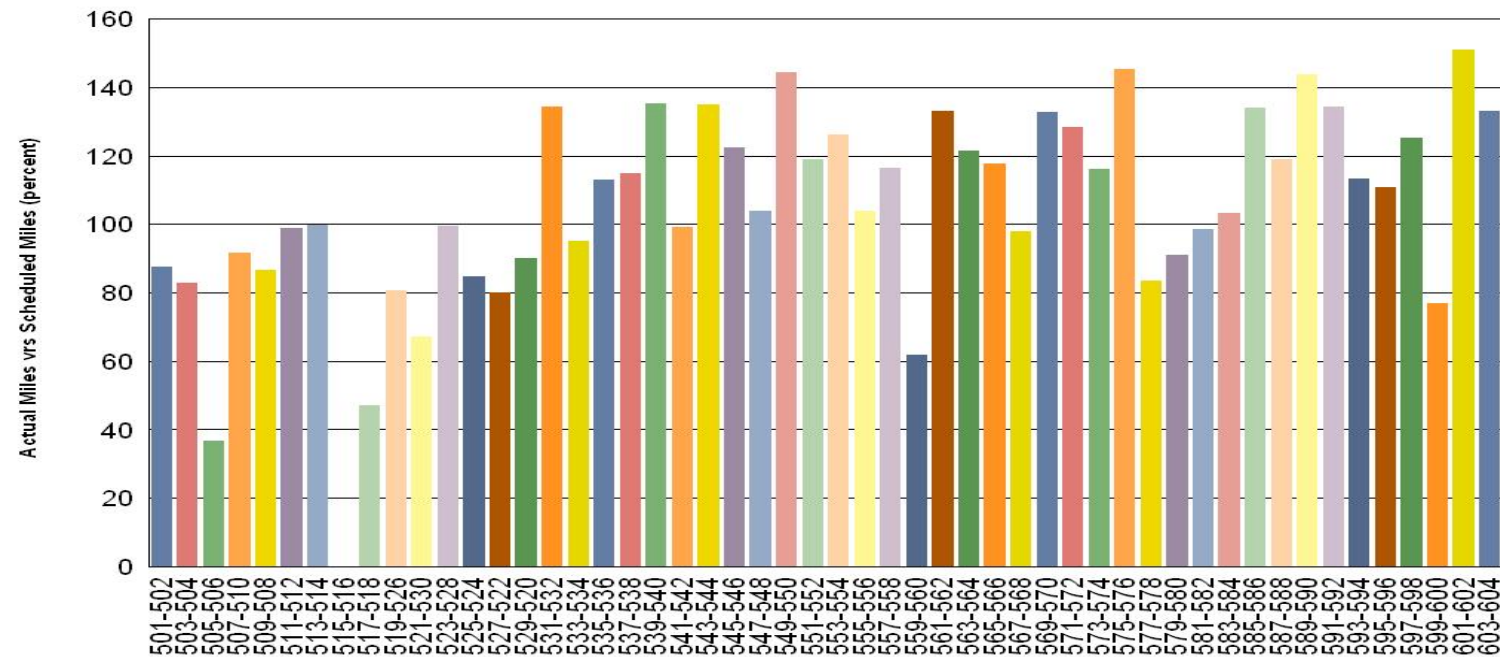
Vehicle Utilization

August 2013

Red/Purple Lines:

515-516 Vehicle held out of service due to propulsion issues.

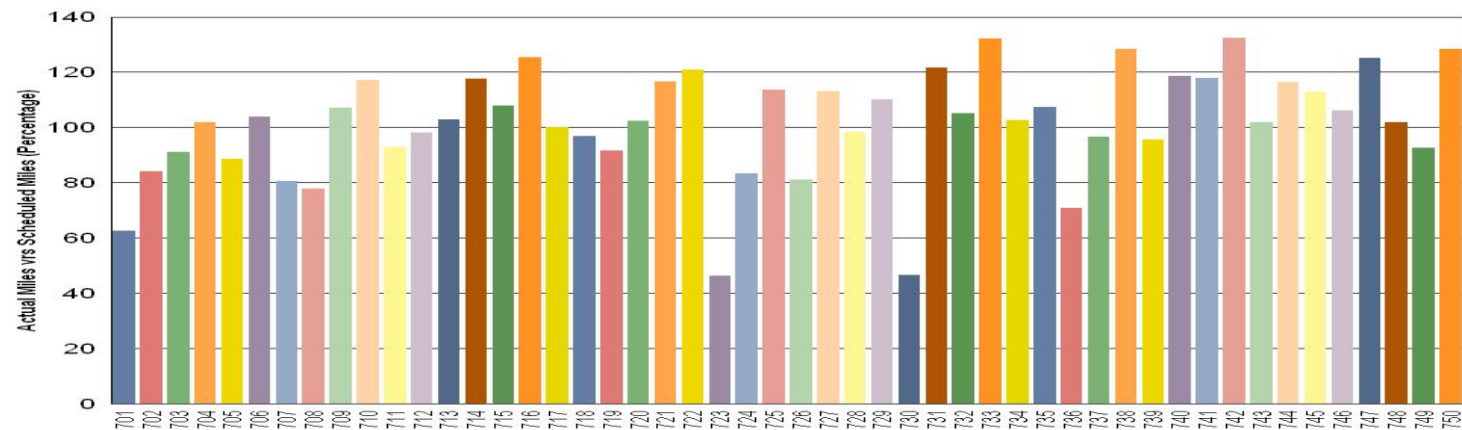
Metro Red/Purple Lines



Gold Line:

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

Metro Gold Line

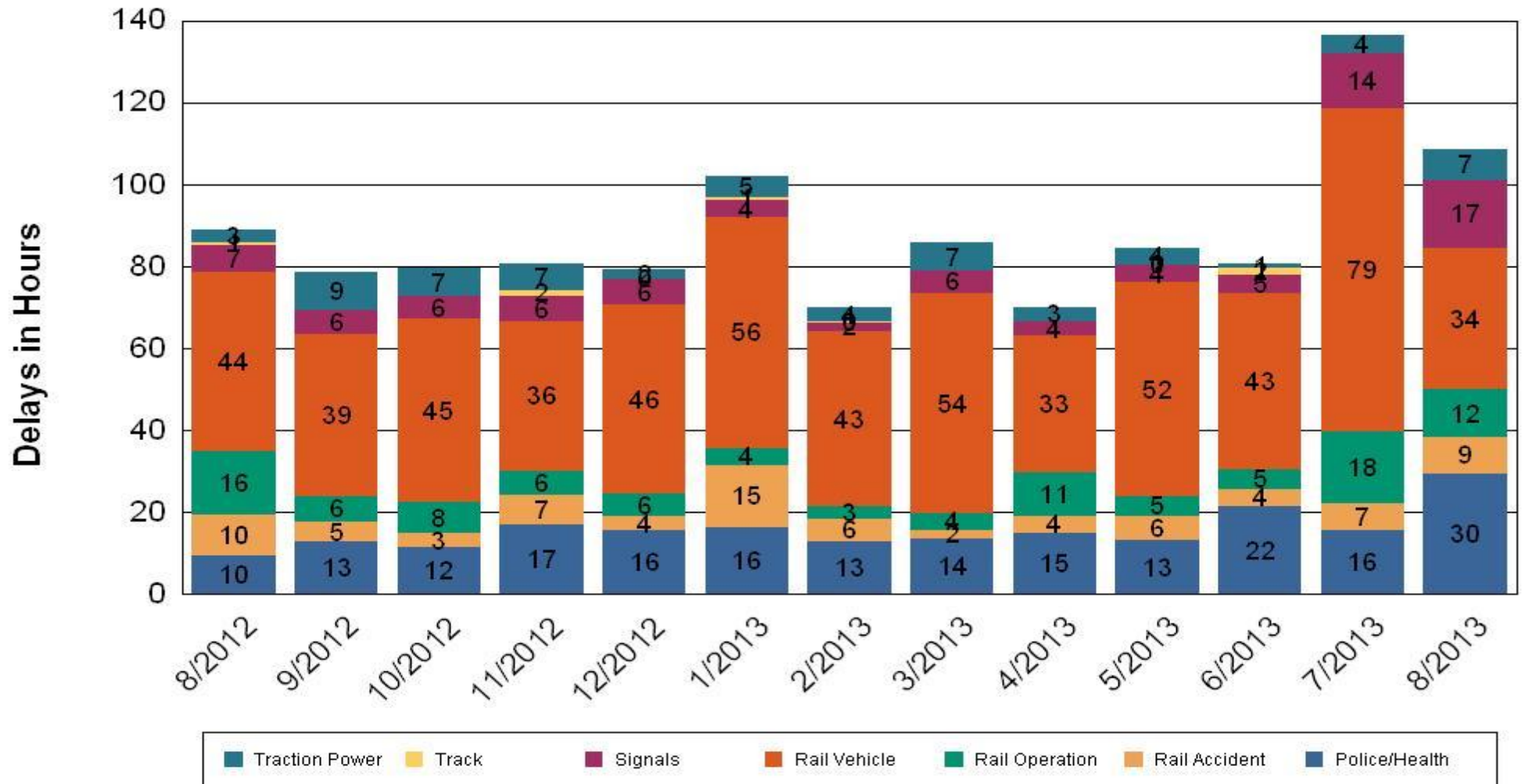


•Percentage includes an average 4% mileage deduction for yard mileage and vehicle testing.

All Train Delay Incidents August 2013

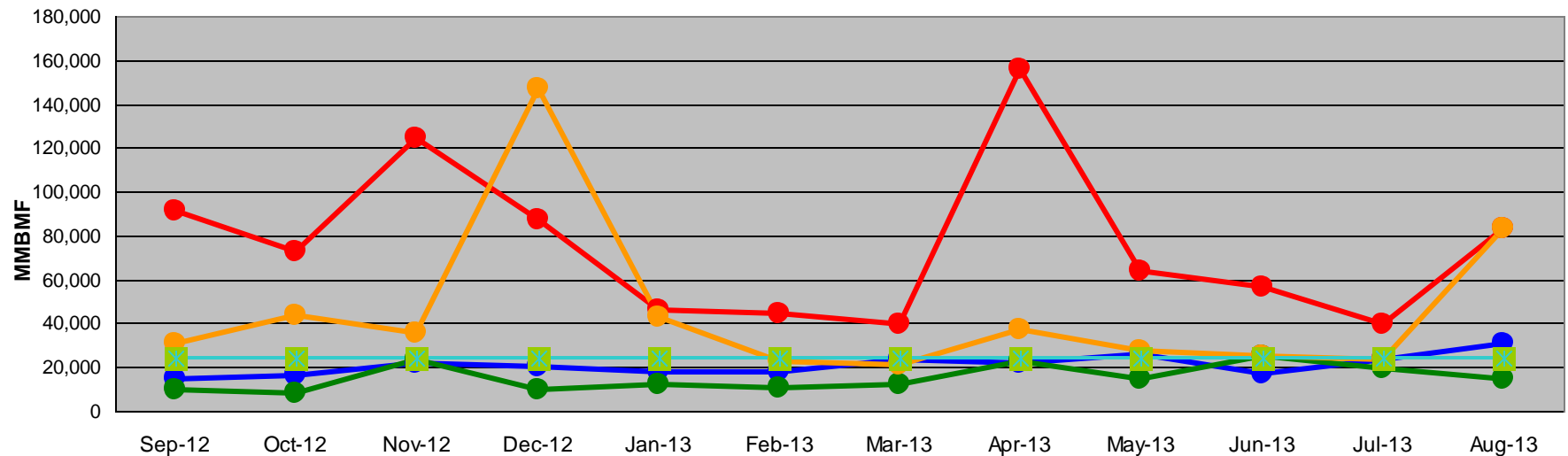
All Train Delays

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



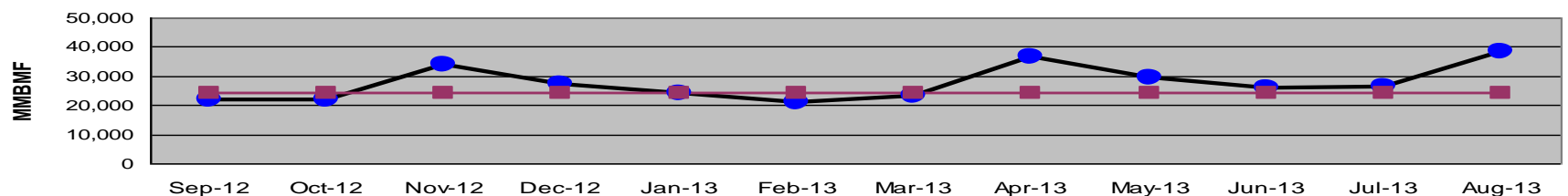
Mean Miles Between Failures (Major) Year to Date

Mean Miles Between Major Failures (12 months)



	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13
Blue/Expo Lines	14,867	16,391	21,686	20,542	17,876	17,418	23,226	21,992	25,783	17,082	23,591	30,773
Red/Purple Lines	91,340	72,959	123,933	87,167	46,203	44,509	39,694	155,798	63,886	56,770	39,539	83,229
Green Line	9,726	8,243	23,154	9,341	12,485	10,752	11,772	22,981	14,742	25,412	19,703	14,712
Gold Line	30,564	43,461	35,725	147,123	42,687	22,795	20,817	37,306	27,296	25,272	23,454	83,320
Goal	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000

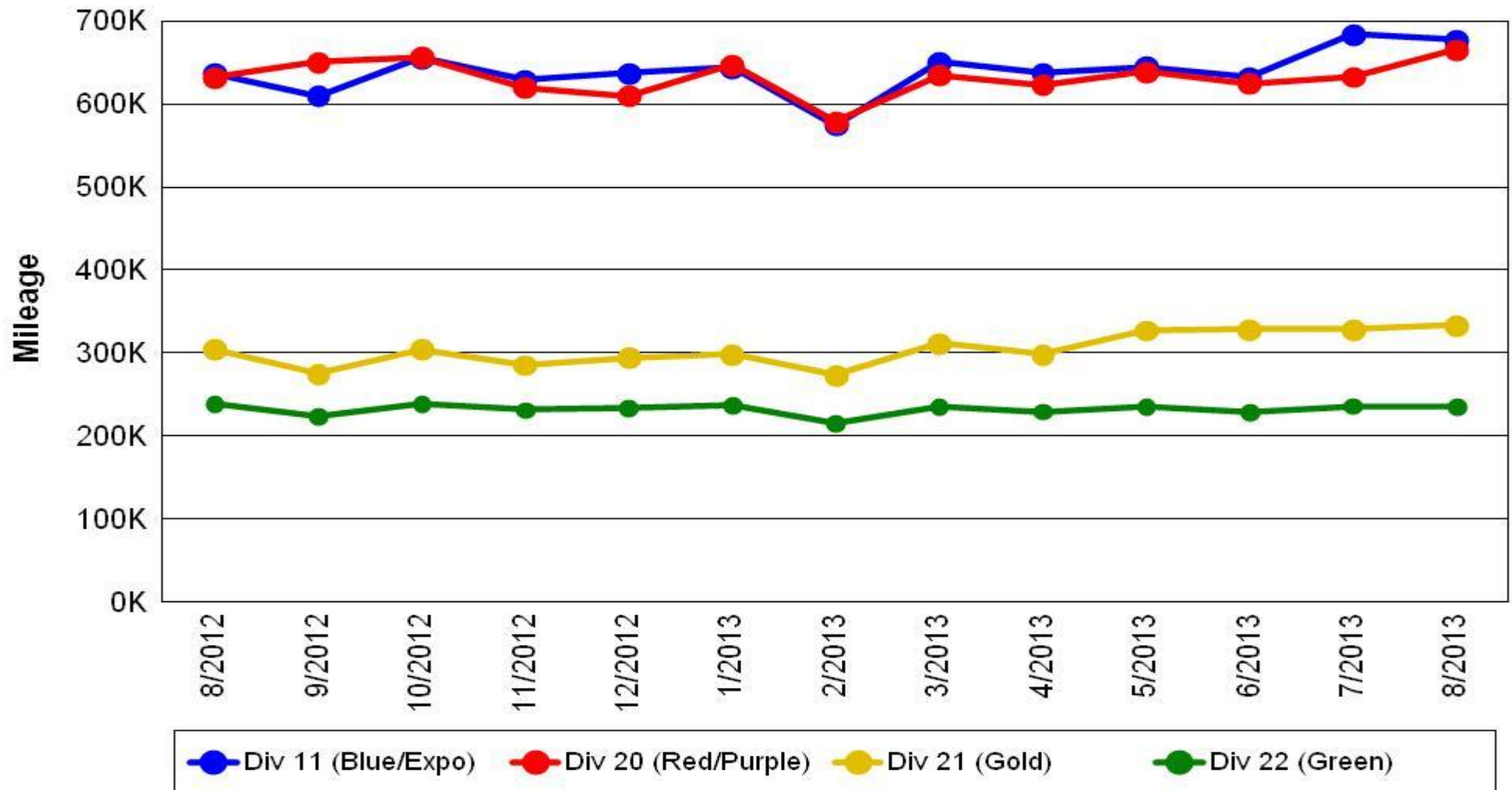
Mean Miles Between Major Failures (all)



Mileage Between Data Range (by month)

August 2013

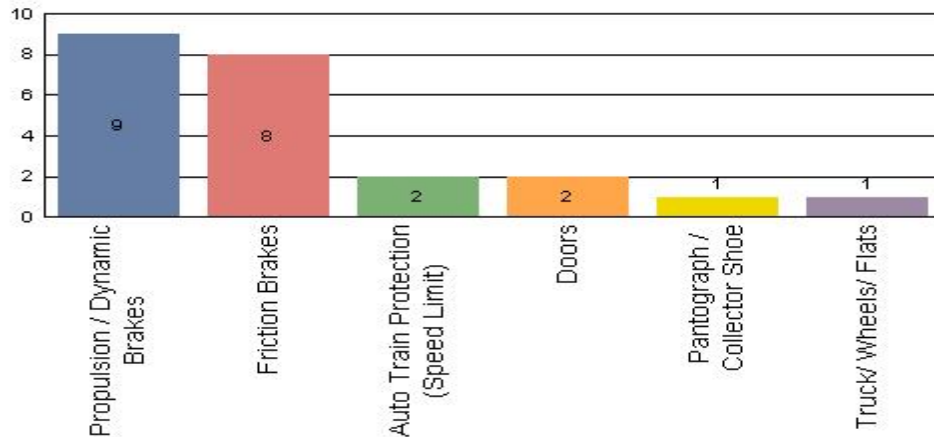
Rail Division Monthly Mileage



Major Incidents August 2013

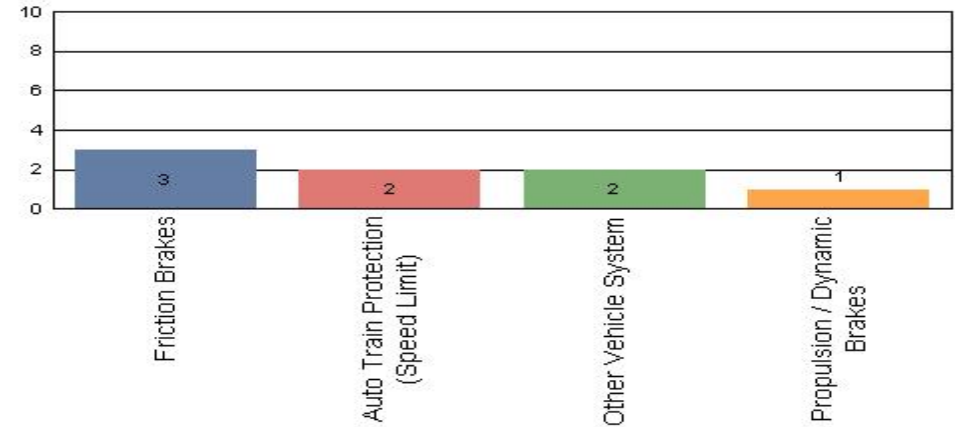
Metro Blue/Expo Line

Top Incident Categories



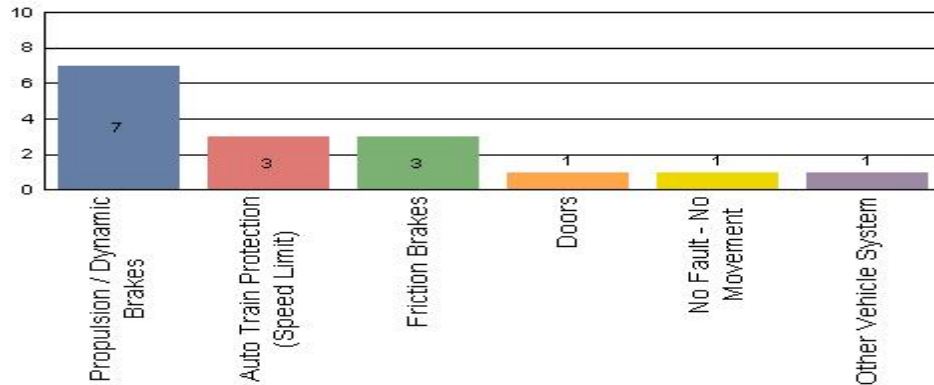
Metro Red/Purple Line

Top Incident Categories



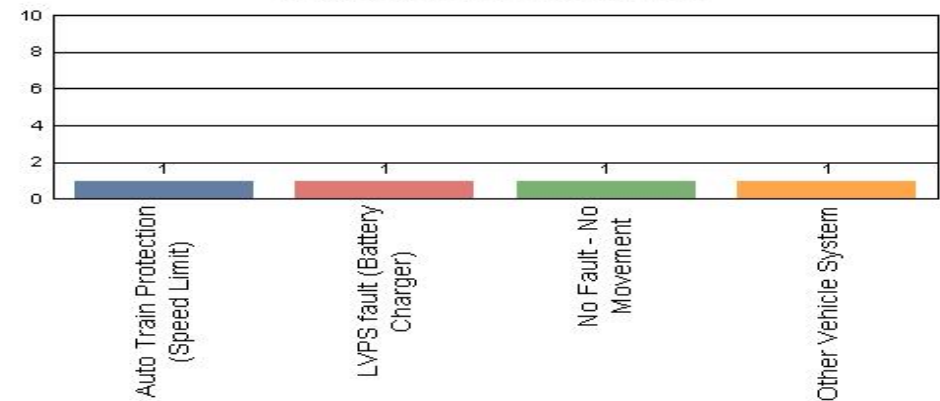
Metro Green Line

Top Incident Categories



Metro Gold Line

Top Incident Categories



Preventive Maintenance Compliance

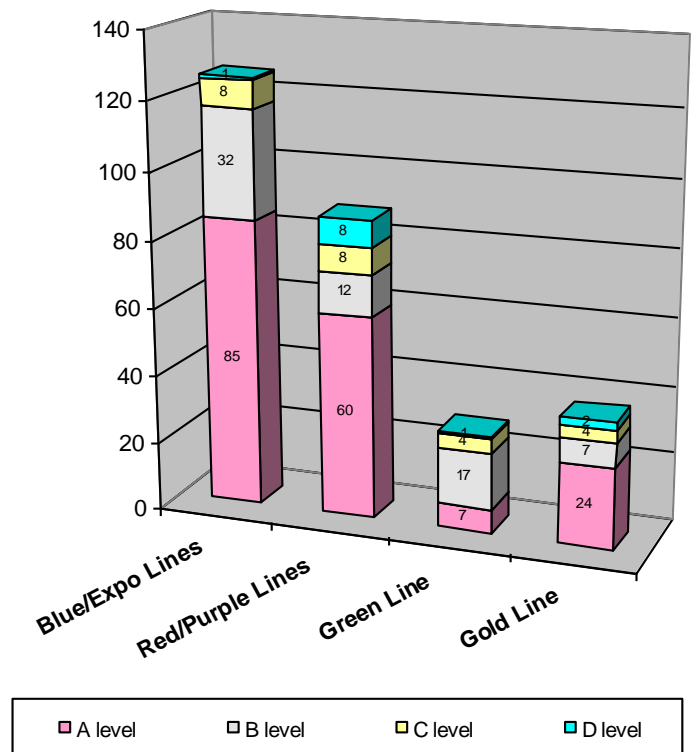
August 2013

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

Number of Preventive Maintenance Inspections - August 2013					
Line	A level	B level	C level	D level	Totals
Blue/Expo Lines	85	32	8	1	126
Red/Purple Lines	60	12	8	8	88
Green Line	7	17	4	1	29
Gold Line	24	7	4	2	37
Totals:	176	68	24	12	280

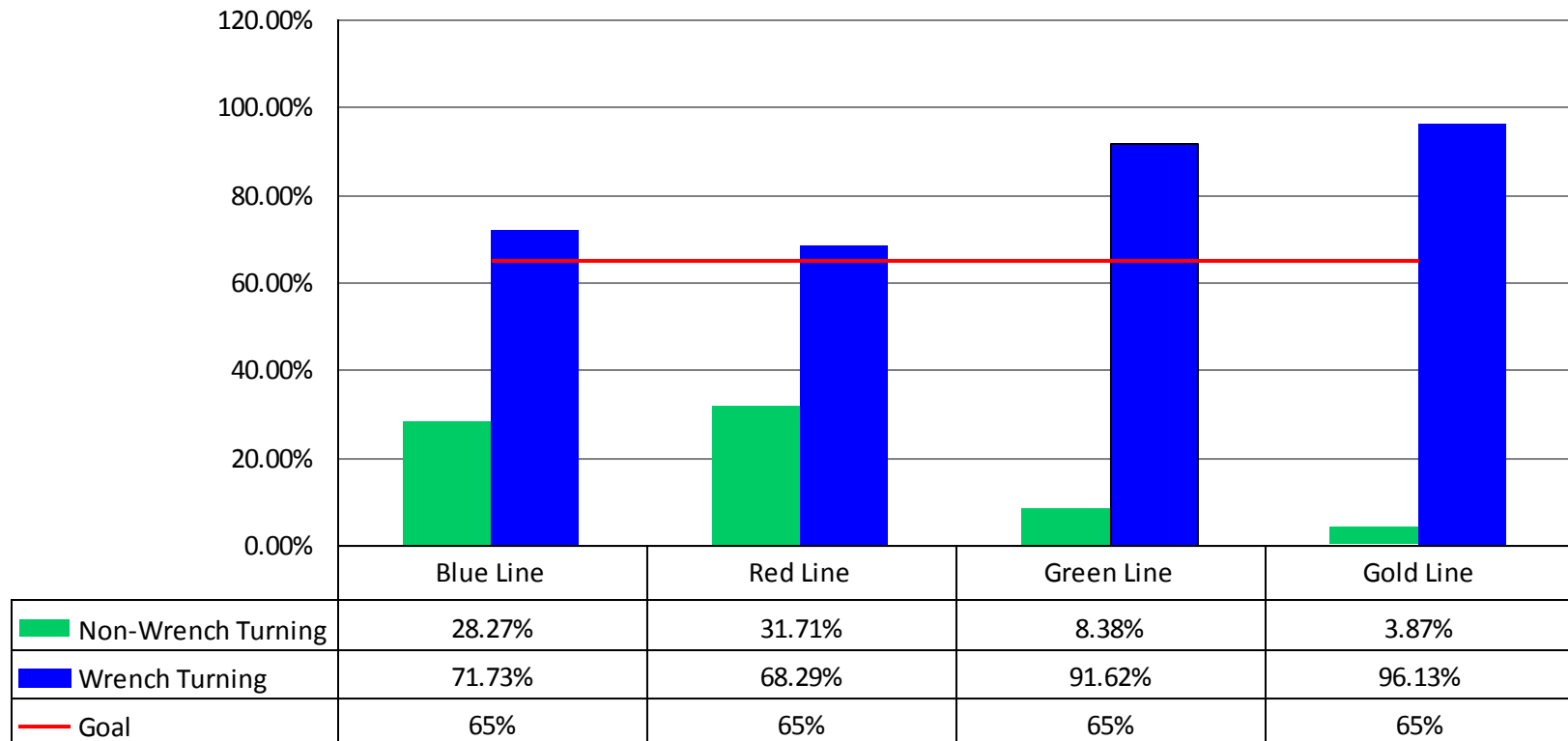
Explanation of PM Inspection levels		Miles			
Line	Type	A level	level	C level	D level
Blue/Expo Lines	P865/P2020	5,000	15,000	30,000	60,000
Blue/Expo Lines	P2000	7,500	22,500	45,000	90,000
Red/Purple Lines	A650	7,500	22,500	45,000	90,000
Green Line	P2000	7,500	22,500	45,000	90,000
Gold Line	P2550	10,000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

No. of P.M. Inspections



RFS Wrench Turning August 2013

RFS - Wrench Turning August 2013

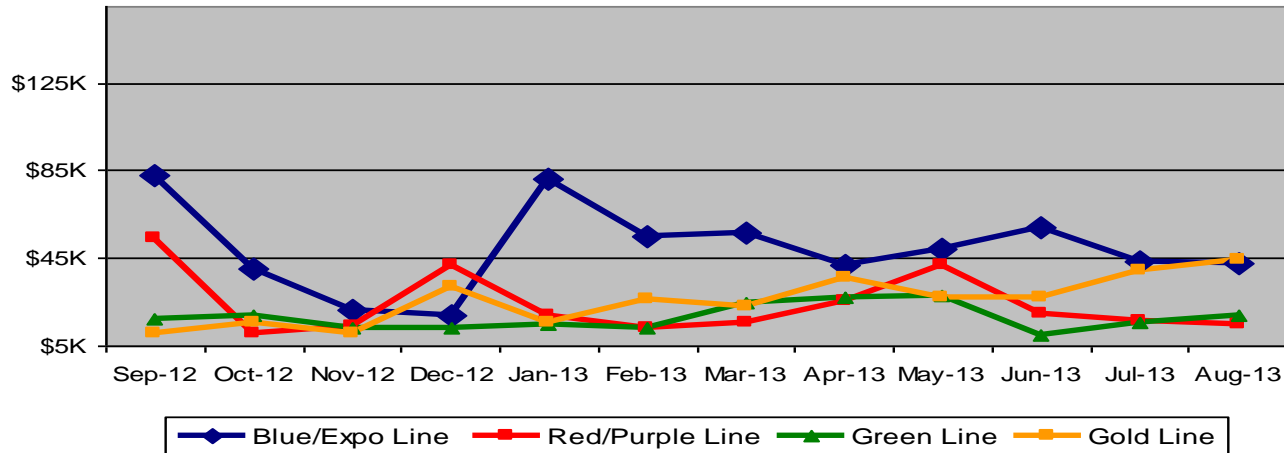


Vandalism & Graffiti Report

August 2013

Graffiti Costs

	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	12-Month Period
Blue/Expo Line	\$83K	\$40K	\$21K	\$19K	\$81K	\$55K	\$57K	\$42K	\$49K	\$59K	\$44K	\$43K	\$593K
Red/Purple Line	\$54K	\$10K	\$14K	\$42K	\$19K	\$13K	\$15K	\$26K	\$42K	\$19K	\$16K	\$14K	\$286K
Green Line	\$17K	\$19K	\$13K	\$13K	\$15K	\$13K	\$24K	\$27K	\$28K	\$10K	\$15K	\$19K	\$213K
Gold Line	\$11K	\$15K	\$11K	\$32K	\$15K	\$26K	\$23K	\$36K	\$27K	\$27K	\$39K	\$44K	\$307K
Totals:	\$165K	\$84K	\$59K	\$106K	\$130K	\$108K	\$119K	\$131K	\$146K	\$116K	\$115K	\$121K	\$1,400K



August 2013 Vandalism & Graffiti - All Rail

	Qty	Labor	Materials	Totals
Windows replaced	96	\$11,088	\$12,453	\$23,541
Vandal Shields	452	\$13,408	\$6,367	\$19,775
Seats Cleaned	597	\$3,341	\$0	\$3,341
Seats Replaced	214	\$6,741	\$7,924	\$14,665
Graffiti removal - other	980	\$16,109	\$2,125	\$18,234
Repainting panels	441	\$33,177	\$8,456	\$41,633
Totals	2,780	\$83,864	\$37,325	\$121,189

Graffiti Pictures August 2013

Blue Line



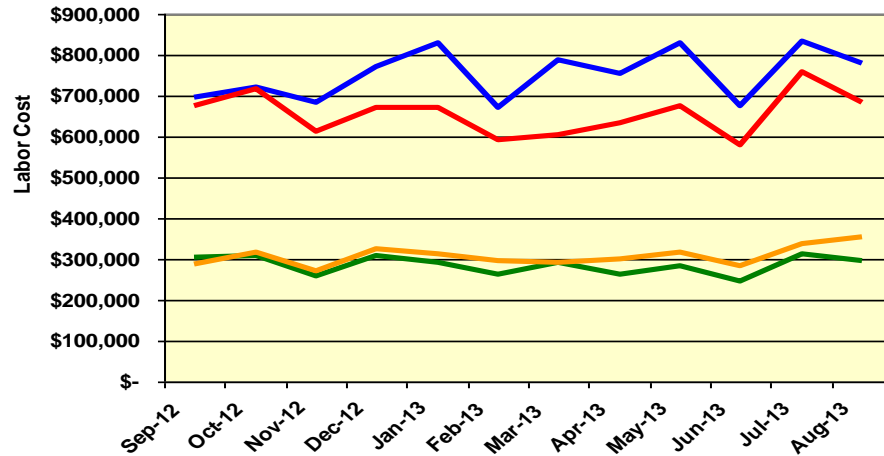
Green Line



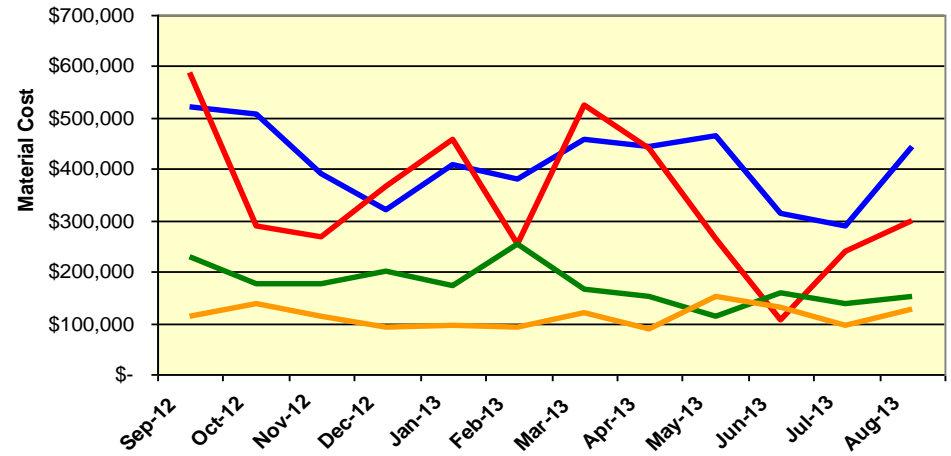
Labor and Material Costs

August 2013

Labor Costs



Material Costs



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

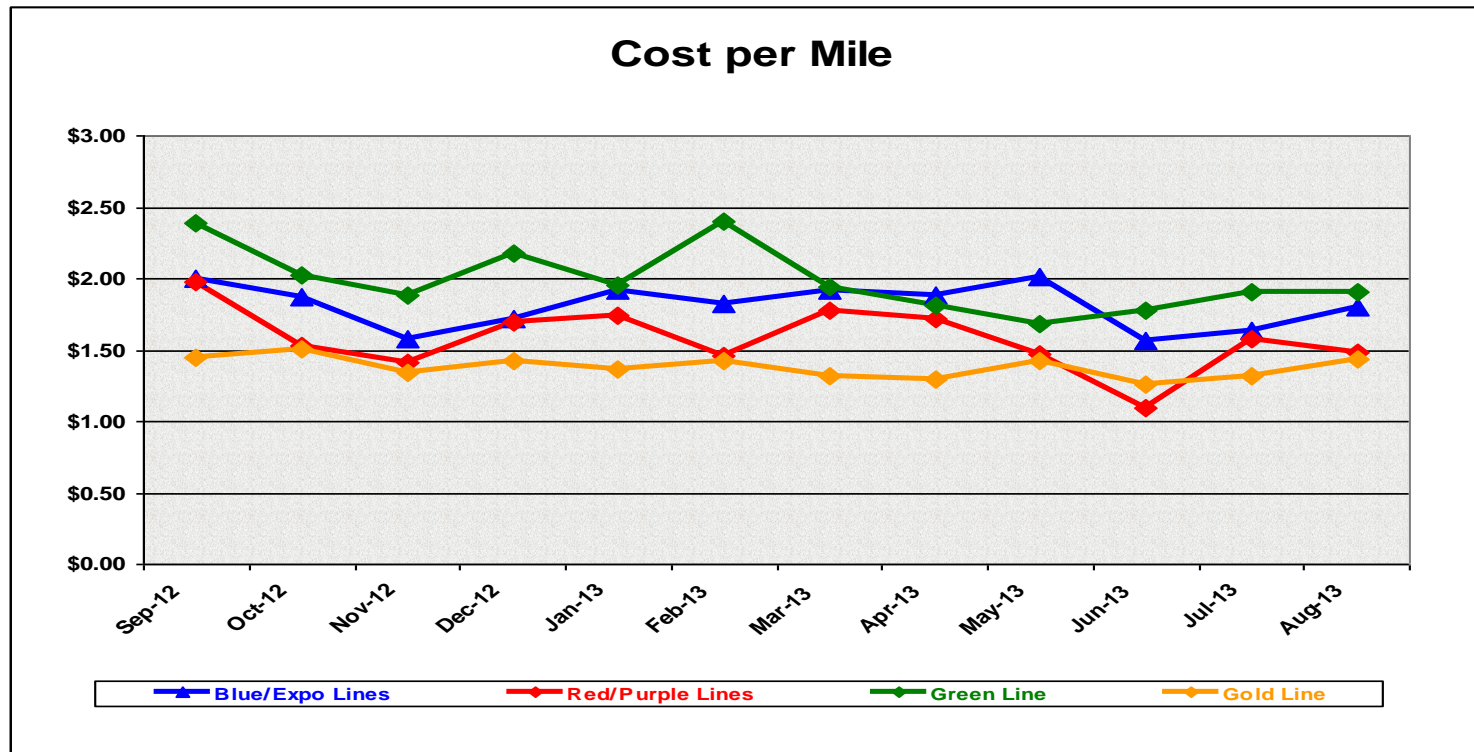
Blue/Expo Lines	\$ 695,926	\$ 722,379	\$ 683,896	\$ 772,382	\$ 827,656	\$ 671,298	\$ 788,111	\$ 755,561	\$ 829,721	\$ 675,752	\$ 833,333	\$ 777,432
Red/Purple Lines	\$ 674,192	\$ 718,139	\$ 610,872	\$ 671,039	\$ 671,792	\$ 590,750	\$ 605,903	\$ 631,518	\$ 675,950	\$ 579,395	\$ 756,262	\$ 684,850
Green Line	\$ 304,487	\$ 309,399	\$ 258,637	\$ 306,761	\$ 290,453	\$ 261,863	\$ 289,639	\$ 263,955	\$ 282,841	\$ 247,129	\$ 312,740	\$ 295,374
Gold Line	\$ 286,489	\$ 318,284	\$ 272,259	\$ 326,736	\$ 311,060	\$ 297,422	\$ 292,452	\$ 298,759	\$ 317,387	\$ 282,541	\$ 338,719	\$ 352,473
Totals	\$ 1,961,094	\$ 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

MATERIAL COSTS

Blue/Expo Lines	\$ 520,023	\$ 506,591	\$ 388,758	\$ 320,127	\$ 407,585	\$ 379,796	\$ 457,700	\$ 444,569	\$ 463,311	\$ 311,415	\$ 288,894	\$ 442,803
Red/Purple Lines	\$ 587,362	\$ 289,365	\$ 265,900	\$ 365,489	\$ 458,038	\$ 254,026	\$ 522,856	\$ 440,708	\$ 263,158	\$ 105,805	\$ 238,207	\$ 298,670
Green Line	\$ 230,008	\$ 174,361	\$ 175,923	\$ 200,257	\$ 173,693	\$ 254,286	\$ 166,766	\$ 151,982	\$ 114,311	\$ 159,526	\$ 138,190	\$ 152,243
Gold Line	\$ 112,270	\$ 138,235	\$ 111,198	\$ 90,479	\$ 95,355	\$ 91,890	\$ 120,086	\$ 89,212	\$ 149,564	\$ 129,742	\$ 95,664	\$ 126,942
Totals	\$ 1,449,663	\$ 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

Cost Per Mile August 2013

Cost per mile:	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13
Blue/Expo Lines	\$1.99	\$1.87	\$1.57	\$1.72	\$1.92	\$1.83	\$1.92	\$1.88	\$2.01	\$1.56	\$1.64	\$1.80
Red/Purple Lines	\$1.97	\$1.53	\$1.41	\$1.70	\$1.75	\$1.46	\$1.78	\$1.72	\$1.47	\$1.10	\$1.57	\$1.48
Green Line	\$2.39	\$2.02	\$1.88	\$2.17	\$1.96	\$2.40	\$1.94	\$1.81	\$1.68	\$1.78	\$1.91	\$1.90
Gold Line	\$1.45	\$1.50	\$1.34	\$1.42	\$1.36	\$1.42	\$1.32	\$1.30	\$1.43	\$1.25	\$1.32	\$1.44



ATU Absences vs. Overtime

August 2013

ABSENCE TYPE and HOURS	3940 Admin.	3941 Blue	3942 Red	3943 Green	3944 Gold	3947 Expo	Total
AWP-ABSENT W/O PERMISSION	-	-	-	8	8	-	16
BER-BEREAVEMENT	-	-	16	-	-	-	16
CTO-COMPENSATORY TIME OFF	-	174	279	104	72	24	653
CUT-EMPLOYEE LEAVES EARLY	-	1	0	1	3	-	4
CVA - CASUAL VACATION	-	302	1,052	52	203	-	1,609
DSL-DISABILITY LEAVE/LONG	-	864	312	72	136	152	1,536
EFH-EMG. FLOAT HOL.	-	8	56	32	40	-	136
ETO-EXCUSED TIME OFF	4	79	34	19	49	2	187
FMI-FAM IND INJURY	-	-	108	-	112	-	220
FML-FAMILY CARE LEAVE	-	84	75	270	460	-	889
FMS-FAMILY LEAVE SICK	-	-	43	16	174	-	233
HLF-HOLIDAY FLOATING	72	600	416	120	264	40	1,512
II-INDUSTRIAL INJURY	-	-	-	176	64	-	240
IIR-INDUS INJURY -REOCCUR.	-	-	184	-	-	-	184
IPD-INJURED PARTIAL DAY	-	-	4	-	-	-	4
JUR-JURY DUTY	-	-	40	-	-	-	40
LC1-LABOR CODE 233	-	128	108	56	112	-	404
LTI-OCCPIL/LONGTRM INJ LEAVE	-	-	-	168	-	-	168
MLN-MILITARY ABSENCE-UNPAID	-	-	-	16	-	-	16
RTO-REQUESTED TIME OFF-NO PAY	-	67	-	16	-	-	83
SCK-SICK PAY	24	164	152	16	140	-	496
SCW-SICK WITHOUT PAY	-	16	-	64	-	-	80
SUS-DISCIPLINARY SUSPENSION	-	-	-	-	-	96	96
TAR-TARDY	-	0	2	1	1	-	4
UB-UNION BUSINESS	-	8	-	-	-	-	8
UNP-UNION BUS PAID	-	-	16	-	16	-	32
VAC-VACATION	36	1,078	1,036	444	492	-	3,086
VAS-VACATION WHILE SICK	-	-	53	-	-	-	53
Total Absence Hours	136	3,572	3,985	1,652	2,346	314	12,004
ATU Number of Work Force (assigned)	8	121	108	46	49	5	337
Full Work Force hours/month	1,386	20,969	18,716	7,972	8,492	867	58,402
Absence as a % of Work Force	10%	17%	21%	21%	28%	36%	21%

OVERTIME TYPE and HOURS	3940 Admin.	3941 Blue	3942 Red	3943 Green	3944 Gold	3947 Expo	Total
CTB-COMPENSATORY TIME TO BANK	-	389	416	177	144	24	1,150
OTP-PREM OVERTIME	820	5,317	5,890	2,598	2,170	174	16,969
WLO-Worked Lunch Overtime	65	141	214	150	127	16	711
Total	884	5,848	6,520	2,924	2,440	214	18,831
Overtime as a % of Work Force	64%	28%	35%	37%	29%	25%	32%
FTE Calculation - Absence & OT Hours	3940	3941	3942	3943	3944	3947	Total
Absences FTE	1	21	23	10	14	2	69
OTP FTE	5	34	38	17	14	1	109
FTE Difference	-4	-13	-15	-7	0	1	-40

Note: Overtime also covers other required activities.



Metro

Rail Vehicle Engineering Project Summary

August 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 lines	Completed Final Test Report	1
	Roadway Worker Protection	CPUC/Installing ProTran1 Device-P865/P2020/P2000 completed, A650/P2550 in installation	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
	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	In signature	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
	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			15
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
	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
	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



Rail Vehicle Engineering Project Summary (cont'd)

August 2013

Engineering Technical Specifications

Specification Completion 100% (continued)

Line	Project	Stage	Total
Blue Line	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			15
Green and Blue Lines	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
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 t	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
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
Grand Total - Specification Completion 100%			58

Rail Vehicle Engineering Project Summary (cont'd)

August 2013

Engineering Technical Specifications				
Specification Completion <100%				
% Completion	Line	Project	Stage	Total
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	H-4 electronic units	Unit upgrade - Fleet issues (Wabtec) to provide new unit proposal.	1
	Blue line	Battery set - P865/P2020/TS/069	In development	1
		Cardan Failure Investigation	Lab testing failed components and evaluate those in service - Kar's Lab	1
		Door sensitive edge	In development	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
	Green and Blue lines	P2000 Air compressor overhaul	Spec in development	1
	Gold line	Find alternative Vendor for Reverse Engineer PCB Boards P2550	In Progress	1
		Pantograph - P2550/TS/006	In development	1
10% Total				9
30%	Red line	Ribbed Rubber Flooring PRF	Dealing with OEM - PRF. Delivery schedule by end of May.	1
	Blue line	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
	Gold line	Compressor Desiccant Material	Prototype Canistor 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
	30% Total			
40%	Green and Blue lines	RSS and EOSS Bundle Cables/Connectors	In Progress - Glenair	1
	Gold line	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				2
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
		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
	Green and Blue lines	Master Controller - Bombardier Refurbish	Ongoing Program	1
		Speed Sensors	Testing new speed sensors from Smith System	1
50% Total				

Rail Vehicle Engineering Project Summary (cont'd)

August 2013

Engineering Technical Specifications				
Specification Completion <100% (continued)				
% Completion	Line	Project	Stage	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
60% Total				1
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	P2550 Software Configuration	Update all software and release on share drives only the latest version.	1
70% Total				2
75%	All lines	Bike Space	P2000/P2550/A650 Fleet modification completed - MBL on hold.	1
75% Total				1
80%	Green and Blue lines	Friction Brake failure investigation	Metro technical team with Wabtec (OEM) ongoing investigation.	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
		TWC Testing	Investigate TWC performance issue on B end of Vehicle. LTK to issue final report of findings to date.	1
80% Total				4
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
		Chevron springs	Engineering to review existing spec for another contract.	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
90% Total				5
95%	Red line	Coupler overhaul A650-TS-048	In signature	1
		New LED Destination sign A650/TS/045	In signature	1
95% Total				2
Grand Total - Specification Completion <100%				37

QA-Warranty Program Projects Summary

August 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. 30 vehicles of 50 new shock absorbers installed
- P2550 (Lamellar Seal) Truck Resilient Pin Bushing fleet failure declared (Action pending ABI)
- P2550 14 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 (129 of 216 Trucks modified to date). MRL Warranty Cost Avoidance savings accrued to date \$1.93 million.
- On-Going, Management's Special Interest Phase-2 Supplemental Inspections, MBL & MGL P2000 Fleet 7 of 52 cars completed
- QA PMI Audits, Spot Checks, Unannounced Audits performed (27)
- 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)

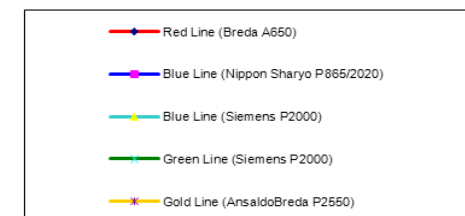
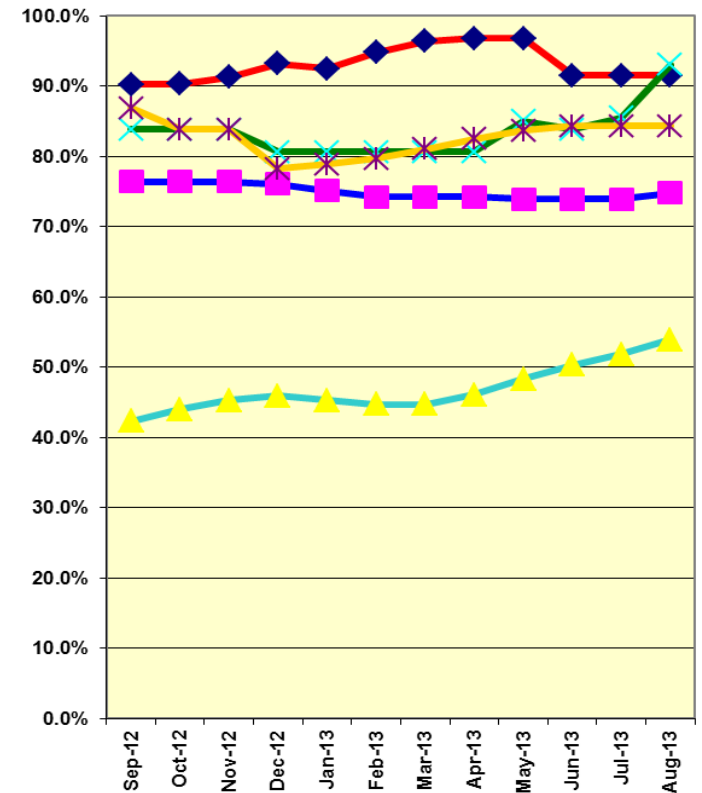
RFS Instruction Department Activities

August 2013

Training classes completed during the month of August 2013

Description	Course Hours	Student Count	Training Hours	
Blue & Expo Line Training - (P865/2020 & P2000 LRV):				
RFS SIEMENS 2000 PROPULSION	80	8	640	
RFS SIEMENS MAINLINE DUTY, DEAD TOW AND VEHICLE REC	24	4	96	
RFS 865/2020 MAINLINE DUTY, DEAD TOW AND VEHICLE RECC	12	4	48	
Total Blue Line Training (Hours):			784	
Green Line Training (P2000 LRVs):				
RFS SIEMENS 2000 HVAC	64	5	320	
RFS SIEMENS 2000 COMMUNICATIONS	24	5	120	
RFS SIEMENS 2000 AUX. INVERTER	32	5	160	
RFS SIEMENS 2000 PROPULSION	40	5	200	
Total Green Line Training (Hours):			800	
Gold Line Training (P2550 LRVs):				
HAZARD COMMUNICATION FOR EMPLOYEES	2	2	4	
RFS ANSALDOBREDA 2550 MAINLINE DUTY, DEAD TOW AND V	24	6	144	
Total Gold Line Training (Hours):			148	
Total RFS Instruction for the month of August 2013 (Hours):			1,732	
Other Instruction Activities				
Staff Vacation			48	
P2000 Vehicle Course Preparation			80	
P865/P2020 Main Line Troubleshooting Preparation			80	
A650 Vehicle Course Preparation			80	
Red Line Engineering & Capitol Project Support			40	
Total Other Instruction Activities			328.0	
Core Vehicle Training Completed:	BLUE	RED	GREEN	GOLD
Percentage of core vehicle training complete:	74.8%	91.5%	93.0%	84.3%
Siemens P2000 training complete:	53.9%	N/A	N/A	N/A
Average Specialist Rail Experience Level in Years:	11.6	9.8	9.4	10.0

Core Training Completed



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