



Planning, Development and Real Estate Committee

Board Information Item III-A

May 22, 2008

Bus Priority Corridor Plan

**Washington Metropolitan Area Transportation Authority
Board Action/Information Summary**

Action
 Information

MEAD Number:

Resolution:
 Yes No

PURPOSE

To brief the Board on a regional Bus Priority Corridor Plan that provides an integrated, multi-year program to improve bus services throughout the region and to discuss the associated Board policy and implementation considerations.

DESCRIPTION

The Bus Priority Corridor Plan reflects a strategy for improving bus service travel times, reliability, capacity, productivity and system access and is consistent with the Regional Transportation Vision, Regional Bus Study, Core Capacity Study and APTA Peer Review. The included service and capital projects would constitute a six-year implementation program affecting 24 corridors across the region and impacting half of all bus riders in the current Metrobus system.

Staff, working with jurisdictional stakeholders would prepare comprehensive Corridor Plans to provide for integrated service and capital investments, including new MetroExtra routes, to improve the performance of all routes in the corridor. Implementation would include investments in bus stops, runningway enhancements, street operations management and safety and security strategies to reduce travel times and provide more reliable and safe service.

A focus on priority corridors would benefit the most riders in the shortest time frame; improve customer service, reliability, quality and performance; build transit markets; and, influence development patterns. A defined plan would also facilitate fleet acquisition and address garage capacity issues by establishing a time frame for performance.

The service zone described by the 24 corridors currently encompasses nearly 750,000 households with 1.8 million residents and 1.6 million jobs. By 2015, this market is anticipated to grow by 14%. The proposal includes 246 line miles of service and would provide capacity to serve an additional 10 million riders per year.

Regional Bus Study and Network Evaluation

The Regional Bus Study provided an action plan to implement the previously described recommendations. The priority needs for a five-year scheduled replacement of 500 Metrobuses and fleet expansion by 185 buses were included in the action plan negotiated for the Metro Matters funding agreement in 2004. The Metro Matters funding program required that the increase in fleet size be validated through a process of detailed examination of this action plan. A Bus Network Evaluation was initiated in 2005 to fulfill this role and to conduct a refinement and update of the original Regional Bus Study recommendations.

Findings of the Bus Network Evaluation concluded that the additional buses are justified, based on the currently planned service enhancements. Also, the Bus Network Evaluation provided an opportunity to review, update and re-evaluate implementation of recommendations from the Regional Bus Study. The final report addressed recommendations concerning the regional service plan, vehicle and fleet requirements and new service branding strategies.

The Metrobus Revenue Vehicle Fleet Management Plan, which was approved by the Board in April 2007, is the formal document memorializing this information to provide planning for future Metrobus vehicle and facility needs.

Priority Corridor Network

The Regional Bus Study evaluated corridors throughout the region and identified those with sufficient current or future potential to warrant running way improvements to support faster and more reliable transit services. Corridors with daily transit ridership over 5,000 per day were considered as candidates. Out of 31 corridors studied, a sub-group of 16 were recommended for "Rapid Bus" (MetroExtra) treatment. Since the Regional Bus Study was completed, some of the corridors on the final list have been consolidated while others have been separated to facilitate implementation. Changes in jurisdictional priorities and development patterns have also necessitated a revision of the list to the current recommended 24.

Board Considerations

Selection of funding strategies and frequency of review and approval would be key issues on which the Board needs to provide guidance. Based on that guidance, staff will prepare plans for review and approval, consistent with Board schedules and direction.

FUNDING IMPACT

Information item only, no impact on funding.

NEXT STEPS

This is an information item only. The next step in the process will be to review the proposal with the Riders Advisory Council, the Jurisdictional Coordinating Committee and the public. A final Bus Priority Corridor Program will be prepared reflecting stakeholder and public comments. It will then be recommended that the Board accept the bus network findings, approve a budget for the planning processes, approve implementation of the bus service recommendations, approve the partnering agreements, and authorize initiation of the capital projects.



Metrobus Priority Corridor Network

Presented to the Board of Directors:

Planning, Development and Real Estate Committee

May 22, 2008





Purpose

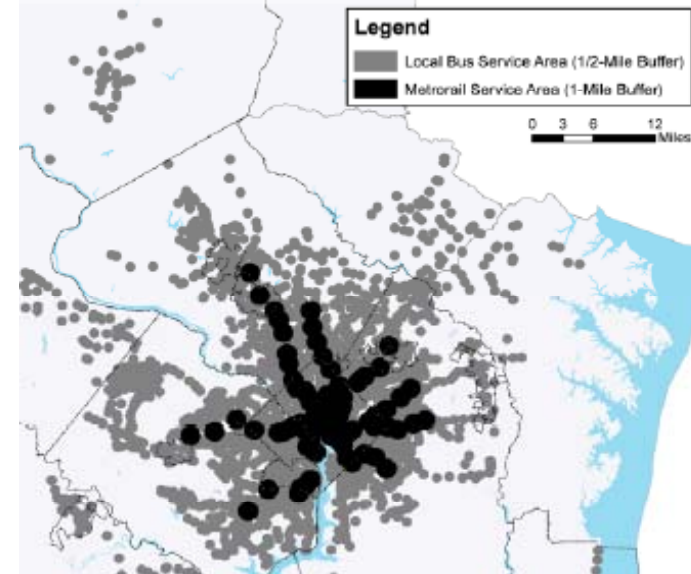
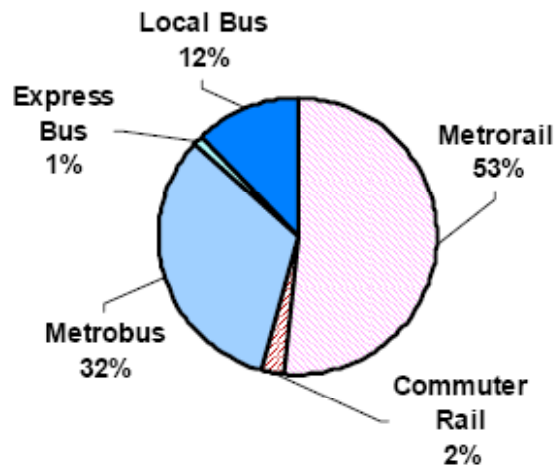
- Propose a regional network of priority bus corridors to improve transit services for half of Metrobus riders
- Discuss policy-related considerations with the Board
- Describe an implementation plan linking actions of Board, jurisdictions and staff





Bus Transit's Regional Role

Breakdown of Regional Transit Ridership
(% of Annual Trips, 2006)



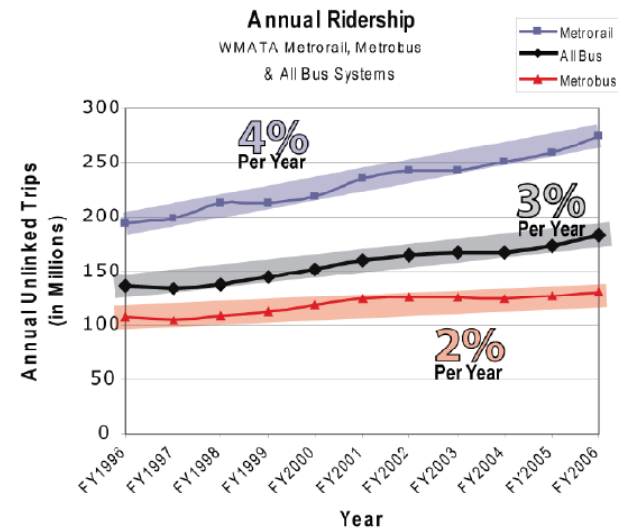
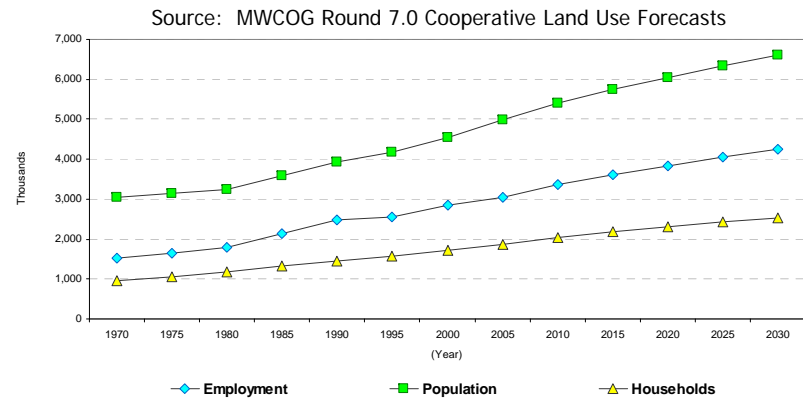
- **Buses** provide many types of services throughout the region.
- **Bus** is the only mode used for many trips in the region.
- **Bus** service expansion plans have previously been prepared but not implemented.
- **Bus** is the primary mode in many areas of the region.
- Investments in **Bus** contribute to healthy communities.
- **Bus** can be expanded in near term with projects to meet regional needs.



Regional Growth and the Need for Improved Bus Services

- Between 2005 and 2030 WMATA Compact members will grow:
 - Jobs: 34%
 - Population: 24%
- Challenges faced by bus service:
 - Crowding
 - Slowing travel speeds
 - Route and schedule adherence
 - Customer expectations
- Limited short-term strategies available to meet challenges:
 - Manage current bus and rail system to maximize efficiency
 - Deploy additional vehicles
 - Expand bus network to serve new and growing markets

Historic and Forecast Regional Growth

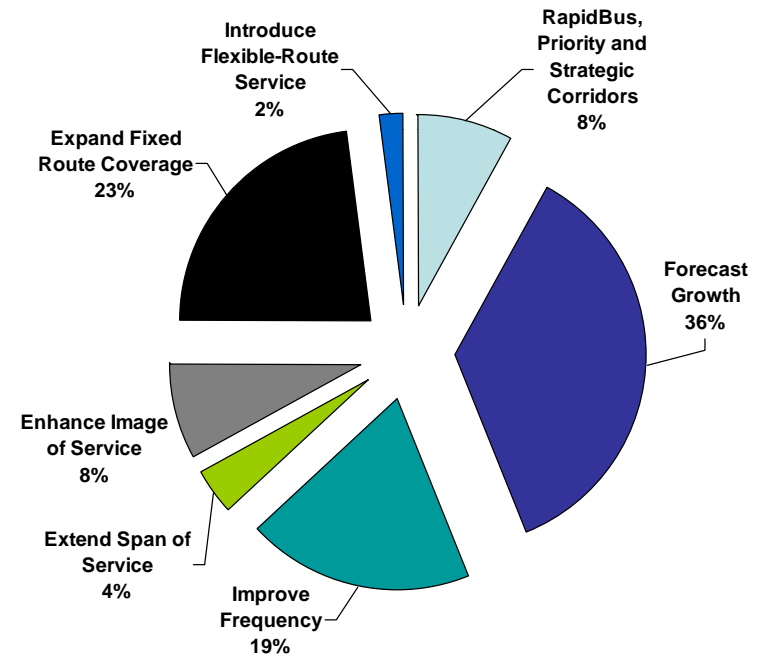




Review of Bus Service Strategies

- Strategic plans have been prepared to increase ridership:
 - Regional Bus Study (2003)
 - Bus Enhancement Program (2004)
 - Metro Matters (2005)
 - Bus Network Evaluation (2006)
 - Regional Bus Conference (2006)
 - Fleet Management Plan (2007)
- **The Chairman's challenge:**
 - "To focus on customer service, reliability, quality, and performance today"
 - "To plan for tomorrow – fulfilling our leadership role..."
 - "...lay out a blueprint and a timetable by which this region could deploy such a rapid bus network of not less than 100 miles, and then advocate for its implementation."

Regional Bus Strategy for Growth by 2025

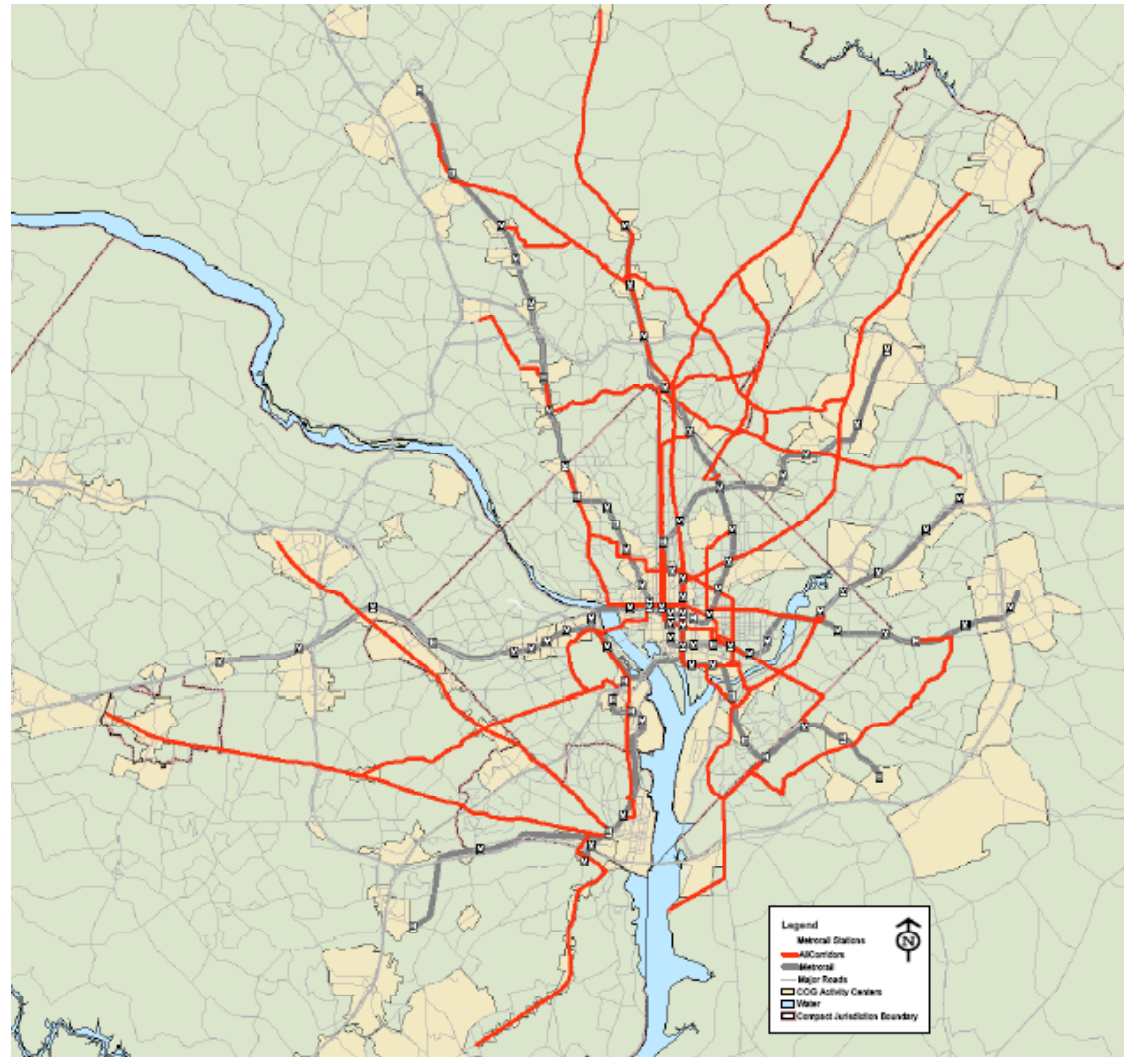


36% Normal Growth
31% Enhanced Service / Image
33% New Markets



Proposed Priority Corridor Network

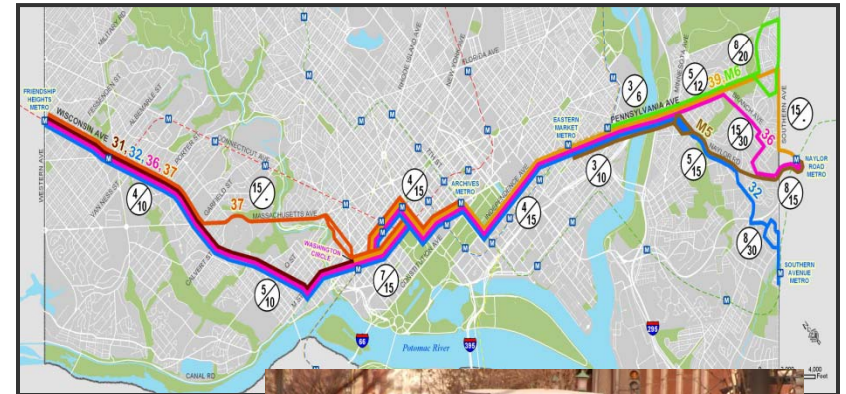
- Network of 24 corridors
- High ridership arterial services (half of system)
- Candidates for multiple types of services
- Selected by
 - Performance
 - Ridership
 - Land use
 - Service levels
 - Jurisdictional support
- 6 Year Schedule





Comprehensive Approach to Bus Service Improvement

- A Regional Priority Corridor Network Plan will:
 - Integrate service improvements, including new MetroExtra routes
 - Improve performance of all routes in the corridor
 - Coordinate stakeholder investments in stops, roadway improvements and safety/security strategies
- Implementation:
 - Improves street operations to improve travel times and reliability
 - Manages fleet and garage needs
 - Enhances customer information
- Focus on Priority Corridors:
 - Benefits the most riders
 - Improves service quality, reliability, performance
 - Builds transit market and influences development patterns





Characteristics of Priority Bus Corridors

- Metrobus has 171 lines with total daily ridership of 450,000
- Corridors represent 14% of lines (50% of ridership)
- Recommended Priority Corridor Plans serve:
 - 220,000 current daily riders
 - 70 million annual riders
 - 246 line miles of service
- Corridors include:
 - Local Metrobus
 - Express Metrobus
 - MetroExtra (Rapid Bus)
 - Neighborhood Shuttles
- Proposals add 10 million riders annually (+14%)

Priority Corridor Network Service Zone Characteristics			
	2005	2015	Net Change
Land Area (Sq Mi)	330	330	
Households	733,000	835,000	14%
Population	1,782,000	1,988,000	12%
Employment	1,609,000	1,827,000	14%

Priority Corridor Network Service Characteristics	
	Average
Weekday Passengers	9,200
Percent Weekend/Holiday Riders	18%
Riders per Revenue Hour	55
Riders per Revenue Mile	4.5
% Corridor Usage on Bus	8.0%
Bus Vehicles as % of Total	0.7%
Average Passenger Trip Time (Min)	42
Average Scheduled Bus Speed (MPH)	12.1
Average Line Trip Length (Miles)	9.4
Daily Passenger per Line Mile	900
Rail to Bus Transfers	6%
Bus to Bus Transfers	32%



Regional Bus Study

Runningway and Facility Improvements

Washington Regional
Bus Study

Passenger Facility and
Running Way Improvements

Regional View

Legend

Running Way Improvements
—

Passenger Facilities
S Improved
S New

— Existing Road Network
- - - Rail Lines
Water Bodies

0 5 10 Miles

N



Capital investments recommended for Priority Corridor Network include roadway improvements, transit center and Park & Ride projects



Traffic Congestion Adds Costs and Degrades Service

- Bus priority is a cost-effective way of moving more people by increasing passenger throughput at intersections
- Since CY 2000 Buses have experienced a reduction in average speed :
 - Suburbs: up to 30%
 - City: nearly 15%
- A 30% increase in average speed for buses on the Priority Corridor Network (12.1 to 15.7 mph) would be like putting 100 more buses on the road.
 - Saving \$50 million in capital
 - Avoiding operating costs of \$40 - \$50 million per year



7th St. NW at G St. NW



14th St NW at Commerce Department



Priority Corridor Implementation Plan

Priority Corridor Network - Implementation Schedule								
Projects	Study/Implementation							
	< 2006	2007	2008	2009	2010	2011	2012	2013
Implement 3 to 4 Corridors per year (See appendix for specific Corridor)	Implemented							

Priority Corridor Network - Projected Costs	
Annual Operating (WMATA)	
Direct Service	\$ 19,500,000
Supv, Mktg, Other	\$ 5,500,000
Total Operating	\$ 25,000,000
One-Time Capital (WMATA and Stakeholder)	
135 Buses	\$ 83,500,000
Bus branding/New signage	\$ 25,900,000
Transit Center/Facilities	\$ 27,000,000
Roadway improvements	\$ 43,000,000
Park and Ride	\$ 36,800,000
Signal priority	\$ 67,000,000
Garage/Storage	\$ 43,000,000
Total Capital	\$ 326,200,000



Benefits / Costs

- Benefit to Customers
 - Benefits half of Metrobus riders within six-year time frame
 - Improves overall Metrobus customer service, reliability, quality & performance
 - Builds transit market and influences development patterns in the region
 - Coordinates investments in stops, roadway improvements and safety/security strategies
- Implications for Existing Services
 - Integrates service improvements, including new MetroExtra routes
 - Impacts performance of all routes in the corridor
 - Requires additional buses and facilities
 - Requires additional operating subsidies and staffing
 - Requires stakeholder participation and investments



Board Considerations - Policy

- Board adoption of a comprehensive Priority Corridor Network Plan (non-binding):
 - Annual project list for planning and implementation
 - Planning process with public input
 - Six-year Plan
- Decision on implementation schedule:
 - 3-4 corridors each year
 - Funding of \$3-4 million per year
 - Additional 15-20 buses per year
- Determination of Board's and staff's roles in advocating roadway improvements to support the Priority Corridors



Board Considerations – Future Actions

- Accept Bus Network Evaluation findings documenting need for 135 Metro Matters expansion buses (June 08)
- Approve an annual Priority Corridor Network Program including planning, operating, capital projects (Sept 08)
- Adopt a multi-year funding strategy for new Priority Corridor Program projects (Sept 08)
- Approve aggressive plans for running way improvements, innovative new service strategies and service expansion programs (Nov 08)



Board Considerations – Shifts in Regional Thinking and Policies

- All DOT's and local governments need to adopt policies, strategies and practices reflecting their integral role as transit service providers
- Policies on major arterials need to consider person through-put and mode-shift incentives to successfully address needs of a "Transit First" network
- Plans for transportation and land-use projects must incorporate bus transit requirements for implementation
- Local land use plans must provide for strategic reservation of right-of-way and maintenance facilities



Appendix

- **Recommended Priority Corridor Network**
- **Regional Bus Study and Bus Network Evaluation Criteria**
- **Priority Corridor Network Transit Measures of Effectiveness**
- **Bus Network Evaluation Metrobus Fleet Requirements**
- **Bus Network Evaluation Garage Capacity Issues**



Recommended Priority Corridor Network

Corridor Description	Line/Route Description	Status	State	Study Year	Average Weekday Ridership	Annual Platform Hours
1 Columbia Pike (Pike Ride)	16ABDEFJ 16GHKW 16L 16Y	Implemented	V	2003	12,469	99,473
2 Richmond Highway Express (REX)	REX	Implemented	V	2004	3,305	33,783
3 Georgia Ave./7th Street	70 71 79	Implemented	D	2006	15,377	99,509
4 Crystal City-Potomac Yard	9A 9E 9S	Implemented	V	2006	2,708	33,364
5 Southern Ave. Metro - National Harbor	NH-1	Implement Mar-08	M	2007	New	New
6 Wisconsin Ave./Pennsylvania Ave.	30 32 34 35 36	Implement Jun-08	D	2007	18,664	162,032
7 University Blvd/East-West Highway	J1 J2 J3 J4	Recommended	M	2007	7,709	67,967
8 Sixteenth Street	S1 S2 S4	Recommended	D	2008	14,594	111,857
9 Veirs Mill Road	Q2	Recommended	M	2008	10,859	75,425
10 Leesburg Pike	28AB 28FG 28T	Recommended	V	2008	6,230	52,486
11 New Hampshire Avenue	K6	Recommended	M	2009	6,637	40,536
12 H Street/Benning Road	X2	Recommended	D	2009	15,068	65,304
13 Eastover - Addison Road Metro	P12	Recommended	M	2009	5,632	44,645
14 Little River Turnpike/Duke Street	29KN 29CEGHX	Recommended	V	2009	3,243	40,792
15 East-West Highway (Prince George's)	F4 F6	Recommended	M	2010	7,847	52,040
16 Greenbelt-Twinbrook	C2 C4	Recommended	M	2010	13,614	99,690
17 Mass Ave/U St./Florida Ave./8th St./MLK Ave.	90 92 93	Recommended	D	2010	15,604	106,401
18 Fourteenth Street	52 53 54	Recommended	D	2010	14,061	98,171
19 Colesville Rd./Columbia Pike - MD US 29	Z2 Z6 Z8 Z9,29 Z11,13	Recommended	M	2011	9,844	97,062
20 Anacostia-Congress Heights	A2-8, A42-48	Recommended	D	2011	11,242	77,530
21 Georgia Ave. (MD)	Y5 Y7 Y8 Y9	Recommended	M	2011	7,625	57,633
22 North Capitol Street	80	Recommended	D	2012	8,515	60,808
23 Rhode Island Avenue	G8	Recommended	D	2012	3,923	34,182
24 Rhode Island Avenue Metro to Laurel	81 82 83 86 87 88 89 89M	Recommended	M	2012	5,407	57,509
Total Priority Corridor Network					220,177	1,668,199



Regional Bus Study and Bus Network Evaluation Criteria

Line Performance Evaluation Criteria

- Productivity
 - Passengers per revenue-hour and/or revenue-mile
 - Different thresholds by line class
 - Different thresholds for peak and off-peak periods
- Travel Time and Reliability
 - Schedule adherence - % of trips “on-time” at time points
 - Maintenance of headways for frequent routes
 - Match of scheduled and actual trip time
- Duplication
 - Route overlap where no functional difference
- Crowding
 - Load factor at peak load point
- Frequency Guidelines
- Complaints



Priority Corridor Network Transit Measures of Effectiveness

	Base Condition	Projected Net Change	PCN Projected Impact	Percent Change
Transportation				
Annual ridership	69,100,000	10,600,000	79,600,000	15%
Average speed of service in MPH	12.1	0.8	12.9	6%
Energy				
Gallons of fuel saved	6,500,000	800,000	7,300,000	12%
Passenger miles per bus fuel gallon	47.0	4.2	51.2	9%
Environment				
Annual carbon dioxide avoided (metric tonnes)	58,000	7,000	65,000	12%
Land Use and Economic Development				
Job density (Square Mile)	4,800	700	5,500	15%
Population density (Square Mile)	5,300	600	5,900	11%
Congestion				
Annual bus passenger miles generated	220,300,000	33,800,000	254,100,000	15%
Peak hour arterial lanes avoided	28	4	32	16%
Access and mobility				
Jobs within one-half mile of routes	1,600,000	200,000	1,800,000	13%
Households within one-half mile of routes	730,000	110,000	840,000	15%
Average travel time per passenger (min.)	42.0	(2.8)	39.2	-7%
Annual travel time saved (hours)	(3,140,000)	(480,000)	(3,620,000)	15%



Bus Network Evaluation (2006)

Metrobus Fleet Requirements

Jurisdiction	Current Bus Assignments	Added Buses (2007 – 2011)	Total Buses (2011)	Added Annual Operating Cost (000)	Added Annual Riders (000)	Buses Shifted to Local Operators
District	663	95	758	\$33,365	5,490	0
Virginia	385	53	438	\$16,920	7,294	23
Maryland	454	37	491	\$13,654	3,340	11
Total	1502	185	1687	\$63,939	16,124	34



Bus Network Evaluation (2006)

Garage Capacity Issues

Virginia	Spaces Available	Spaces Needed
Current Capacity	14	
West Ox Road	100	
Currently Available	114	
Network Evaluation Needs		52
Replace Arlington		86
Anticipated Need		138
<i>Projected VA Bus Storage Deficiency in 2011</i>		<i>24</i>

Virginia

- Assumes the retention/replacement of Royal Street (82 buses).
- Desired closure of Royal would depend on replacement.

District of Columbia	Spaces Available	Spaces Used
Current Available Capacity	28	
Network Evaluation Needs		95
<i>Projected DC Bus Storage Deficiency in 2011</i>		<i>67</i>

District

- Closure of Southeastern (114 buses) increased the storage need in DC to 181 buses.

Maryland

- Montgomery Division has capacity for an additional 87 buses
- Landover Division has capacity for an additional 79 buses.