M metro

Customer Services, Operations, and Safety Committee

Board Information Item III

June 26, 2008

Operational Performance

Washington Metropolitan Area Transportation Authority
Board Action/Information Summary

☐ Action ☒ Information	MEAD Number:	Resolution: ☐ Yes ☒ No

PURPOSE

To provide the Committee with monthly operational highlights and system performance trends for FY08.

DESCRIPTION

Information contains operational highlights that have occurred during the first ten months of FY08 in the areas of on-time performance and reliability for Metrorail, Metrobus, MetroAccess and Vertical Transportation. Per Board request an analysis of the Hybrid, Compressed Natural Gas (CNG) and Clean diesel buses is provided along with an analysis of elevator/escalator failures.

FUNDING IMPACT

None

RECOMMENDATION

None

Operational Performance

Presented to the Board of Directors:

Customer Service, Operations, and Safety Committee
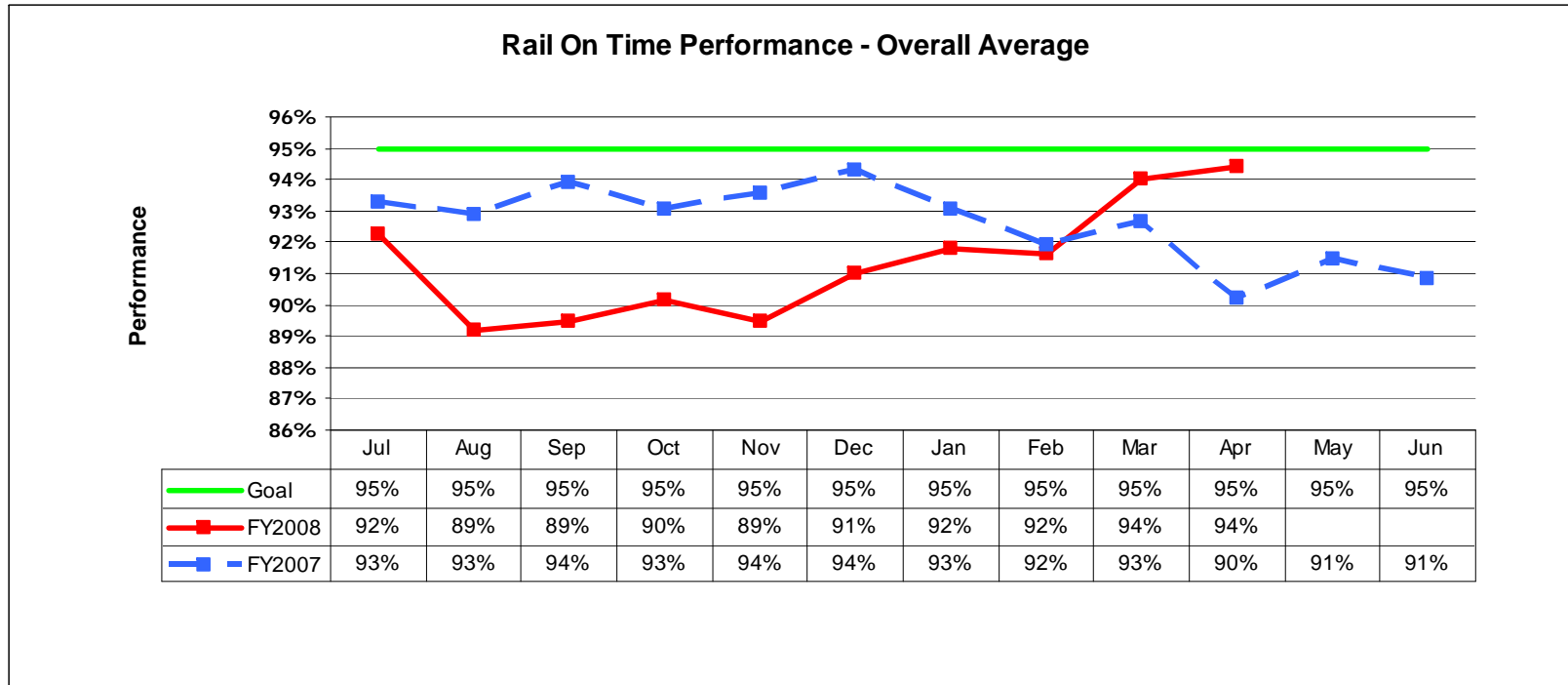
June 26, 2008

Rail On-Time Performance Summary

DEFINITION – Measured during peak service (morning, evening), identifying percentage of trains on each line **end-to-end** within a 2 minute headway deviation and measured mid day and late night within a 50% headway deviation. This measures how well we are providing service.

CALCULATION – (Number of Metrorail station arrivals – number of headways with >2 minute deviation or 50% headway deviation) / number of Metrorail station arrivals = Metrorail On Time Performance End to End.

Rail On Time Performance - Overall Average

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FY2008	92%	89%	89%	90%	89%	91%	92%	92%	94%	94%		
FY2007	93%	93%	94%	93%	94%	94%	93%	92%	93%	90%	91%	91%

Rail On-Time Performance Summary

DEFINITION – Measured during peak service (morning, evening), identifying percentage of trains on each individual line **end-to-end** within a 2 minute headway deviation and measured mid day and late night within a 50% headway deviation. This measures how well we are providing service.

CALCULATION – (Number of Metrorail station arrivals – number of headways with >2 minute deviation or 50% headway deviation) / number of Metrorail station arrivals = Metrorail On Time Performance End to End.
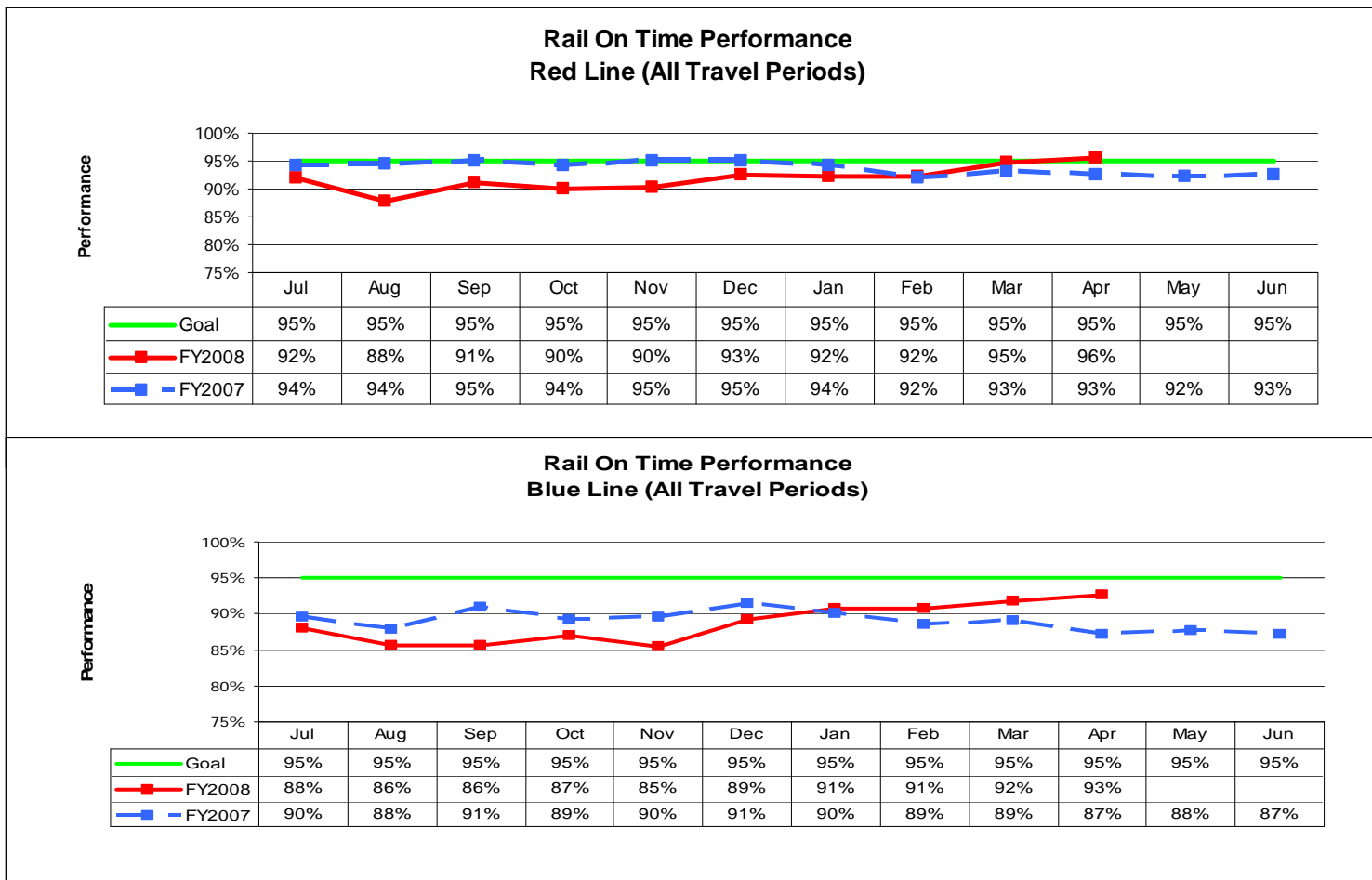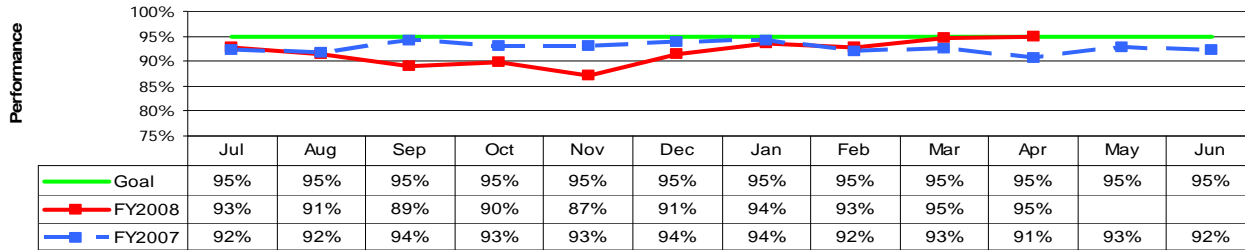
Rail On Time Performance
Red Line (All Travel Periods)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FY2008	92%	88%	91%	90%	90%	93%	92%	92%	95%	96%		
FY2007	94%	94%	95%	94%	95%	95%	94%	92%	93%	93%	92%	93%

Rail On Time Performance
Blue Line (All Travel Periods)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FY2008	88%	86%	86%	87%	85%	89%	91%	91%	92%	93%		
FY2007	90%	88%	91%	89%	90%	91%	90%	89%	89%	87%	88%	87%

Rail On-Time Performance Summary

Rail On Time Performance
Orange Line (All Travel Periods)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FY2008	93%	91%	89%	90%	87%	91%	94%	93%	95%	95%		
FY2007	92%	92%	94%	93%	93%	94%	94%	92%	93%	91%	93%	92%

Rail On Time Performance
Green Line (All Travel Periods)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FY2008	91%	89%	89%	88%	88%	87%	90%	90%	92%	94%		
FY2007	92%	92%	93%	92%	92%	93%	91%	91%	92%	87%	88%	88%
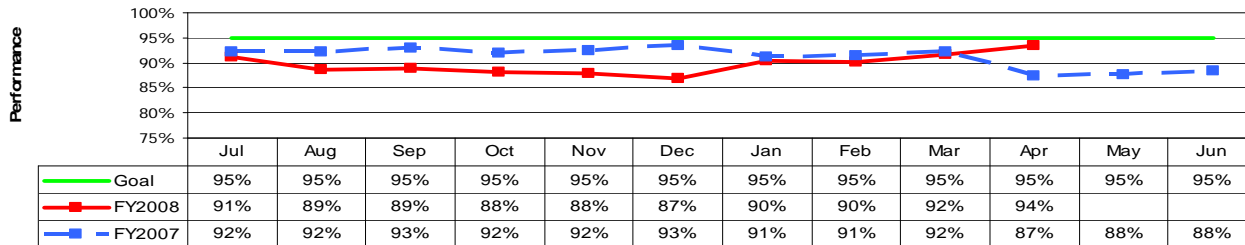
Rail On Time Performance
Yellow Line (All Travel Periods)

|	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
FY2008	91%	86%	86%	87%	89%	90%	92%	92%	94%	94%		
FY2007	92%	90%	91%	91%	92%	91%	91%	91%	91%	87%	90%	88%
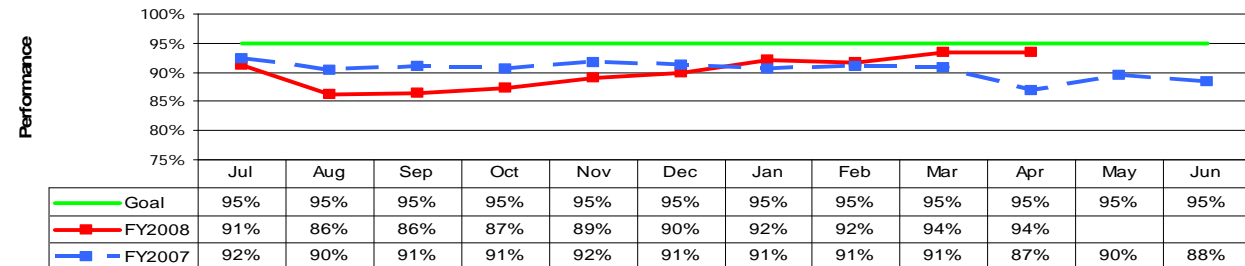
Rail Car Failures by Delay Time

DEFINITION – Delay in minutes that resulted from rail car subsystem component failures.

CALCULATION – Rail car subsystem failures grouped by number of minutes of the delay.

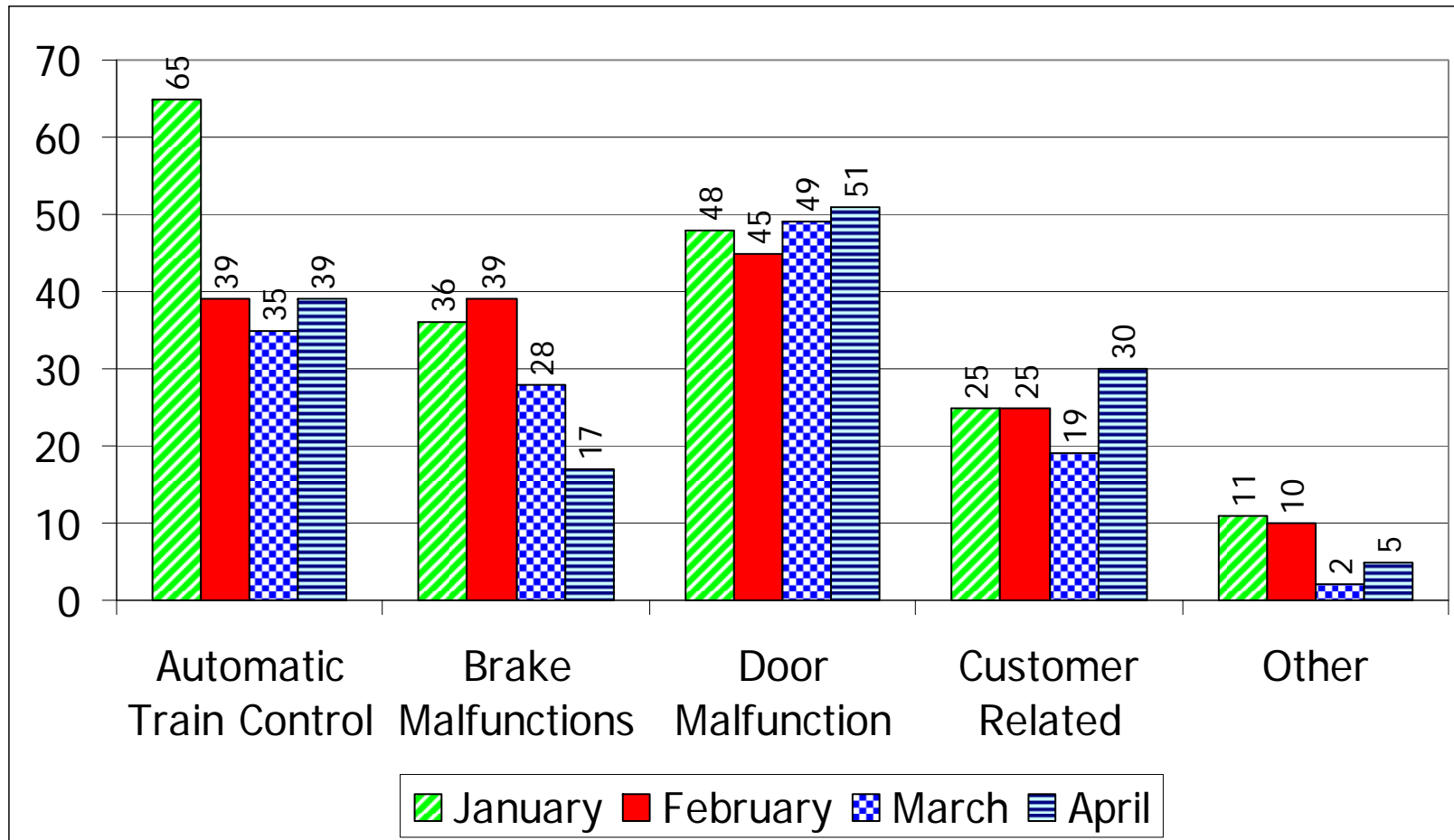**Rail Car Failures By Delay Time**
April 2008
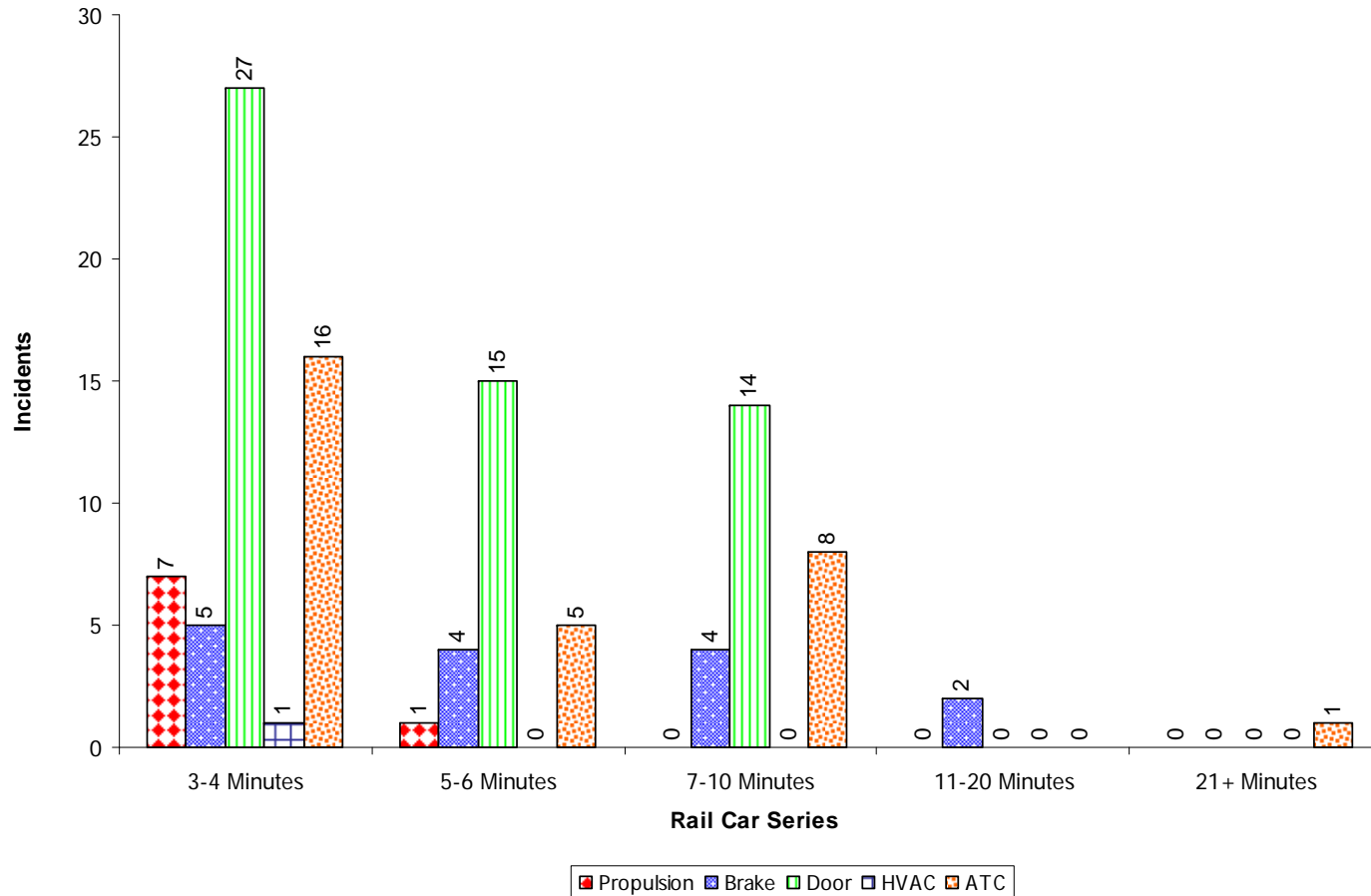
Major Incidents Affecting Rail Performance

DEFINITION – Comparison of number of delay incidents by type from January thru March 2008.

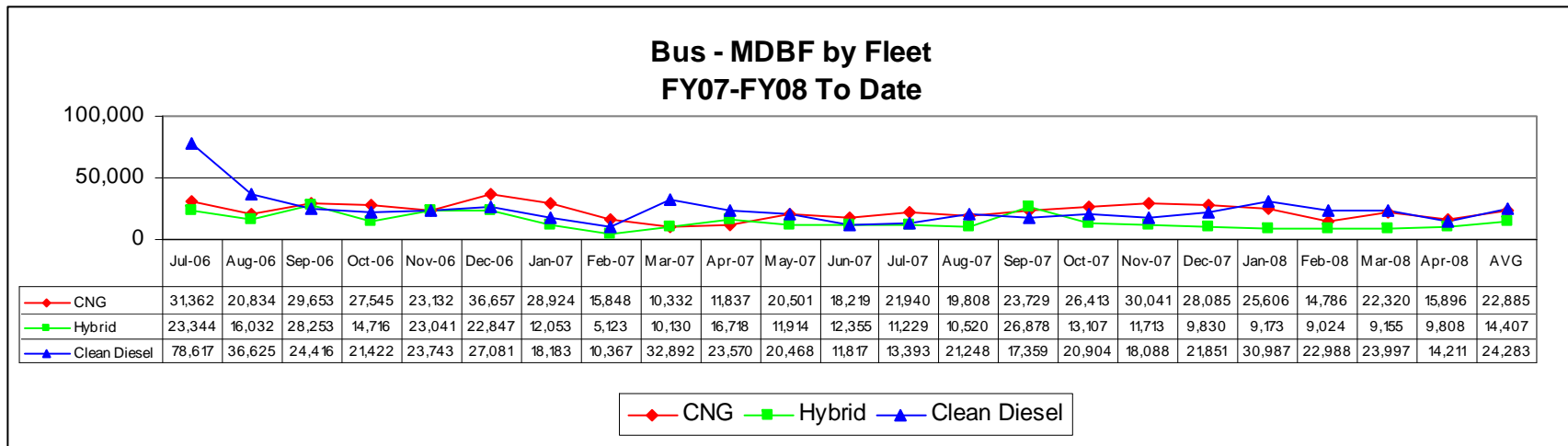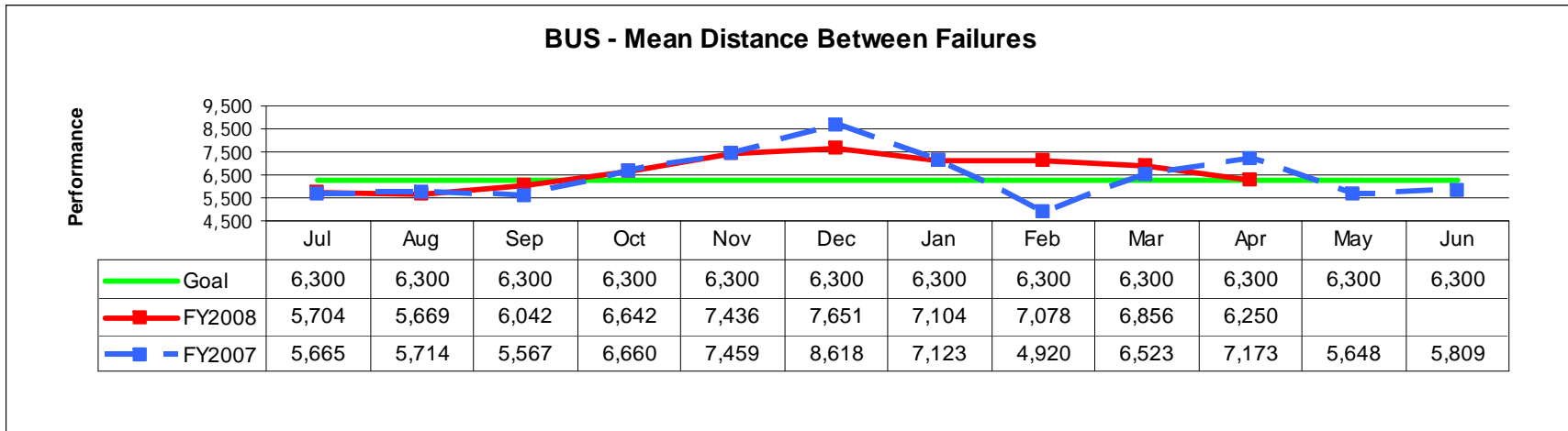**CALCULATION** – Total number of delay incidents by type by month January thru March 2008.

Delays resulting in four minutes or greater

Bus Mean Distance Between Failures

DEFINITION – This measure identifies the number of miles traveled before a mechanical breakdown for the entire bus fleet
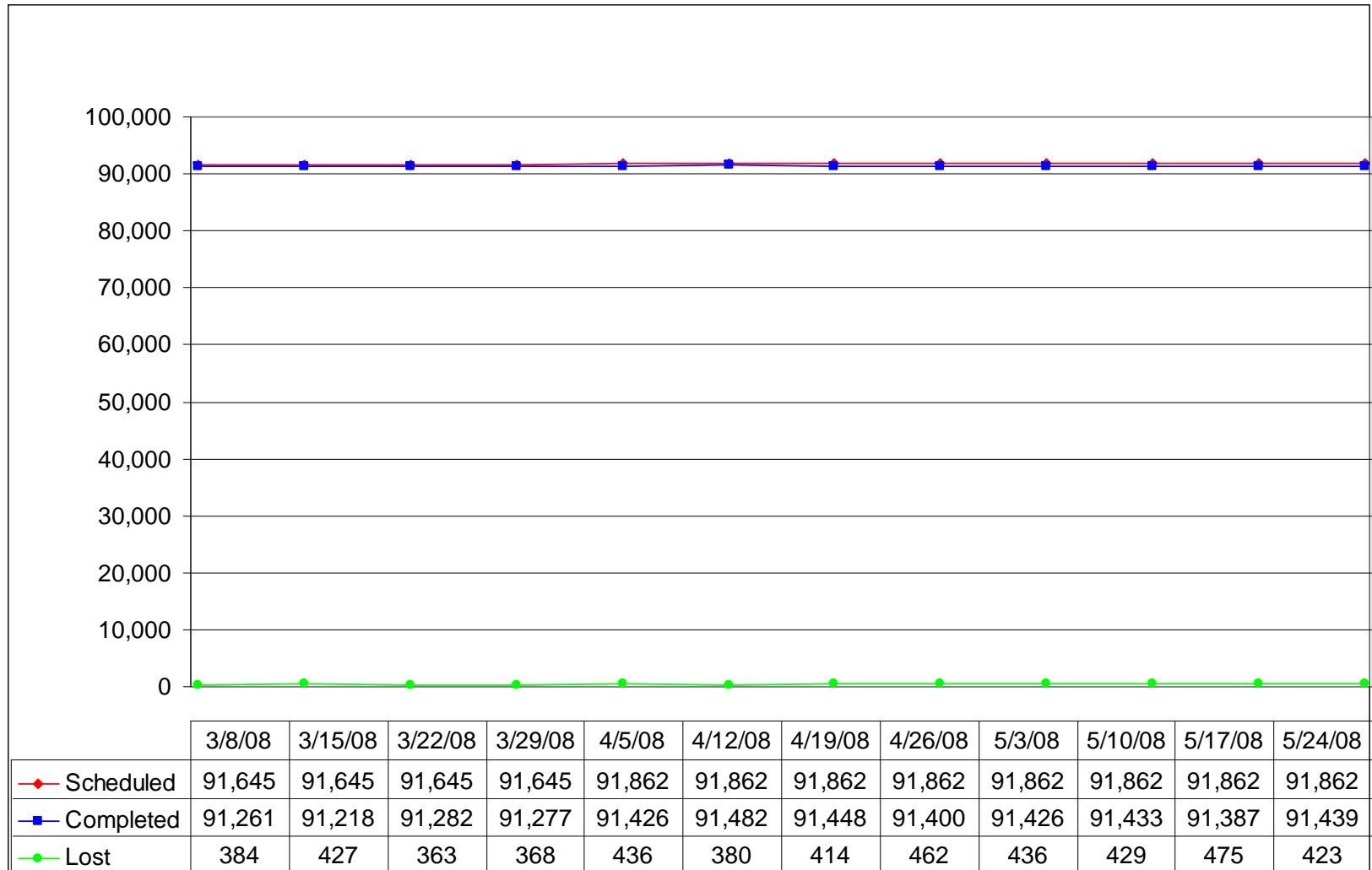**CALCULATION** – Number of failures/miles = Mean Distance Between Failures.

BUS - Mean Distance Between Failures

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300
FY2008	5,704	5,669	6,042	6,642	7,436	7,651	7,104	7,078	6,856	6,250		
FY2007	5,665	5,714	5,567	6,660	7,459	8,618	7,123	4,920	6,523	7,173	5,648	5,809

Bus - MDBF by Fleet
FY07-FY08 To Date

	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	AVG
CNG	31,362	20,834	29,653	27,545	23,132	36,657	28,924	15,848	10,332	11,837	20,501	18,219	21,940	19,808	23,729	26,413	30,041	28,085	25,606	14,786	22,320	15,896	22,885
Hybrid	23,344	16,032	28,253	14,716	23,041	22,847	12,053	5,123	10,130	16,718	11,914	12,355	11,229	10,520	26,878	13,107	11,713	9,830	9,173	9,024	9,155	9,808	14,407
Clean Diesel	78,617	36,625	24,416	21,422	23,743	27,081	18,183	10,367	32,892	23,570	20,468	11,817	13,393	21,248	17,359	20,904	18,088	21,851	30,987	22,988	23,997	14,211	24,283

CNG — **Hybrid** — **Clean Diesel**

**Data includes FY04 and newer Fleets.

Bus Trips Scheduled vs Completed

DEFINITION – This measures number of scheduled trips, completed trips and lost trips by the entire bus fleet
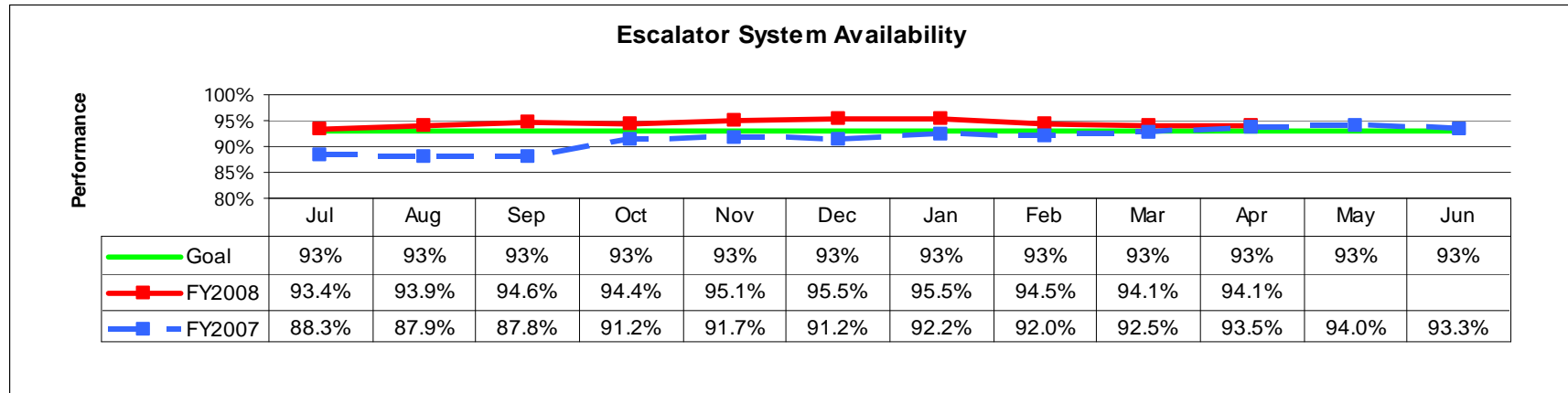**CALCULATION** – Number of scheduled, completed and lost trips

	3/8/08	3/15/08	3/22/08	3/29/08	4/5/08	4/12/08	4/19/08	4/26/08	5/3/08	5/10/08	5/17/08	5/24/08
Scheduled	91,645	91,645	91,645	91,645	91,862	91,862	91,862	91,862	91,862	91,862	91,862	91,862
Completed	91,261	91,218	91,282	91,277	91,426	91,482	91,448	91,400	91,426	91,433	91,387	91,439
Lost	384	427	363	368	436	380	414	462	436	429	475	423

Bus On Time Performance

Progress:

- The Bus System Integration (BSI) project integrated systems such as scheduling, fare collection, Global Positioning System - based Computer Aided Design/Automatic Vehicle Locator, automated voice enunciator, Automated Vehicle Maintenance, Automated People Counter, and destination signs that introduced the operator single sign-on function. This is a key function in successfully collecting arrival time at time-points and measuring on-time performance.

- At this time we have two divisions fully operational with the Single Sign-On feature and are testing the data. Full implementation of the BSI will provide Metro the tools to identify the bus on time performance and analyze the results to ultimately help improve performance.

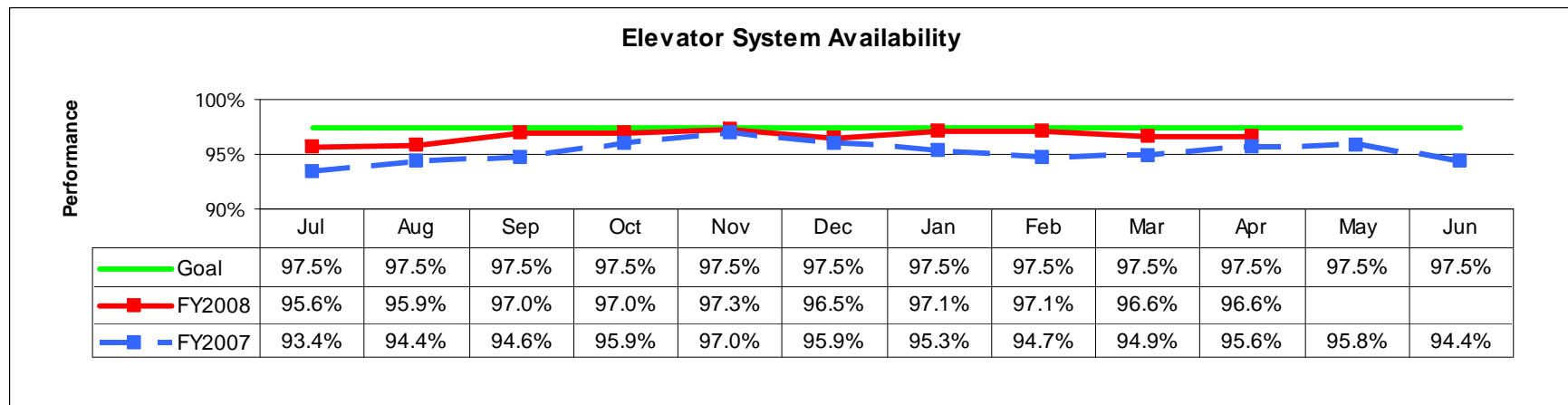- The system is still undergoing testing and verification of data.

Escalators and Elevators Reliability

DEFINITION – Percentage of time that the escalator or elevator system is available for service.
CALCULATION – Hours achieved divided by operating hours. Hours achieved = operating hours - (hours out of service both scheduled and unscheduled). Operating hours = revenue hours * number of units.
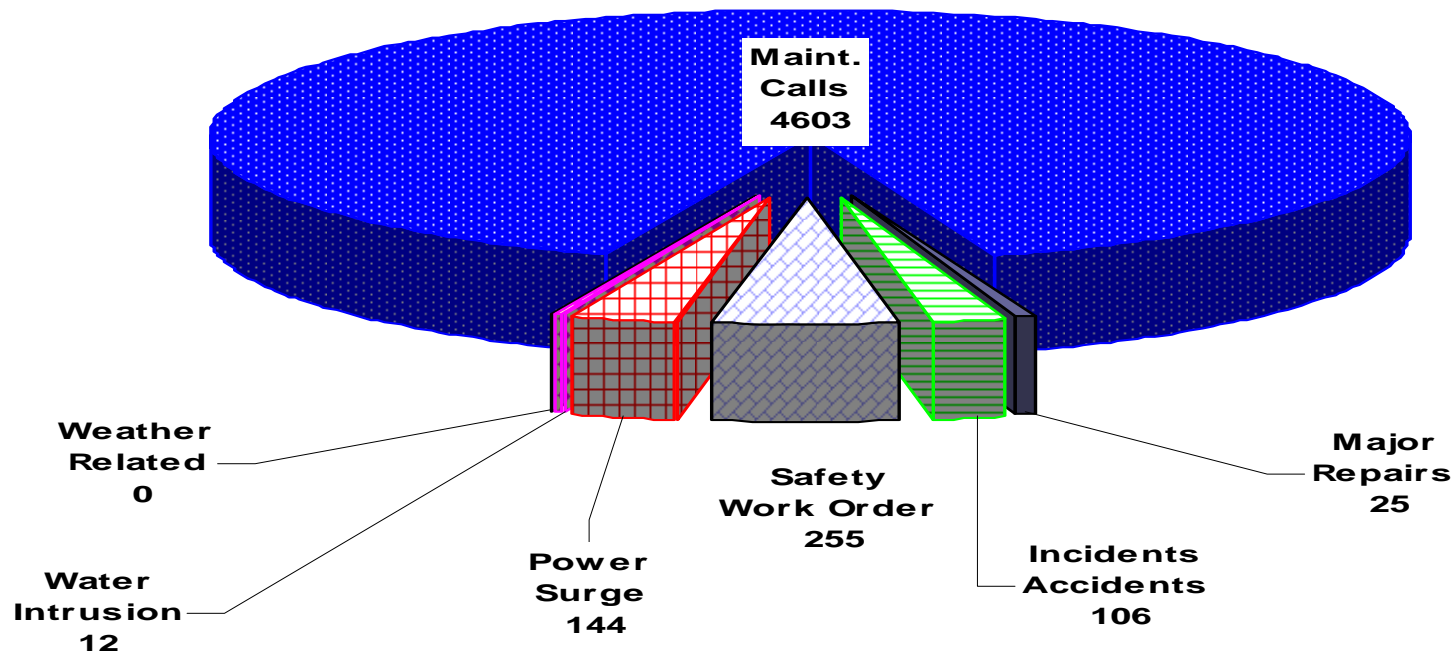
Escalator System Availability

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%	93%
FY2008	93.4%	93.9%	94.6%	94.4%	95.1%	95.5%	95.5%	94.5%	94.1%	94.1%		
FY2007	88.3%	87.9%	87.8%	91.2%	91.7%	91.2%	92.2%	92.0%	92.5%	93.5%	94.0%	93.3%

Escalator Availability for April AM Peak is 94.1%; PM Peak is 94.5%; Mid-day non-peak 93.6%; Late Night non-peak 94.3%

Elevator System Availability

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%
FY2008	95.6%	95.9%	97.0%	97.0%	97.3%	96.5%	97.1%	97.1%	96.6%	96.6%		
FY2007	93.4%	94.4%	94.6%	95.9%	97.0%	95.9%	95.3%	94.7%	94.9%	95.6%	95.8%	94.4%

Elevator Availability for April AM Peak is 96.6%; PM Peak is 96.7%; Mid-day non-peak 96.5%; Late Night non-peak 96.7%

Escalators – Analysis of Unscheduled Failures
February 2008 to April 2008

Maint. Calls 4603

Weather Related 0

Water Intrusion 12

Power Surge 144

Safety Work Order 255

Incidents Accidents 106

Major Repairs 25

Largest percentage (89%) of problems associated with escalator unscheduled outages is safety resets or an adjustment

Water intrusion is shown as .14% of escalator unscheduled outages – this only represents equipment that cannot run due to being under water.

Mechanical components exposed to water corrode, causing the equipment to fail sooner

Canopies provide additional protection, but Metro has issues of high ground water levels and clogged drains

Power Outages/Smoke Alarms account for 3% of unscheduled escalator outages

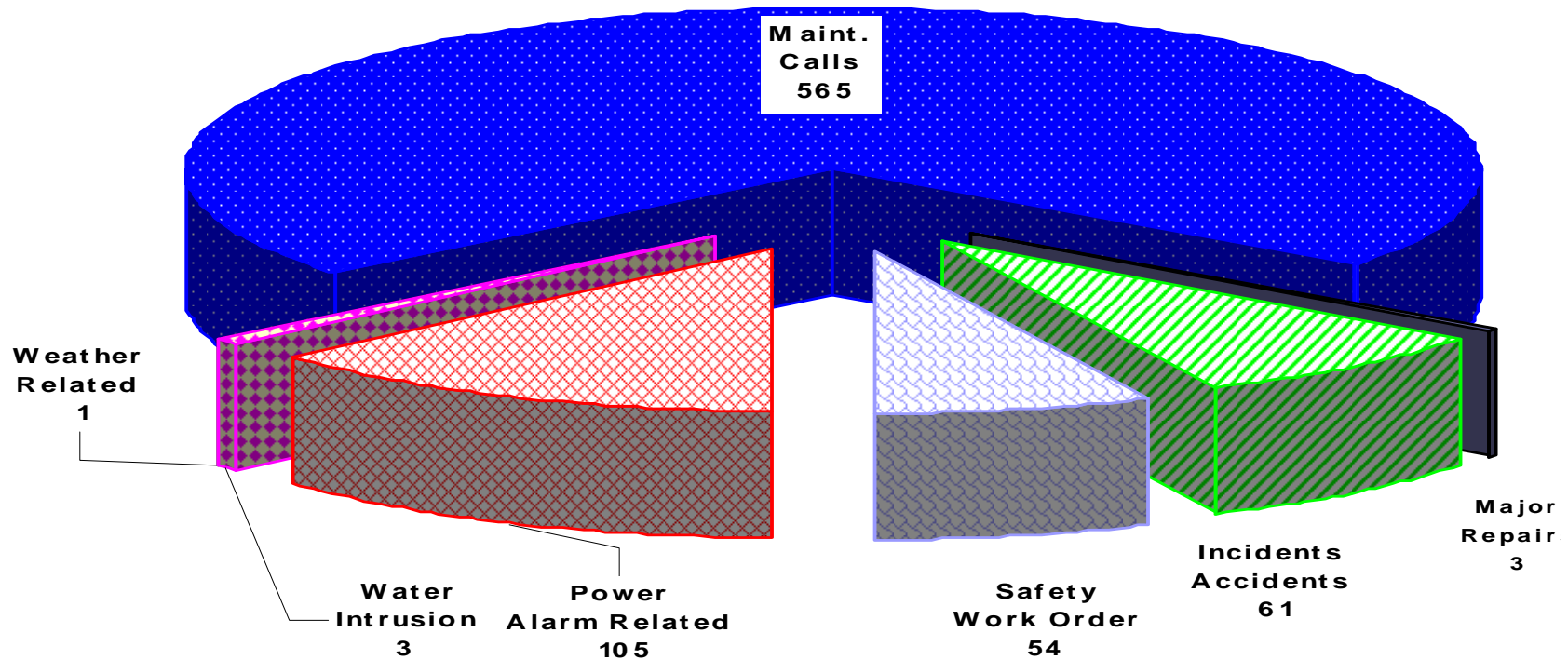Incidents/Accidents result in 2% of escalator unscheduled outages

Escalators – Heavy Repairs
February 2008 to April 2008

	Feb-08	Mar-08	Apr-08
Stub Shaft Repair/Replacement	1	2	1
Handrail Repair/Replacement	1	5	4
Drive Repair/Replacement			
Sprocket Repair/Replacement			
Reducer Repair/Replacement			
Rack & Axle Repair/Replacement	1	1	3
Brake Repair/Replacement			
Load Share Repair			
Heater Repair/Replacement			
Controller Replacement		1	
Step Wreck Repair		2	
Chain Repair/Replacement		3	
Totals	3	14	8

Elevators – Analysis of Unscheduled Failures
February 2008 to April 2008

Maint. Calls 565

Weather Related 1

Water Intrusion 3

Power Alarm Related 105

Safety Work Order 54

Incidents Accidents 61

Major Repairs 3

Largest percentage (72%) of problems associated with elevator unscheduled outages is safety resets or an adjustment
Water intrusion is shown as .20% of elevator unscheduled outages – this only represents equipment that cannot run due to being under water.
Mechanical components exposed to water corrode, causing the equipment to fail sooner
Power Outage/Smoke Alarm account for 7% of unscheduled elevator outages
Accidents result in 7% of elevator outages

Elevators – Heavy Repairs
February 2008 to April 2008

	Feb-08	Mar-08	Apr-08
Packing Repair/Replacement	0		1
Main Rail Repair/Replacement	0		1
Lighting Repair/Replacement	0		
Hydraulic Main/Line Repair/Replacement	0	1	
Totals		**1**	**2**

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Elevators/Escalators Not Functioning
> Four Weeks

Elevators

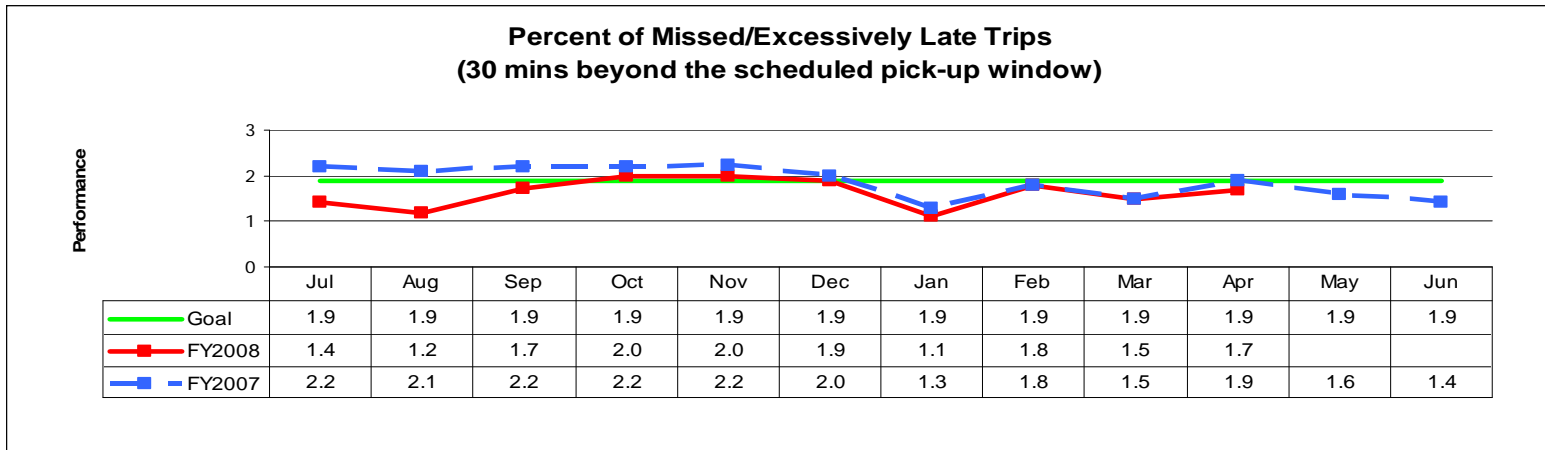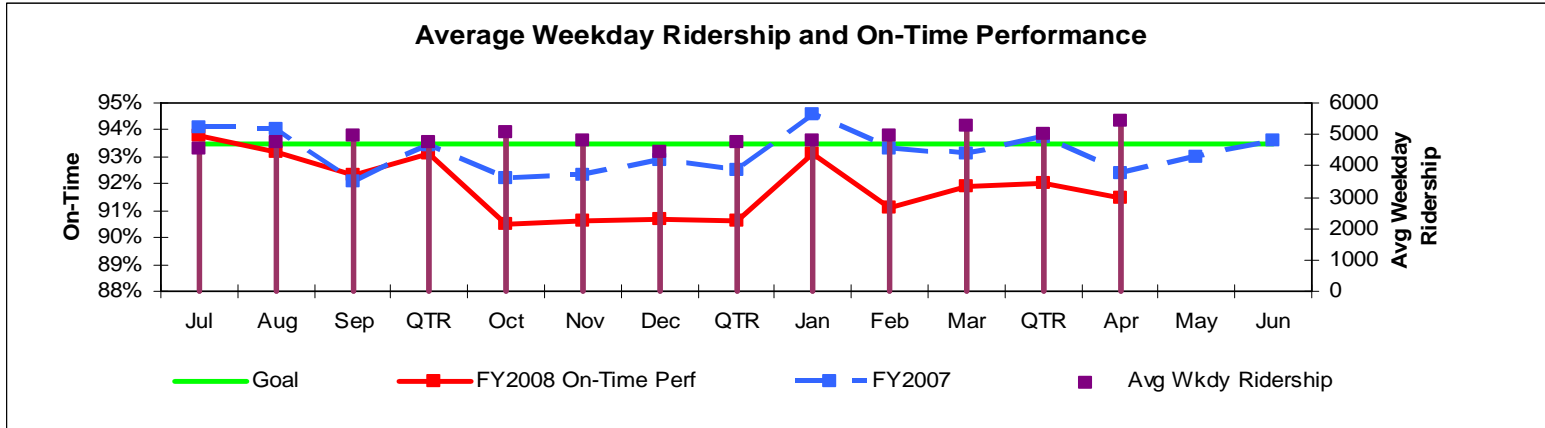| Location	Start Date	CIP	Major Repair	Description of Repair / Repair Details
Rosslyn	18-Feb-08	X		CIP Modernization - Project completed 6/10/08 (Contractor - Mid-America)
Court House	24-Mar-08	X		CIP Modernization - Projected completion date 6/30/08 (Contractor - Mid-America)
Virginia Square	2-Apr-08	X		CIP Modernization - Projected completion date 7/9/08 (Contractor - Mid-America)
Potomac Avenue	15-Apr-08	X		CIP Modernization - Projected completion date 8/4/08

Escalators

Location	Start Date	CIP	Major Repair	Description of Repair / Repair Details
Wheaton	7-Jan-08		X	Rack & Axle Replacement - Longest escalator in the system 230 feet of steps, requires special repairs to support the steps. Projected completion 6/13/08
Ballston	1-Apr-08	X		CIP Modernization - Projected completion date 6/30/08 (Contractor - KONE)
Ballston	15-Apr-08	X		CIP Modernization - Projected completion date 7/15/08
Clarendon	28-Apr-08	X		CIP Modernization - Projected completion date 7/28/08
Gallery Place	5-May-08	X		CIP Modernization - Projected completion dat 7/21/08
Gallery Place	12-May-08	X		CIP Modernization - Projected completion dat 8/18/08
Brookland	12-May-08	X		CIP Modernization - Projected completion date 7/28/08
Capitol Heights	19-May-08	X		CIP Modernization - Projected completion date 8/4/08

MetroAccess

DEFINITION – Percentage of on-time pickup within a 30 minute window (15 minutes before or after scheduled pickup time).
CALCULATION – (Total on-time trips including "no shows" to which were initially on-time /sum of total completed trips (including "no shows" to which we were initially late) and missed trips = MetroAccess On Time Performance.

Average Weekday Ridership and On-Time Performance

Percent of Missed/Excessively Late Trips
(30 mins beyond the scheduled pick-up window)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Goal	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
FY2008	1.4	1.2	1.7	2.0	2.0	1.9	1.1	1.8	1.5	1.7		
FY2007	2.2	2.1	2.2	2.2	2.2	2.0	1.3	1.8	1.5	1.9	1.6	1.4

DEFINITION - Percentage of missed/excessively late trips (beyond 30 minutes).
CALCULATION - Number of completed trips with a >30 minute deviation from the scheduled arrival time/Completed trips = MetroAccess Percentage of Missed/Excessively Late Trips.