Ⓜ metro

Customer Services, Operations, and Safety Committee

Board Information Item III-E

March 13, 2008

Briefing on Urgent Unfunded Capital Needs

Washington Metropolitan Area Transportation Authority
Board Action/Information Summary

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

PURPOSE

To provide the Committee a briefing on the urgent unfunded capital needs currently affecting the safe and effective operation and maintenance of the Metro System – MetroRail, MetroBus and MetroAccess.

DESCRIPTION

As a result of outside and internal review of operations and maintenance issues currently affecting the Metro System, a list of urgent unfunded capital needs was prepared to initiate awareness and seek funding solutions. The issues are in eight specific areas: water related, National Transportation Safety Board (NTSB)/ rail cars, bus cameras, MetroAccess, truncated domes, bus facilities, passenger facilities and information technology.

FUNDING IMPACT

Total of $489M identified with $244M needed in 24 months.
$51M of the $489M is identified in the Metro Matters FY11-24

RECOMMENDATION

None

Briefing on Urgent Unfunded Capital Needs

Presented to the Board of Directors:

Customer Service, Operations and Safety Committee

March 13, 2008

Purpose

To provide the Customer Service, Operations and Safety Committee a briefing on the Urgent Unfunded Capital Needs currently affecting the safe and effective operation and maintenance of the Metro System - Metrorail, Metrobus and MetroAccess.

Background

As a result of outside and internal review of operations and maintenance issues currently affecting the Metro System, a list of Urgent Unfunded Capital Needs was prepared to initiate awareness and seek funding solutions.

Issues:

I.   – Water Related
II.   – NTSB / Rail Cars
III.   – Bus Cameras
IV.   – MetroAccess
V.   – Truncated Domes
VI.   – Bus Facilities
VII.   – Passenger Facilities
VIII.   – Information Technology

Issue I. - Water Related

- Deterioration of Shady Grove Station platform slab structural concrete

Issue I. - Water Related

- Deteriorated insulator replacement

- Continuous wet conditions
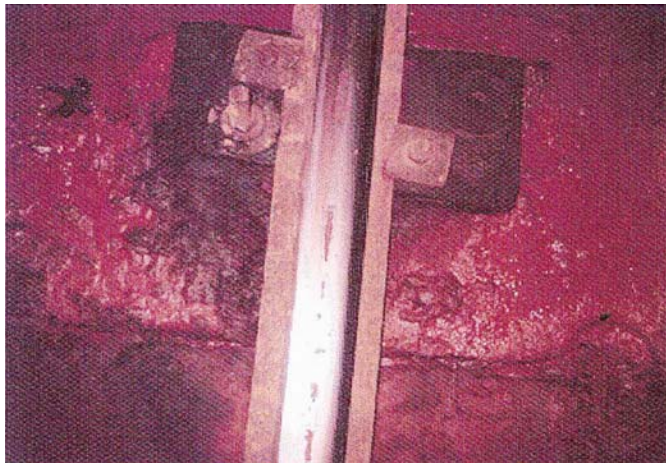
- Moisture and stray current damaged track fasteners

Issue I. - Water Related

- New MCM traction power cable alongside moisture damaged cable, Traction power cable installation at West Falls Church Station

- **$88M 24 Month Interim Capital Projects**

- **$55M Next Capital Program Beyond 24 Months**

- **$143M Total**

Issue II. - NTSB / Rail Cars

- W120T air supply
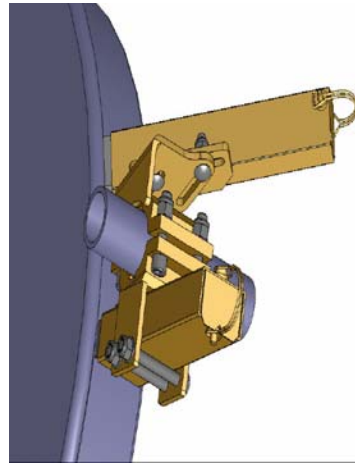
- Kelsan wheel lubricator

- Rohr fleet structural repair

- **$45M   24 Month Interim Capital Projects**

- **$9M   Next Capital Program Beyond 24 Months**

- **$54M   Total**

Issue III. - Bus Camera

- Bus with side cameras shown

- **$6M 24 Month Interim Capital Projects**

- **$7M Next Capital Program Beyond 24 Months**

- **$13M Total**

Issue IV. - Metro Access

- Metro Access van with wheel chair lift

  - **$7M 24 Month Interim Capital Projects**

  - **$9M Next Capital Program Beyond 24 Months**

  - **$16M Total**

Issue V. - Truncated Domes

- Truncated Dome Tiles installed at Van Dorn and Franconia - Springfield Stations

    - **$4M 24 Month Interim Capital Projects**

    - **$6M Next Capital Program Beyond 24 Months**

    - **$10M Total**

Issue VI. - Bus Facilities

- Western Bus Garage shower area, Northern Garage parking deck and ventilation system

- $19M   24 Month Interim Capital Projects

- $109M   Next Capital Program Beyond 24 Months

- $128M   Total

Issue VII. - Passenger Facilities

- Weathered Kiss and Ride parking lot pavement

- Deteriorated Station platform paver tile

Issue VII. - Passenger Facilities

- Old chiller plant and replacement

- $40M 24 Month Interim Capital Projects

- $50M Next Capital Program Beyond 24 Months

- $90M Total

Issue VIII. – Information Technology

- **$35M   24 Month Interim Capital Projects**

- **$0M   Next Capital Program Beyond 24 Months**

- **$35M   Total**

Urgent Unfunded Capital Needs Summary

($ in Millions)	Total	Year 1	Year 2	Balance
I. - Water Related	$143.0	$35.0	$53.0	$55.0
II. - NTSB / Rail Cars	$54.0	$15.0	$30.0	$9.0
III. - Bus Camera	$13.0	$3.0	$3.0	$7.0
VI. - Metro Access	$16.0	$4.0	$3.0	$9.0
V. - Truncated Domes	$10.0	$2.0	$2.0	$6.0
VI. - Bus Facilities	$128.0	$8.0	$11.0	$109.0
VII. - Passenger Facilities	$90.0	$14.0	$26.0	$50.0
VIII.- Information Technology	$35.0	$29.0	$6.0	$0.0
Total	$489.0*	$110M	$134.0	$245.0

* $489.0 includes $51.0 in deferred projects

$244M in 24 months

APPENDIX

Subject	Description	In-depth Explanation of What & Why	Total Cost	1 year	2 years	3 years	4 years	5 year	6 years
Voltage Detector/ Hot Stick	New hot stick to indicate level and types of voltages	Detector will have a series of LCD displays on the handle that will show relative voltage i.e. between 75 to 100. Received prototype; will order 24 to test and ensure that they will meet our needs before we order the 800 needed.	$500,000	$500,000					
Transformer	Four - Spare universal transformers in case catastrophic failure of existing transformers	WMATA has multiple types of transformers - these spare universal transformers can be installed in any of WMATA's traction power substations.	$1,500,000	$1,500,000					
Stray Current Mitigation	Analyze entire system for stray current and implement repairs.	Complete system testing to identify areas of potential stray current to allow corrective work by replacing fasteners and bolts and to minimize potential fires.	$14,000,000	$2,000,000	$2,000,000	$5,000,000	$5,000,000		
Track Fasteners	Replacement of 120,000 track fasteners to prevent fires.	Existing fasteners were installed during initial construction of the system and are old technology. Current generation of fasteners provides more extensive isolation of metal thereby providing less pathways for stray currents.	$20,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000	
Station Platform	Phase I Replacement of station platform structural slabs at three above-ground stations ($6M each)	Deterioration of structural concrete platform slabs beneath station paver and granite edging has resulted from water and deicing infiltration. To ensure continued structural integrity platforms must be replaced – urgently at three locations.	$18,000,000	$4,500,000	$7,500,000	$5,000,000	$1,500,000		
Railcar Safety Enhancement	Commitment to NTSB – manual emergency door exterior release	Emergency door release on the entire fleet of railcars. Currently we only have a door release from inside the railcar; this would add an emergency release on the outside of the railcar so that emergency personnel, etc. could open the door.	$5,000,000	$1,750,000	$1,750,000	$1,500,000			
Railcar Safety Enhancement	Commitments FTA/TOC to prevent derailments – Wheel/rail interface, condition assessment, wheel profile and lubrication	Car-borne flange lubrication on 50% of the total fleet to help with noise, wear, & further reduce potential derailments.	$2,600,000	$1,300,000	$1,300,000				
Railcar Safety Enhancement	Modifications – doors opening on wrong side of train, 1-2-3-5-6K series railcar, 4K not needed.	Modify doors to prevent doors automatically opening on the wrong side.	$7,500,000	$3,000,000	$3,000,000	$1,500,000			
Raicar Safety Enhancement	Modifications – Roll-back prevention on 1-4-5K fleets	To ensure all railcars regardless of fleet type have this protection in place.	$3,000,000	$1,000,000	$2,000,000				
Railcar Safety Enhancement	1K Structural Reinforcement	1K fleet shells to meet extended life-cycle will require additional welding and reinforcements	$3,000,000	$1,000,000	$2,000,000				
Railcar Reliability	Reliability improvement – equipment modification/replacement of current equipment with oil-less compressors.	Replace existing compressors on the 2-3K series railcars with oil-less compressors to reduce high maintenance costs and the number of railcars out of service.	$6,500,000	$2,750,000	$3,750,000				
Bond Cable Replacement	Replace existing bond cables with new negative return cables system-wide	The running rails provide a path for return current through the negative cables to the traction power sub-stations. These cables have deteriorated over the years and are in need of replacement.	$6,000,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000		
Track Feeder Cable	Complete cable replacement in the remainder of traction power substations and tiebreaker stations. This is needed because of water infiltration and deterioration of old, worn-out cables.	The positive cables provide traction power to the 3rd rail for operation of the railcars. These cables have deteriorated over the years and are in need of replacement.	$10,000,000	$4,750,000	$1,750,000	$1,750,000	$1,750,000		
ROW Structural Rehabilitation	Capital funding is needed beyond what is currently programmed to complete the final design for the D&G aerial structure.	Rehabilitate the D & G aerial structure - Final design contract (HP-9) will be completed in FY08. This project will rehabilitate of the D & G aerial structure by replacing 52 deteriorated elastomeric bearing pads at five piers, painting steel girders at decks joints and rerouting high voltage electrical conduits from inside the girder to outside. Deteriorated bearings are causing track anchor wear and failure. Electrical conduits are arcing inside the steel girder causing safety concerns.	$2,500,000		$2,500,000				
Track Rehabilitation	Capital funding is needed beyond what is currently programmed to complete track rehabilitation program for concrete ties.	Originally installed special trackwork has wood ties. To reduce the occurrence of fires it is necessary to replace all above grade wood ties	$25,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	$5,000,000	

Subject	Description	In-depth Explanation of What & Why	Total Cost	1 year	2 years	3 years	4 years	5 year	6 years
Track Cable for 3rd Rail Expansion Joints / cross-over/ transition	Third Rail expansion joints are causing the loss of shoes on the railcars, install transition rails/cable replacement for crossovers and transition areas.	In long continuous sections of the 3rd rail between traction power sub-stations expansion joints were Installed in the 3rd rail. Movement of the 3rd rail has caused irregularity in the expansion joint resulting in the damage of railcar shoes which affects power to the train and reliability.	$13,000,000	$3,500,000	$3,500,000	$3,000,000	$3,000,000		
Mid-Life Rehabilitation Automatic Train Control (ATC)	Rehabilation of Silver Spring Train Control Room	Rehabilation of Silver Spring Train Control Room which was damaged by a flood a couple of years ago.	$6,000,000	$6,000,000					
Right of Way (ROW) Structural Rehabilitation	Capital funding is needed beyond the current program for the Right of Way (ROW) Structural Rehabilitation for underground station vaults	Rehabilitation of five underground station vaults (Farragut North to Union Station)	$3,000,000		$3,000,000				
Traction Power Switchgear	Traction Power Switchgear replacement is needed along with traction power cabling	To reduce the possibiity of failure and/or fires replacement of Traction Power Switchgear at 40 locations and at 44 tie breaker substations. Replacement of prioritized cabling by the track department is included in this project.	$12,000,000		$12,000,000				
Un-Interruptable Power (UPS) System Replacement	Un-Interruptable Power (UPS) System Replacement needed to ensure emergency backup of power is consistent.	Replacement of UPS at 76 locations and replacement of batteries at 16 locations.	$4,000,000	$2,000,000	$2,000,000				
Electrical System Rehabilitation	Electrical System Rehabilation for ROW	ROW electrical system rehabiiltation and MCC and AVR.	$4,000,000		$4,000,000				
Mid-Life Rehabilitation AC/TPSS/TBS	Mid-Life Rehabilitation AC/TPSS/TBS for 48 locations	Replacement of AC switchgear at 48 locations.	$4,000,000		$4,000,000				
Rail/Bus Structures Field Offices and Yards	Rehabilitation needed for bus and rail facilities.	In FY08, Montgomery Bus Garage "mini-rehab" using Job Order Contract and Bladensburg (T05) "major-rehab" using Job Order Contract. In FY09, Northern Bus Garage "minor-rehab" using Job Order Contract and Royal Street Bus Garage "major-rehab" using Job Order Contract. In FY10, Brentwood "minor-rehab" using Job Order Contract and Greenbelt refurbish Rail Car Painting facility using Job Order Contract.	$4,000,000	$2,000,000	$2,000,000				
Infrastructure Requirements for 75% 8-car train operation	Design for all associated infrastructure for 75% 8-car train operation: Additional storage capacity for railcars and additional maintenance space in shops	The increase in fleet size requires an increase in traction power, rail car storage and maintenance facilities. Without these facilities rail cars are stored on tail tracks and maintenance intervals are increased resulting in operational inefficiencies due to storage tie ups, breakdowns and decreased car availability. This will complete the design.	$6,000,000		$6,000,000				
APTA Bus Peer Review Recommendations	Renovation of employee facilities, upgrade of bus repair equipment including limited facilities for painting at divisions.	Investment in bus facilities through the years has been lacking. Recommended upgrades badly needed to provide a better work environment and improve service reliability.	$33,700,000	$3,000,000	$3,000,000	$11,700,000	$11,000,000	$5,000,000	
Cameras on Buses	Onboard surveillance systems on buses to improve safety of passengers and pedestrians	This system will support safety and security initiatives by providing high quality, technologically advanced onboard surveillance and recording systems. Onboard bus camera systems can reduce the frequency and detrimental impact of fraudulent claims, reduce or eliminate vandalism and graffiti, protect patrons by deterring crime, effectively prosecute perpetrators when crimes are committed and effectively handle customer concerns and/or complaints.	$12,900,000	$3,000,000	$3,000,000	$3,000,000	$3,900,000		
MetroAccess Fleet	Replacement of MetroAccess vehicles for disabled customers which have exceeded their useful life	To ensure we continue to provide safe and reliable MetroAccess vehicles.	$16,500,000	$4,000,000	$3,000,000	$5,500,000	$4,000,000		
Locomotives-Prime Movers-Heavy Duty Rail Borne Equipment	Replace equipment for track and systems maintenance, including self-propelled rail borne vacum equipment, production tampers, cross-tie replacers, speed-swings, flat cars, locomotives, 100-ton crane, & ballast buggies.	Project funds the rehabilitation and replacement of self propelled rail work equipment; i.e. locomotives, prime movers, flat railcars, deicer railcars, and specialty equipment.	$20,000,000	$4,000,000	$10,000,000	$6,000,000			

Subject	Description	In-depth Explanation of What & Why	Total Cost	1 year	2 years	3 years	4 years	5 year	6 years
Rehab Bus Garages	Reconstruction of two existing bus facilities at their current locations.	The current status of Southern and Western bus garages requires immediate attention to correct deficiencies. A complete reconstruction of Southern is required due to age and condition of the structure. A major rehabilitation is required for Western to bring facility up to today's standards.	$90,000,000	$3,000,000	$6,000,000	$30,000,000	$30,000,000	$21,000,000	
Bumpy Tiles	Installation of ADA compliant truncated domes at remaining 20 Metrorail stations.	To make all Station platforms ADA compliant and safe for Metro's blind customers.	$10,000,000	$2,000,000	$2,500,000	$3,000,000	$2,500,000		
Parking Lot Rehabilitation	All paving of surface lots using Job Order Contract at the following locations:	**Kiss & Ride**: Branch Ave, Southern Ave, Naylor Rd, Glenmont East, Suitland, New Carrollton East, New Carrollton West and Franconia Springfield. **Bus Loop**: Southern Ave, Suitland, Medical Center, West Falls Church, Naylor Rd, Branch Ave, Shady Grove East, Greenbelt West, New Carrollton West, New Carrollton East and Deanwood. **Parking**: Southern Ave (asphalt area only), Naylor Rd, Branch Ave Lot 'A'/ 'B'/ 'C', Landover East, New Carrollton East (P#3) and Landover North. **Access Road**: Suitland and Glenmont – access to	$6,000,000	$3,000,000	$3,000,000				
Station Chiller Rehabilitation	Station Chiller Rehabilitation	Replacement of Air Handling 8Units in Metrorail Stations on 8 Routes - Final design contract (JM-2) to be completed by FY08. The project would replace chilled water air handling units at 56 stations and under platform duct work in 14	$16,000,000	$4,000,000	$12,000,000				
Replacement Paver Tiles	Replacement of above-ground platform station paver tiles with stamped concrete ($1M per station).	Chronic problems exist with quarry tile. Installation of stamped concrete will improve slip resistance, maintainability and result in cost savings over the life of the rail system.	$36,000,000	$1,000,000	$3,000,000	$7,200,000	$9,000,000	$8,600,000	$7,200,000
Ceiling Tile Replacement	Replacement of ceiling tile in underground stations ($650K per station).	Ceiling systems in most stations are 20 to 30 years old. Ceiling grid has corroded and must be replaced.	$32,000,000	$6,000,000	$8,000,000	$5,200,000	$6,400,000	$6,400,000	
Totals			**$454,200,000**	$81,050,000	$128,050,000	$99,850,000	$88,550,000	$50,000,000	$7,200,000

		Year 1 Totals	$81,050,000	
		Year 2 Totals	$128,050,000	
Information Technology Level 1 Items				
		Total	$209,100,000	

Subject	Description	In-depth Explanation of What & Why	Total Cost	1 year	2 years	3 years	4 years	5 year	6 years
Stabilize Data Center	Multiple aspects of data center infrastructure inadequate to support operational needs	Authority highly vulnerable to data and system loss, with no reduncancy in event of disaster. Inadequate power, cooling and backup	$8,400,000	$8,400,000					
Remediate IT Security	IT Security program nonexistent; reflected in multiple recurring financial system audit findings	Authority highly vulnerable to professional hacking into financial and operating systems.	$5,400,000	$3,600,000	$1,800,000				
IT Peoplesoft Remediation	Remediate Peoplesoft Budget, Finance and Fixed Assets	Currently all HR data must be manually integrated with budget data; all actual expense data must be manually integrated to budget data; cannot get basic financial data from system; fixed Assets unable to be managed - software purchased but not implemented.	$3,500,000	$3,160,000	$340,000				
Remediate/Stabilize Major Operational Systems	Several major systems not utilizing full functionality	Trapeze, Maximo, Orbcad not configured nor re-engineered for many basic functions.	$1,000,000	$660,000	$340,000				
Migrate All Systems Off The Mainframe	Migrate remaining systems off the aging mainframe onto alternative client-server platforms	The migration is crucial to the stability of several applications. Reduces cost by eliminating the support of the mainframe environment; both hardware and software maintenance reduced.	$10,295,000	$8,000,000	$2,295,000				
Enable Business Process Reengineering	Aurthority has several areas requiring major business analysis and restructuring	Business process reengineering is critical to the success of the remediation projects.	$500,000	$500,000					
Enable Peoplesoft Contracts System	Procurement unable to locate and manage executed contracts	Procurement has no system in place to manage/monitor executed contracts.	$2,000,000	$1,320,000	$680,000				
Enable Finance /Payroll Reporting System	Finance, payroll groups have limited ability to analyze data	Finance/Payroll unable to access or perform analyses on payroll/financial data; software purchased but not implemented.	$1,800,000	$1,000,000	$800,000				
Develop Enterprise Architecture	Currently no overarching IT architecture in place	IT architecture prevents "building on Jello".	$1,200,000	$1,200,000					

Subject	Description	In-depth Explanation of What & Why	Total Cost	1 year	2 years	3 years	4 years	5 year	6 years
Enable Enterpise Geographic Information System	Authority does not have a comprehensive GIS system to service Authority-wide requirements	MTPD unable to map crime statistics; rail, bus, and plant maintenance unable to map Metro facilities for maintenance tracking; Metro unable to map authoritive bus stop inventory.	**$1,100,000**	$1,100,000					
		Subtotal IT	**$35,195,000**	$28,940,000	$6,255,000				

Year 1 Totals	**$28,940,000**
Year 2 Totals	**$6,255,000**
Total IT	**$35,195,000**
Grand Total	**$244,295,000**