

## ***Bus Technology Selection: FY08-11 Executive Summary***

### **Background**

In 2000, the Board of Directors expressed the goal of improving the bus fleet by buying buses with proven technology producing the lowest levels of emissions with the ultimate goal of a bus fleet that produces zero emissions. WMATA has made improvements in the procurement and efficiency of the bus fleet and current plans include the purchase of up to 476 buses for expansion and replacement. There are currently three technologies in 17 different fleets.

### **Purpose**

- Discuss the Bus Technology Assessment
- Obtain Board approval to initiate and award a multiple year bus procurement for heavy duty hybrid/electric transit buses. Each contract option year would be for the purchase of 100 buses annually and include provisions for up to an additional 100 buses annually. This procurement strategy would provide the opportunity to establish a collaborative partnership with a Bus Manufacturer and provide the opportunity for other transit properties to purchase options from the contract.
- Obtain approval to exercise existing contract options to procure 25 additional CNG buses for pending FY07 service needs utilizing Metro Matters Expansion Bus funding.
- Obtain approval to submit to FTA for participation in new Fuel Cell Program; to provide 1-2 "demonstration" buses operating with fuel cell technology.

### **Technology Assessment**

In looking to the near future, the current three technologies were evaluated based on WMATA and other system experiences. It is the opinion of staff that when considering reliability, fuel economy, emissions, flexibility of assignment, quietness, performance and overall capital investment, the diesel hybrid electric provides the best alternative for the standard replacement technology.

WMATA's early experience with hybrid shows a fuel savings of 20% - 30% compared to the diesel fleet average. The initial mean distance between failures is well over 30,000 with few issues with the hybrid technology.

### **Recommendation**

- Preserve the CNG fleet and consider CNG in future bus maintenance facilities.
- Obtain Board approval to initiate and award a multiple year bus procurement for heavy duty hybrid/electric transit buses
- Obtain approval to exercise existing contract options to procure 25 additional CNG buses for FY07 service needs utilizing Metro Matters Expansion Bus funding.
- Obtain approval to submit to FTA for participation in new Fuel Cell Program; to provide 1-2 "demonstration" buses operating with fuel cell technology.

### **Next Steps**

WMATA must be realistic about the limitations of the facilities available for maintenance, storage and operation of its bus fleet.

A plan needs to be created to address bus maintenance facilities that:

- Intensive efforts for relocation of Royal Street and Southeast Bus Facilities
- Completion of West Ox Bus Facility by 2008
- By 2010, due to new emission standards, 5 of the 10 existing garages will no longer support new buses due to height restrictions
- WMATA has a limited capacity for fleet expansion and is nearing full capacity at existing facilities.



# Washington Metropolitan Area Transit Authority

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## *Bus Technology Selection: FY08-11*



*Presented to the Board of Directors:*

**Planning & Development Committee**

*by:*

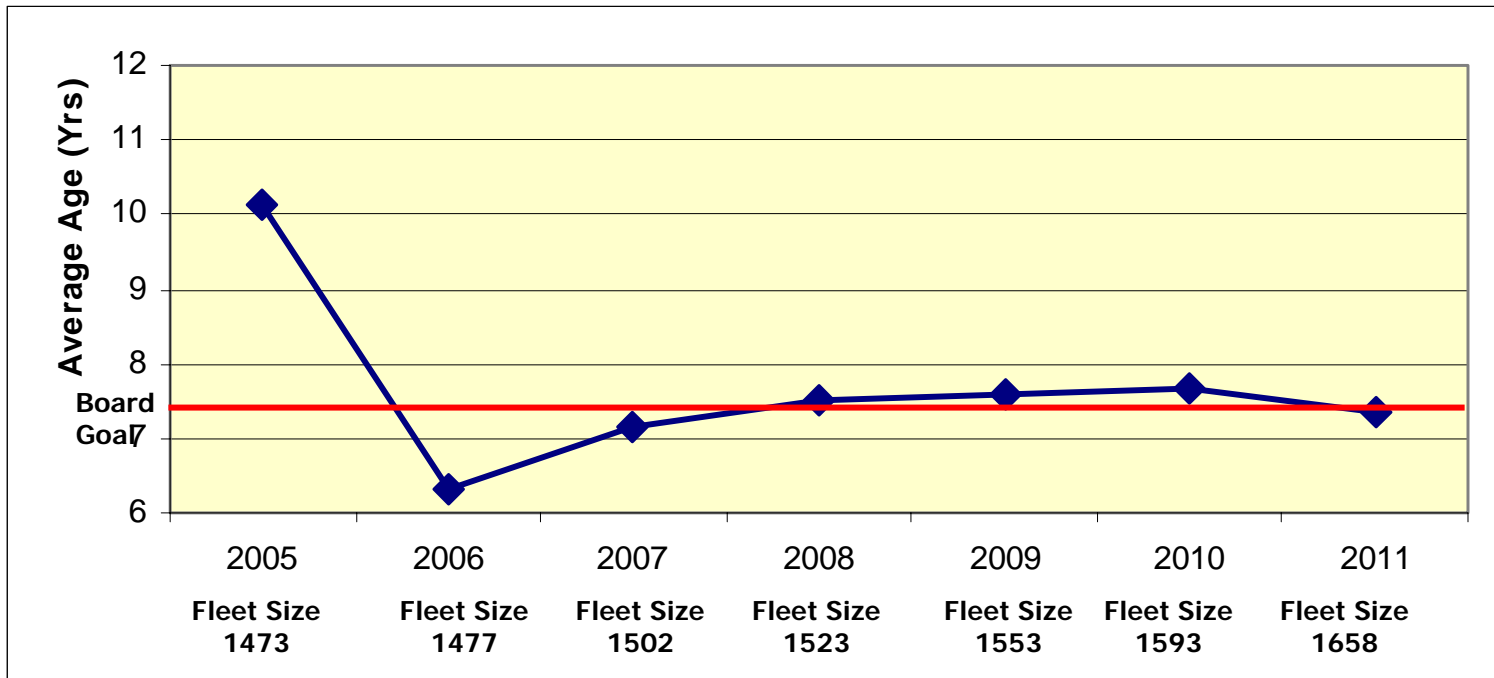
**Chief Engineer - Vehicles**

May 4, 2006







# Bus Fleet Composition and Average Age

- Future procurements include:
  - 50 Hybrid electric for Maryland, Up to 185 expansion buses, 241 replacement buses. These buses are required for the Board approved fleet plan.
  - 100 buses annually to maintain the average fleet age, and allow other transit properties to purchase options from the contract.



# BUS TECHNOLOGY ASSESSMENT

<p><b>Legend</b></p> <p>Best ← → Worst</p> 	<p><b>DIESEL</b></p> 	<p><b>CNG</b></p> 	<p><b>HYBRID</b></p> 
Capital Cost-Vehicle	●	◐	○
Capital Cost-Facilities	●	○	◑
Operating Cost-Vehicle	◑	◐	●
Operating Cost-Facilities	●	◐	◑
Fuel Economy	◑	○	●
Reliability	○	◑	●
Emissions	◐	●	●



# Recommendations

- Preserve the CNG fleet and consider CNG in future bus maintenance facilities
- Obtain approval to initiate and award a multi-year bus procurement.
  - 100 hybrid buses a year for five years base with options for an additional 100 buses each year. These options are assignable to other agencies.
  - Conduct bus industry review and review new bus design concept with the Board.
  - Review the new look design hybrid bus design with the Riders Advisory Council (RAC).
  - The first fifty hybrid buses will fulfill the Maryland commitment.
- Obtain approval to exercise existing contract options to procure 25 additional CNG buses for FY07 service needs utilizing Metro Matters Expansion Bus funding.
- Obtain approval to submit to FTA for participation in new Fuel Cell Program; to provide 1-2 “demonstration” buses operating with fuel cell technology.





# Next Steps

- Submit to FTA for participation in the new Fuel Cell Bus Demonstration Program.
- Finalize action plan/create program for bus facilities.
  - Intensive efforts for relocation of Royal Street and Southeast Bus Facilities.
  - Completion of West Ox Bus Facility by 2008.
  - By 2010, due to new emission standards, 5 of the 10 existing garages will no longer support new buses due to height restrictions.
  - WMATA has a limited capacity for fleet expansion and is nearing full capacity at existing facilities.





(Board Copy)  
Washington Metropolitan Area Transit Authority  
**METRO ELECTRONIC ACTION  
DOCUMENT**

IDENTIFICATION			
MEAD ID:	99488	ACTION:	Initiate & Award
AWARD VALUE:	(Not yet awarded)	CONTRACT: (Proposed)	
FUND SOURCES: (View)	Infrastructure Renewal Program Infrastructure Renewal Program	CONTRACTOR:	
LAST MODIFIED:	04/28/2006		

DESCRIPTION	
SUBJECT:	
PURPOSE:	The purpose of this action is: 1. To initiate and award a one year base contract with four one year options utilizing a competitively negotiated "Best Value" procurement for hybrid/electric buses, spare parts, support equipment and training. This procurement covers a maximum period of five (5) years with a base buy year and four one year options of additional buses in each year of the contract. 2. To procure 25 CNG buses approved in MEAD 39740 using Metro Matters funding to meet the needs of the pending service adjustments for FY07. All expansion buses require the purchase and installation of radios, AVL, and fareboxes.

ORIGINATION					
INITIATOR			DEPARTMENTAL APPROVAL		
ROBERT GOLDEN on 04/19/2006			Approved by SALPEAS , PANAGIOTIS 04/26/2006		
PHONE:	301-618-1181	OFFICE:	OENG	DEPT:	Chief Engineer

COORDINATION (ROUTING)		
OFFICE	NAME	ACTION/DATE
COOB (3211) (4110)	REQUA, JOHN	Approved 04/26/2006
IRPG (4710)	SALPEAS, PANAGIOTIS	Approved 04/26/2006
PRMT (7410)	COUCH, DAVID	Approved 04/27/2006
CFO1 (2110)	JACKSON, LUCY	Approved 04/27/2006
	WOODRUFF, HARRY	Not Reviewed Yet

FINAL APPROVALS	
OFFICE	NAME/ACTION
PLN_DEV_CMTE	Approved for by PANAGIOTIS SALPEAS on 04/26/2006
OPER_CMTE	JAMES HUGHES (Not Yet Approved)
SAFETY_CMTE	FRED GOODINE (Not Yet Approved)
BEMR	Emeka Moneme (Not Yet Approved)
GM	GMGR CEO (Not Yet Approved)
BOARD	BOARD WMATA (Not Yet Approved)





Prior Actions		0	0	0	0	0	0
This Action		12.30	75.61	80.67	75.62	67.02	311.23
Total Expend		12.30	75.61	80.67	75.62	67.02	311.23
Remaining Funds		0	0	0	0	0	0

NOTE: This action combines funding line IRP Advanced Technology Diesel into IRP- Diesel Hybrid funding line. All costs included to complete the project are included above (Project Management, Engineering and Design, etc.).

**AFFIRMATIVE ACTION REQUIREMENTS:**

**DBE Requirements:**

Pursuant to the US DOT's Regulation 49 CFR Part 23; Transit Vehicle Manufacturers must have an FTA approved DBE Program as a condition to bid; therefore, individual Authority DBE goals do not apply.

**Equal Employment Opportunity Requirement:**

Contractor will be required to comply with Executive Order 11246; Revised Order No. 4.

**RECOMMENDATION:**

Board approval to initiate and award a one year base with four one year options competitive procurement of hybrid electric buses.

Board approval to exercise existing contract options to procure 25 additional CNG buses for FY07 service needs utilizing Metro Matters Expansion Bus funding.