



Finance, Administration and Oversight Committee

Information Item IV-A

September 10, 2009

Prioritization of Capital Needs Inventory

Washington Metropolitan Area Transit Authority
Board Action/Information Summary

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TITLE:

Prioritization of the Capital Needs Inventory

PURPOSE:

To discuss the capital needs prioritization process that was developed based on Metro`s strategic goals and present staff recommendations resulting from the prioritization process. This information will serve as the foundation for future capital programming and the development of a regional funding strategy for Metro.

DESCRIPTION:

In September 2008, Metro staff presented to the Board the Capital Needs Inventory (CNI), which outlined over \$11 billion in needs over the next 10 years (FY 2011 to FY2020). The CNI includes Performance/safety projects (\$7.6 billion, 67% of total) and Customer/demand/safety projects (\$3.8 billion, 33% of total).

Performance/safety projects maintain and replace assets on a life cycle basis. They promote safety and reliability and preserve the current levels of service. These projects keep Metro in a "State of Good Performance" - assets are not simply replaced with an exact replica, but with assets that take advantage of the latest technology and materials. Customer/demand/safety projects help meet growing ridership requirements and improve the rider`s experience. Safety needs are included throughout the CNI.

The CNI established Metro`s capital needs baseline. This was the first step in a strategic capital planning process designed to identify critical projects and support Metro`s goals. The next step was to identify what projects should be fixed first, Metro staff ranked the CNI projects based on Metro`s five goals: (1) create a safety culture, (2) deliver quality service, (3) use every resource wisely, (4) retain and attract the best and the brightest, and (5) maintain and enhance Metro`s image. The following table provides a few examples of CNI projects that are strongly linked to Metro`s goals.

Goals	Examples of Capital Projects with Strong Linkage
Create a Safety Culture	<ul style="list-style-type: none"> • Police Radio Replacement • Escalator Rehabilitation • Chemical Detector Enhancements
Delivery Quality Service	<ul style="list-style-type: none"> • Bus Replacement • Track Rehabilitation • Platform Edge Bumpy Domes Installation • 75% 8-Car Trains (Cars, Storage, Power)
Use Every Resource Wisely	<ul style="list-style-type: none"> • Test Track & Commissioning Facility Construction • Underground Storage Tank Replacement • Bus Rehabilitation
Retain and Attract the Best and Brightest	<ul style="list-style-type: none"> • Police Training Facility • Bus Garage Replacement/Rehabilitation
Maintain and Enhance Metro`s Image	<ul style="list-style-type: none"> • Website Update- Customer Communication • Automatic Vehicle Location Equipment

To address the impact of funding constraints, Metro staff conducted a rigorous prioritization process endorsed by the Brookings Institution. In this process, Metro staff analyzed CNI projects based on their linkages to Metro`s five strategic goals and their relative priority to other projects in the two CNI categories: Performance/safety and Customer/demand/safety. In addition, the analysis took into account project budget, asset age and policy considerations. The results enabled staff to determine which projects should be funded first and which would need to be deferred to beyond FY2020. For example, if Metro`s funding continued at recent levels (~\$500 million per year), only 69% of Metro`s Performance/safety needs would be met and zero funding would be available for Customer/demand/safety needs over the FY2011 - 2020 timeframe. At historical funding levels, Metro would not be able to fully fund the investments needed to maintain the system`s safety and reliability. In addition, Metro would not be able to address projected ridership growth or provide customer improvements.

If capital funding were increased to over \$800 million per year, key Performance/safety needs could be addressed (e.g., rehabilitation of oldest rail system sections, replacement of older vehicles, replacement/rehabilitation of

three bus garages, and information technology system upgrades), but repairs to some of Metro's newer assets, including its youngest rail line segments, rail yards and bus garages would be deferred to after FY 2020. Under an \$8 billion ten-year capital program, key Customer/demand/safety needs that could be addressed include achievement of 100% 8-car trains, safety and security enhancements (e.g., NTSB recommendations, police training facility, bumpy domes) and partial expansion of the MetroBus and MetroAccess fleet; however, several valued Customer/demand/safety needs such as enhanced core station capacity, 30% of bus fleet expansion, and bicycle and pedestrian facilities would be deferred to fund higher priority Customer/demand/safety projects first.

Metro is prepared to deliver a larger capital program given that a significant share of the CNI is devoted to the purchase of rail cars, buses and equipment. In addition, Metro has initiated the Rail System Infrastructure Rehabilitation contracting approach to increase productivity during track work hours. Finally, Metro would implement advance procurement actions to ensure timely delivery of a capital program.

Jurisdictional commitment to Metro's capital program has been critical to our success. A continued commitment would enable Metro to deliver projects that require long contract horizons (e.g., rail car procurement) and achieve savings through larger contracts. A steady capital program that would replace assets based on life-cycles would result in cost savings and improved service reliability. A multi-year capital program would provide Metro the stability and flexibility we need to be the Best Ride in the Nation.

In the coming months, Metro staff will publish the 2011-2020 Capital Needs Inventory, develop a draft multi-year capital improvement program, draft the FY 2011 Capital Budget, and work with the Board and regional partners to finalize our next funding agreement, which will be effective July 1, 2010.

Prioritization of the CNI will continue to enable staff to link Metro goals to capital investment decisions, establish a transparent and replicable process, address funding constraints, and reinforce the foundation for capital programming.

FUNDING IMPACT:

This is an information item. The long-term funding impact will be determined by the capital program and the next capital funding agreement.

RECOMMENDATION:

For information only. Future Board endorsement of staff recommendations is necessary to support the next capital funding agreement.



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Prioritization of the Capital Needs Inventory

Finance, Administration and Oversight Committee

September 10, 2009



Purpose

- **Discuss the capital needs prioritization process developed based on Metro's strategic goals;**
- **Present staff-recommendations resulting from prioritization process; and**
- **Support future capital programming and the development of a regional funding strategy for Metro.**



FY 2011-FY 2020 Capital Needs Inventory (CNI)

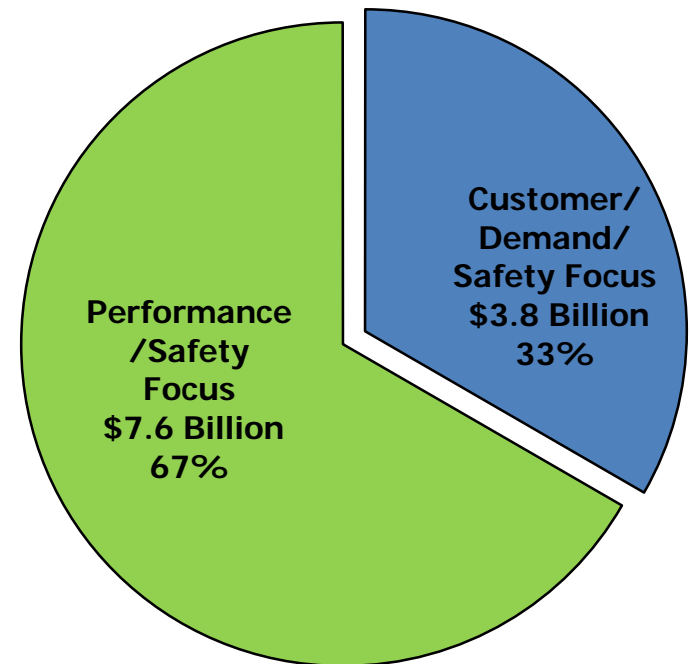
Metro's capital needs: \$11 billion

- **Performance/Safety Focus:**

Projects that maintain and replace assets on a regular life cycle basis to deliver the same level of service

- **Customer/Demand/Safety Focus:**

Projects that help meet growing ridership and improve the rider's experience



Safety needs are included throughout the CNI

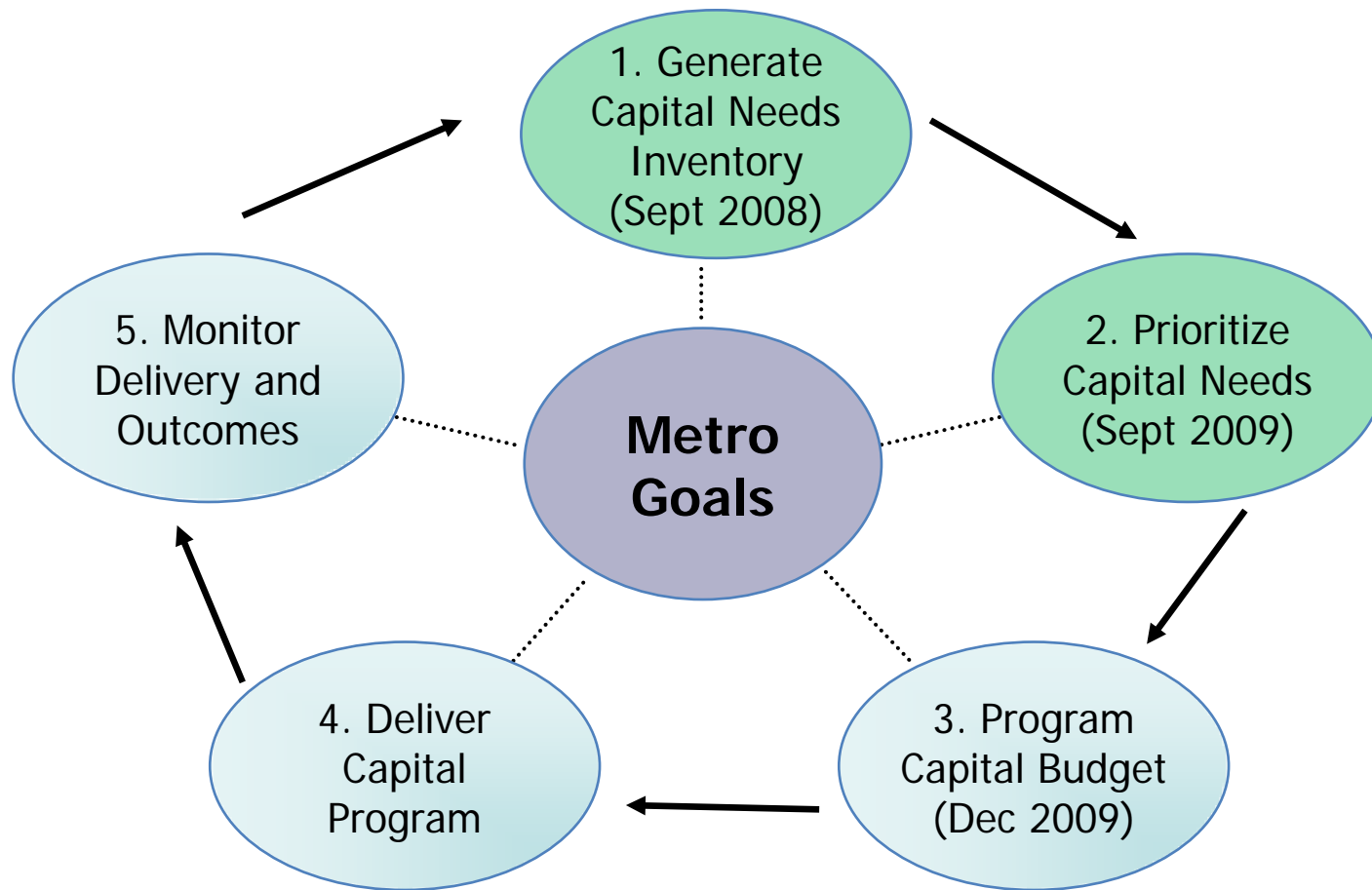


Context for Capital Needs

- **The FY 2011 – FY 2020 capital needs are driven by several factors:**
 - Rail system infrastructure built when system opened is reaching the end of its lifecycle
 - Metro must replace its original railcars
 - Infrastructure repairs are required for system safety and reliability
 - Information Technology and MetroAccess capital costs are now included
 - Buses need to be replaced and rehabilitated
 - Bus garages and rail yards must be rehabilitated or replaced
- **What's not included in the capital needs inventory:**
 - System expansion projects (new entrances, stations, or rail lines)
 - Transit projects to be funded entirely by the jurisdictions
 - Debt repayment costs



Metro's Strategic Capital Planning Process





Why Prioritize Capital Needs?

- **Link agency goals to capital investment needs**
- **Address funding constraints**
 - Articulate system consequences at different funding levels
- **Establish a transparent and replicable process**
 - Successfully used to select stimulus projects
http://www.brookings.edu/papers/2009/0723_arra_dc.aspx
- **Set up foundation for capital programming**





Metro's Strategic Framework

Goals	Objectives
Create a Safety Culture	<ul style="list-style-type: none">• Improve customer and employee safety• Strengthen Metro's safety & security response
Deliver Quality Service	<ul style="list-style-type: none">• Improve reliability of service• Enhance regional mobility• Maximize customer satisfaction• Increase service and capacity
Use Every Resource Wisely	<ul style="list-style-type: none">• Manage assets efficiently• Reduce operating costs• Use natural resources wisely, lower environmental impacts
Retain and Attract the Best and Brightest	<ul style="list-style-type: none">• Support workforce development
Maintain and Enhance Metro's Image	<ul style="list-style-type: none">• Enhance communication with customers• Promote regional economy



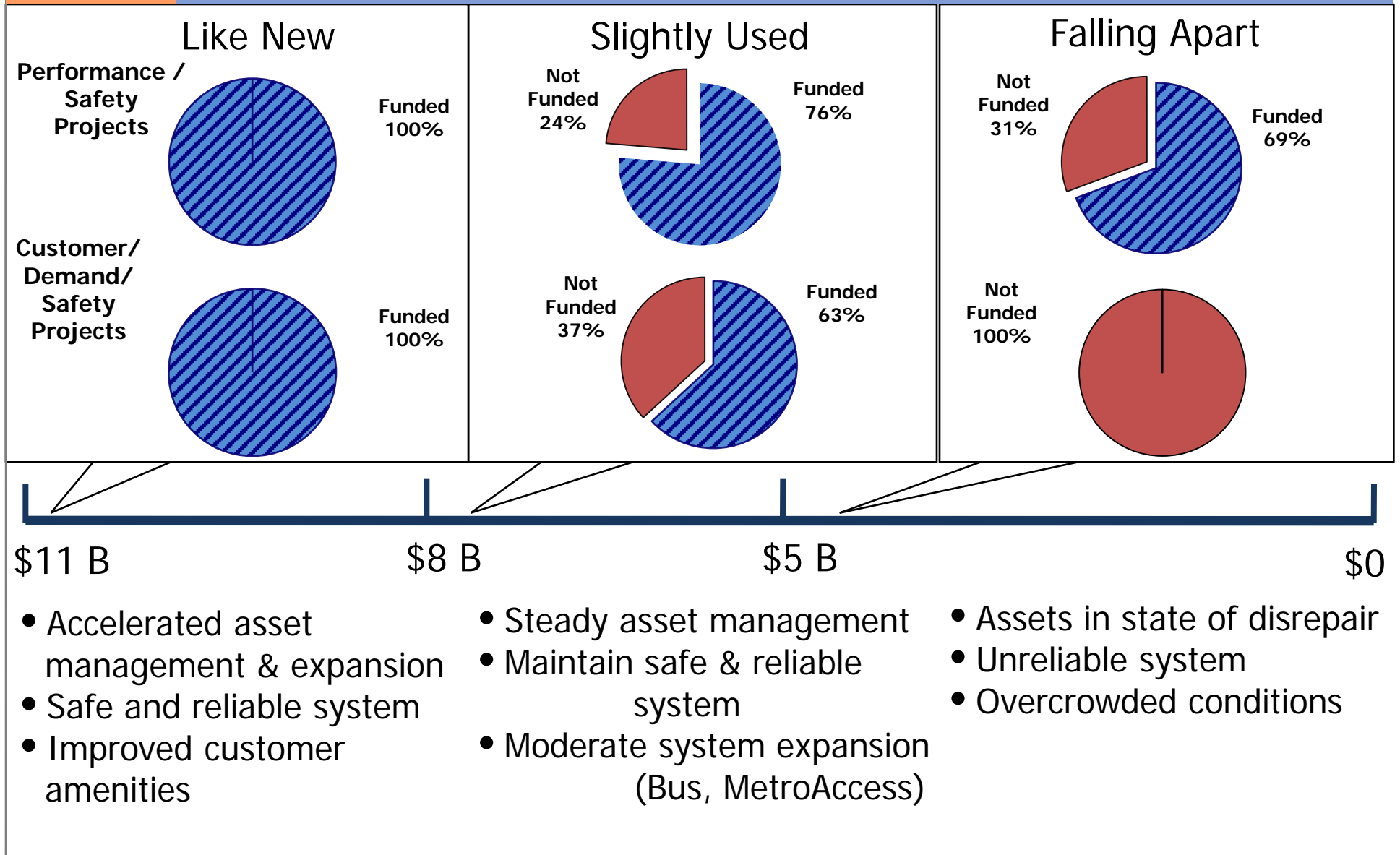
Capital Project Linkage to Goals

Goals	Capital Projects with Strong Linkage
Create a Safety Culture	<ul style="list-style-type: none">• Police Radio Replacement• Escalator Rehabilitation• Chemical Detector Enhancements
Delivery Quality Service	<ul style="list-style-type: none">• Bus Replacement• Track Rehabilitation• Platform Edge Bumpy Domes Installation• 75% 8-Car Trains (Cars, Storage, Power)
Use Every Resource Wisely	<ul style="list-style-type: none">• Test Track & Commissioning Facility• Underground Storage Tank Replacement• Bus Rehabilitation
Retain and Attract the Best and Brightest	<ul style="list-style-type: none">• Police Training Facility• Bus Garage Replacement/Rehabilitation
Maintain and Enhance Metro's Image	<ul style="list-style-type: none">• Website Update-Customer Communication• Automatic Vehicle Location Equipment

*** All projects improve safety**

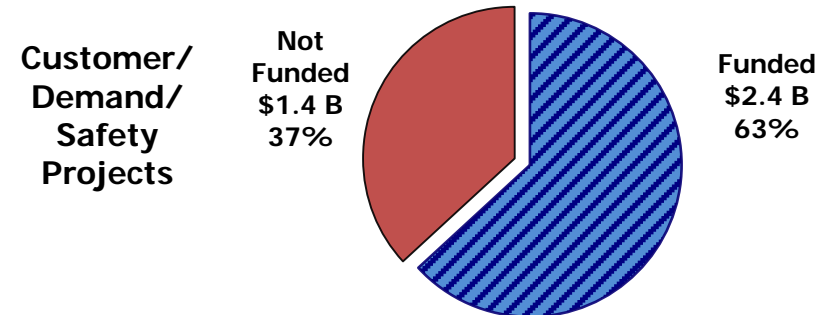
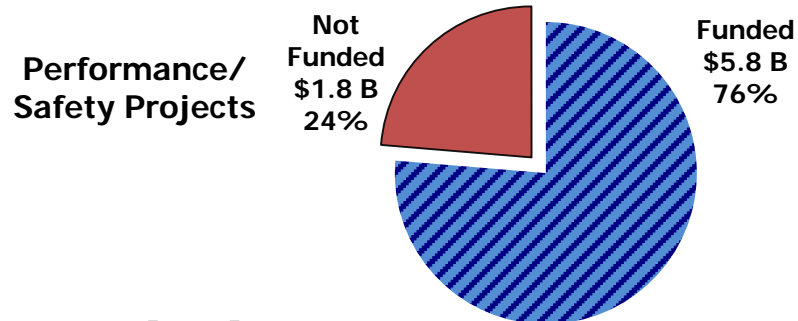


Impact of Funding Constraints





Impact of ~\$8 Billion Funding Constraint



Funded

- 1000, 2000, 3000 Series Rail Cars replaced; 4000 Series Rail Cars rehabilitated
- 100% 8-Car Trains implemented
- Oldest segments of rail system (e.g. Red Line) rehabilitated
- Track Rehabilitation and Metro Transit Police needs met
- Bus fleet, garages, and priority corridor network expanded

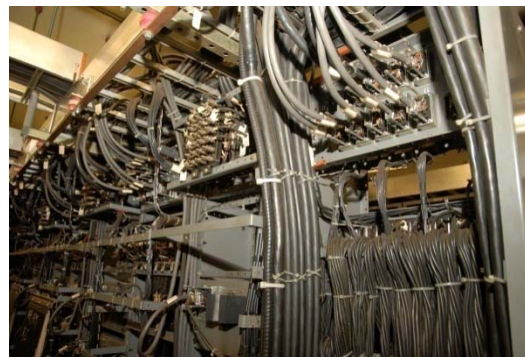
Unfunded/Deferred

- 37% of customer/demand needs (including core station capacity) deferred
- Rehabilitation of newest assets (rail system segments, bus garages, and rail yards) deferred
- 30% of Bus fleet expansion needs deferred



Recommendations Resulting From Prioritization Process

- **Continue to Make Safety a Top Priority**
 - NTSB recommendations
 - Safety projects prioritized in the Capital Needs Inventory

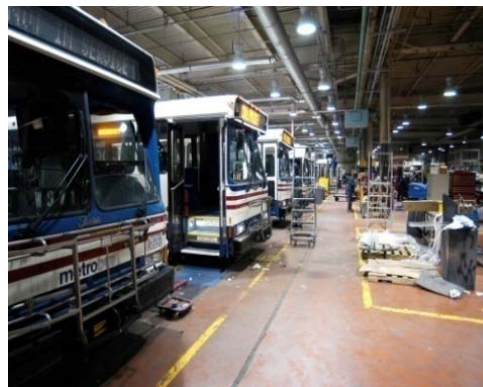




Recommendations Resulting From Prioritization Process (continued)

• Performance/Safety Projects

- Replace and rehabilitate buses and rail cars based on life cycle
- Rehabilitate sections of rail system more than 30 years old
- Replace/rehabilitate three bus garages
- Fully fund Track and Structure capital needs
- Fully fund Metro Transit Police capital needs
- Upgrade most critical IT software and hardware needs





Recommendations Resulting From Prioritization Process (continued)

- **Customer/Demand/Safety Projects**

- Provide 100% 8-car trains, power, storage
- Support bus fleet expansion to meet growing demand
- Enhance safety and security (e.g., police training facility, cameras, bumpy domes)
- Plan and design core capacity enhancements





Delivering the Capital Program

- **Metro can deliver projects at increased funding levels because:**
 - Significant share of program dollars is for acquisition of rail cars, buses and equipment
 - Rail System Infrastructure Rehabilitation conducted by contractors, approach will also increase productivity during track work hours
 - Advance procurement action will be taken to ensure timely program delivery





Commitment to Capital Funding

- **Jurisdiction continued commitment has been critical to our success**
 - Capital projects require long contract time horizons (e.g., 5-year rail car procurement, on-going rail system rehabilitation)
 - Savings are obtained through larger contracts
- **Replacing assets based on life-cycles provides cost savings and service reliability**
- **Multi-year capital program provides stability and flexibility**



Next Steps

- **Board endorsement of capital priorities**
 - Safety top focus
 - Deliver critical performance/safety projects
 - Meet key customer/demand/safety needs
- **Publish the 2011-2020 Capital Needs Inventory**
- **Develop a draft multi-year capital improvement program within an expected funding level**
- **Work with regional partners to finalize Metro's next funding agreement, effective July 1, 2010**
- **Program FY 2011 Capital Budget**



Appendix

Staff Prioritization Results



Staff Prioritization Results

Performance/Safety Projects

Asset Category	Project Grouping	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion
Vehicles/Vehicle Parts	Replacement of Rail Cars	\$978	86%
	Replacement of Buses	\$749	100%
	Rehabilitation of Rail Cars	\$265	82%
	Rehabilitation of Buses	\$228	79%
	Vehicle Replacement Components	\$176	55%
	Purchase of MetroAccess Vehicles	\$141	80%
	Replacement of Service Vehicles	\$63	100%
Rail System Infrastructure Rehabilitation	Rail Line Segment Rehabilitation	\$1,822	78%
Maintenance Facilities	Rehabilitation and Replacement of Bus Garages	\$489	58%
	Maintenance of Bus Garages	\$328	41%
	Maintenance of Rail Yards	\$281	45%
	Rail Maintenance Facilities	\$60	100%
	Environmental Compliance Projects	\$37	100%
Systems and Technology	Operations Support Software	\$426	48%
	Business Support Software & Equipment	\$256	30%
	Power System Upgrades - Rail	\$25	100%
	Rail Fare Equipment	\$24	100%



Staff Prioritization Results

Performance/Safety Projects: Continued

Asset Category	Project Grouping	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion
Track and Structures	Track Rehabilitation	\$539	100%
	Station/Tunnel Rehabilitation	\$46	79%
Passenger Facilities	Elevator/Escalator Facilities	\$234	81%
	Maintenance of Rail Station Facilities	\$134	60%
	Bicycle & Pedestrian Facilities	\$5	100%
Maintenance Equipment	Rail Maintenance Equipment	\$160	100%
	Heavy-Duty Track Equipment	\$44	100%
	Bus Repair Equipment	\$29	100%
	Business Facilities Equipment	\$8	100%
Other Facilities	Business Support Facilities	\$29	100%
	MTPD Support Facilities	\$21	100%
Summary		\$ 7,597	76%



Staff Prioritization Results

Customer/Demand/Safety Projects

Asset Category	Project Grouping	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion
Passenger Facilities	Rail Station: Capacity/Enhancements	\$1,184	10%
	Bus Priority Corridor Improvements	\$120	50%
	Bicycle & Pedestrian Facilities	\$40	5%
	Rail Station Equipment	\$22	100%
Maintenance Facilities	Rail Maintenance Facilities	\$596	100%
	Expansion of Bus Garages	\$445	73%
	Expansion of MetroAccess Garages	\$16	100%
Vehicle/Vehicle Parts	Rail Car Fleet Expansion	\$605	100%
	Bus Fleet Expansion	\$255	70%
	Bus Enhancements	\$116	100%
	MetroAccess Fleet Expansion	\$44	100%
Systems and Technology	Power System Upgrades – Rail	\$150	100%
	Operations Support Software	\$134	66%
	Business Support Software & Equipment	\$40	100%
	Rail Fare Equipment	\$32	100%
Other Facilities	MTPD Support Facilities	\$23	100%
	MetroAccess Operations Facility	\$8	100%
	Business Support Facilities	\$4	100%
Summary		\$ 3,834	63%

WMATA
Capital Needs Inventory (CNI) Prioritization
Summary of CNI Projects by Asset Category and Project Type Under Funding Constraints
08.31.09

Performance/Safety Focus Projects

Asset Categories	Project Type (CNI Project Groupings)	Brief Description	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion*
Vehicles/ Vehicle Parts	Replacement of Rail Cars	Replacement of the 1000 and 2000/3000 Series rail cars. These cars are reaching the end of their lifecycles.	\$978	86%
	Replacement of Buses	Purchase 100 buses a year to maintain an average fleet age of 7.5 years based on the 2008 fleet size of approximately 1,500 buses.	\$749	100%
	Rehabilitation of Rail Cars	Rehabilitation of the 4000 / 5000 Series rail cars and safety & reliability enhancements to all rail cars.	\$265	82%
	Rehabilitation of Buses	Capitalization of existing bus programs including: Mid-Life Overhaul, Engine Rebuild, Transmission Rebuild and Electronics Rebuild.	\$228	79%
	Vehicle Replacement Components	Purchase of capital repairable items used to replace repairable components of bus and rail fleet (e.g., seats, heaters, alternators, motors)	\$176	55%
	Purchase of MetroAccess Vehicles	Replacement of paratransit vehicles to achieve an average fleet age of 4 years.	\$141	80%
	Replacement of Service Vehicles	Replacement of specialized maintenance vehicle fleet and MTPD vehicles.	\$63	100%
Rail System Infrastructure Rehabilitation	Rail Line Segment Rehabilitation	Rehabilitation of rail system segments-- varies by conditions and age, but could include traction power, automatic train control, communication upgrades, track fastener replacement, tunnel ventilation, platform slab and tile replacement, etc.	\$1,822	78%
Maintenance Facilities	Rehabilitation and Replacement of Bus Garages	Rehabilitation/replacement of Southern Avenue, Southeastern (at DC Village), Royal Street and one additional bus garage.	\$489	58%
	Maintenance of Bus Garages	Maintenance of bus garages including interior/exterior walls, floors, stairs, ceilings, shop/building equipment, locker rooms, office spaces, security systems pavement/fence, etc.	\$328	41%
	Maintenance of Rail Yards	Maintenance of rail yards including interior/exterior walls, floors, stairs, ceilings, shop/building equipment, locker rooms, office space, fire escapes, security systems, pavement, fence, etc.	\$281	45%
	Rail Maintenance Facilities	Procurement, design, and construction of a test track and commissioning facility.	\$60	100%
	Environmental Compliance Projects	Projects required to comply with regulatory requirements at bus and rail facilities (e.g., underground storage tanks, storm water, air emissions)	\$37	100%
Systems and Technology	Operations Support Software	Upgrades to Bus & Rail Asset Management software, Bus and Rail Operations Support Software, MTPD Dispatch and Records Management, Data Centers, Network Operations Center, and Network and Communications.	\$426	48%
	Business Support Software & Equipment	Upgrades IT Security, Document Management, Currency Processing Machines, Metro's IT Helpdesk and Management Support Software.	\$256	30%
	Power System Upgrades - Rail	Upgrades to rail power systems to support 8-Car trains.	\$25	100%
	Rail Fare Equipment	Upgrades to fare equipment including fare media encoders, automatic fare collection hardware, debit/credit processing requirements, and maintaining the NEXTFARE system.	\$24	100%

Performance/Safety Focus Projects (Continued)

Asset Categories	Project Type	Brief Description	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion
Track and Structures	Track Rehabilitation	Procurement of material and specialized equipment to implement the following Right-of-Way rehabilitation programs: Track Rehabilitation, Flash Butt Welding, Floating Slabs, Grout Pads, Structural, Third Rail, and Track Fasteners.	\$539	100%
	Station/Tunnel Rehabilitation	Repair 2,200 leaks per year to maintain the structural integrity of the tunnel liners and prevent the corrosion of wayside systems and equipment.	\$46	79%
Passenger Facilities	Elevator/Escalator Facilities	Rehabilitation and safety upgrades of the oldest and poorest performing elevators. Metro has 265 elevators at 86 stations and 18 facilities.	\$234	81%
	Maintenance of Rail Station Facilities	Preventive maintenance work at parking lots and continued implementation of Station Enhancement Program.	\$134	60%
	Bicycle & Pedestrian Facilities	Replace remaining Rack III style bike racks and other structurally damaged; implement a locker replacement plan.	\$5	100%
Maintenance Equipment	Rail Maintenance Equipment	Rehabilitation of Right-of-Way graphics and switch machines; purchase of a geometry vehicle and other ROW work equipment.	\$160	100%
	Heavy-Duty Track Equipment	Procurement of portable rail work and test equipment including generators, welding carts and other shop equipment.	\$44	100%
	Bus Repair Equipment	Replace capital support equipment including jack stands, wheel dollies, pressure washers, parts cleaners, test equipment, paint booths, etc.	\$29	100%
	Business Facilities Equipment	Replacement of warehouse materials handling equipment, vertical storage units, shelving, and racking for all 23 storerooms in Metro's facilities.	\$8	100%
Other Facilities	Business Support Facilities	Renovation of the Jackson Graham Building and the Revenue Collection Facility.	\$29	100%
	MTPD Support Facilities	Construction of a new MTPD District 2 Substation and a MTPD Special Operations Division Facility.	\$21	100%
Performance Focus Subtotal			\$7,597	76%

Customer/Demand/Safety Focus Projects

Asset Categories	Project Type (CNI Project Groupings)	Brief Description	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion
Passenger Facilities	Rail Station: Capacity/Enhancements	Improvements to pedestrian flow, vertical transportation and platform capacity at core stations, backup elevators at 7 key MetroRail transfer stations, pedestrian connections at key stations and extended platform canopies for 8-car trains.	\$1,184	10%
	Bus Priority Corridor Improvements	Funding to assist local governments and State DOTs to implement road and traffic measures to support Bus Priority Corridors.	\$120	50%
	Bicycle & Pedestrian Facilities	Add bicycle parking capacity (cages and vendor-operated stations) and enhance pedestrian access to stations.	\$40	5%
	Rail Station Equipment	Purchase 110 Automatic External Defibrillators and increase supply of Emergency Tunnel Evacuation Carts.	\$22	100%

Customer/Demand/Safety Focus Projects (Continued)

Asset Categories	Project Type (CNI Project Groupings)	Brief Description	\$11 Billion CNI Budget (in millions)	% Funded at ~\$8 Billion
Maintenance Facilities	Rail Maintenance Facilities	Provide rail car storage and shop capacity to support 75% and 100% 8-car train operation on the Red, Orange and Blue lines.	\$596	100%
	Expansion of Bus Garages	Additional capacity for bus storage in order to meet anticipated bus demand growth.	\$445	73%
	Expansion of MetroAccess Garages	Obtain MetroAccess maintenance facilities and/or improve existing WMATA properties to house paratransit operations.	\$16	100%
Vehicles/ Vehicle Parts	Rail Car Fleet Expansion	Purchase 230 additional rail cars in order to fully implement 75% and 100% 8-car trains.	\$605	100%
	Bus Fleet Expansion	Purchase 325 new buses to serve priority corridor networks and to cover projected demand increase.	\$255	70%
	Bus Enhancements	Technology improvements for Metro's older buses, including consolidated Wireless Local Area Network, AVL and cameras.	\$116	100%
	MetroAccess Fleet Expansion	Purchase 803 MetroAccess vehicles in order to serve projected increases in passenger population.	\$44	100%
Systems and Technology	Power System Upgrades - Rail	Completion of traction-power system improvements in order to fully deploy 100% 8-car trains.	\$150	100%
	Operations Support Software	Modernize Metro's communication system with customers, enhance GIS mapping capability and implement power management strategy.	\$134	66%
	Business Support Software & Equipment	Hardware upgrades to support enhancements to Metro's web site.	\$40	100%
	Rail Fare Equipment	Equipment to support Automatic Fare Collection system, (including conversion to Universal Vendors and coin collection) and potential investment in Open System.	\$32	100%
Other Facilities	MTPD Support Facilities	Construct a Police Training Facility and New District 4 Substation (to serve Dulles, western Metrorail and expanding bus service).	\$23	100%
	MetroAccess Operations Facility	Construct 8 MetroAccess operating garages to house paratransit operations.	\$8	100%
	Business Support Facilities	Improvements to Revenue Collection Facility to address growing ridership and enhanced security at JGB.	\$4	100%
Customer/Demand Focus Subtotal			\$3,834	63%
Total			\$11,431	72%

* \$8 billion funding constraints represents a reasonably expected funding projection based on historical funding levels and federal dedicated funds (see 11/6/08 FAO Board presentation "Capital Financing Plan")

Note: Additional capital needs identified by NTSB will be addressed.