



**Finance, Administration and Oversight Committee**

**Information Item IV-B**

**November 6, 2008**

## **7000 Series Railcar Program Overview**

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

<input type="radio"/> Action <input checked="" type="radio"/> Information	MEAD Number:	Resolution: <input type="radio"/> Yes <input checked="" type="radio"/> No
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**TITLE:**

7000 Series Railcar Program Overview

**PURPOSE:**

To provide an overview of the scope, schedule and budget of the consolidated 7000 Series Railcar program, an effort intended to facilitate the agency's mission into the second half of this century. To inform and facilitate discussion of program requirements, benefits and alternatives and request guidance concerning program composition and implementation.

**DESCRIPTION:**

A long-range plan has been developed for the renewal and rehabilitation of the railcar fleet due to its aging, wear and capacity constraints. The goal was to use an optimized procurement methodology and a modern design to produce a high-value railcar. The plan consolidates the replacement and mid-life rehabilitation of different fleets into one procurement of up to 748 railcars.

Substantial cost savings will be achieved through elimination of repetitive design, procurement, development and engineering costs; plus the benefits from economies of scale, improved design elements and proven, modern technology applied across a major portion of the Metro railcar fleet. The result will be a railcar with increased capacity, higher utility, lower maintenance costs and lower operating costs.

The design has been improved based on our thirty years experience in operating and maintaining these vehicles. While the design in many ways is completely familiar, the intent with the 7000 Series Railcar has been to keep the elements that work well and, with those that do not, replace them with proven components and technology. Passenger safety, passenger

traffic flow and passenger comfort are key elements in every aspect of the design.

Within the plan, procurement begins in FY2009 and railcar deliveries occur in FY2013 through FY2018, with warranty and maintenance support continuing through FY2022. This railcar plan is a major component of the agency's Long-Range Capital Plan FY2011 - FY2020 which is currently being developed.

For the railcars that have reached the mid-point in their life cycle and require major rehabilitation to ensure an additional twenty years working life, the program will overhaul the major car systems including propulsion, braking, automatic train control, trucks, couplers, HVAC, electrical systems, lighting, communications, interior and cabling. The rehabilitation will contain the 7000-series interior color scheme and incorporate all ADA improvements.

A commissioning and warranty facility is necessary to reliably test, accept and commission railcars at the rate required by the program schedule. A dedicated facility will provide the capability to test, accept and commission 16 to 20 railcars per month, which allows for the acceptance of up to 748 railcars (including rehabs) within a five-year window. Track availability during non-revenue hours imposes constraints within which the program cannot function.

The following table shows the anticipated delivery schedule for the 7000 Series Railcar Procurement Program, if all options are exercised and the commissioning and warranty facility is functional by FY2012.

		<b>Number of Cars Accepted</b>				
<b>Requirements</b>	<b>Qty</b>	<b>FY 13</b>	<b>FY 14</b>	<b>FY 15</b>	<b>FY 16</b>	<b>FY 17</b>
Railcars	748	36	112	176	228	196

The design has previously been presented to the Jurisdictional Coordinating Committee, the Rider's Advisory Council, the Elderly and Disabled Transportation Advisory Subcommittee and the Planning, Development, and Real Estate Committee.

**FUNDING IMPACT:**

**Expenditure Forecast by Fiscal Year**  
(Dollars in Millions)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
0.5	0.8	9.4	47.8	117.0	81.4	198.4	360.3	440.3	533.5	151.6	31.4	31.4	19.4	11.3	29.7	2,064.3

**RECOMMENDATION:**

Because this is an information item, there is no recommendation at this time. The program will be presented to the Finance, Administration & Oversight committee within the next quarter as an action item requesting authorization to advertise the 64 Dulles Phase 1 rail cars with the remaining program cars as options.



# **7000 Series Railcar Program**

## **Scope, Schedule, Budget**

*Presented to the Board of Directors:*

**Finance, Administration & Oversight Committee**

November 6, 2008



# Purpose

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Planning Our Transportation Future.....

.....next equipment lifecycle going beyond 2050

- **To provide an overview of the program scope, schedule and budget**
- **To inform and facilitate discussion of program requirements, benefits and alternatives**



# Program Goals

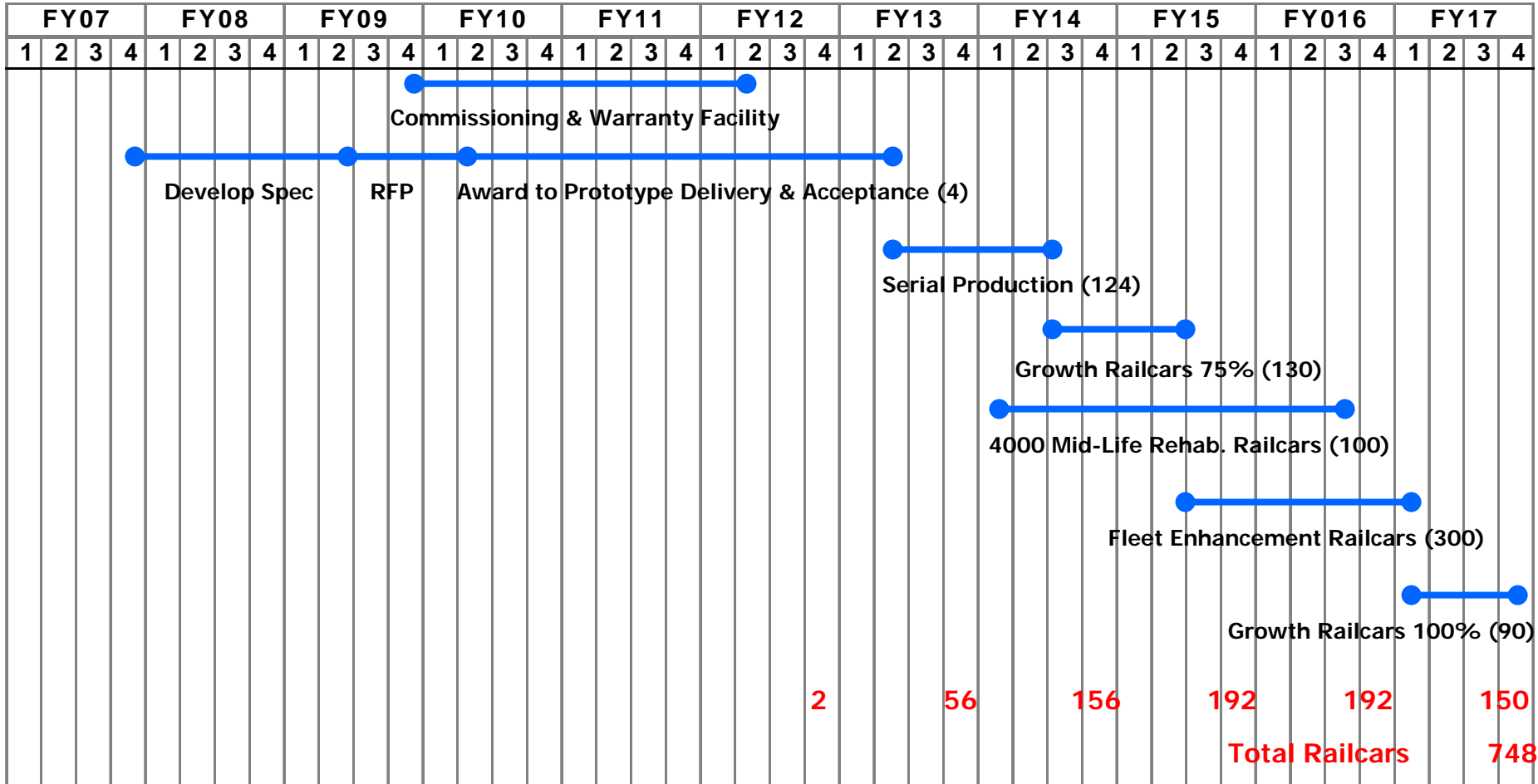
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- Reduce acquisition costs
  - Consolidated procurement of five railcar projects
    - Dulles 64 + 64
    - 300 Fleet Renewal (1000 Series)
    - 130 Growth to 75% Eight-Car Trains
    - 90 Growth to 100% Eight-Car Trains
    - 100 4000 Series Mid-Life Rehabilitation
- Increase capacity
- Reduce operating costs
- Reduce maintenance costs

Changing “Metro Brown” to “Metro Green”



# 7000 Series Railcar Procurement







# Budget

## 7000 SERIES RAIL CAR PROCUREMENT PLAN

### EXPENDITURE FORECAST BY FISCAL YEAR (Dollars in Millions)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
<b>COMMISSIONING &amp; WARRANTY FAC</b>	-	-	-	9.0	51.0	-	-	-	-	-	-	-	-	-	-	-	<b>60.0</b>
<b>DULLES RAIL CARS - 128</b>	0.5	0.8	9.4	37.9	60.9	72.6	144.0	30.4	10.8	5.8	2.8	4.1	5.8	-	-	-	<b>385.7</b>
<b>ROHR REPLACEMENTS - 300 *</b>	-	-	-	-	-	-	-	67.7	339.3	336.2	34.1	19.9	6.9	6.8	10.7	19.5	<b>841.2</b>
<b>GROWTH 75% 8-CAR TRAINS - 130 *</b>	-	-	-	-	-	-	39.6	242.7	38.4	9.4	6.6	0.9	4.7	9.8	-	-	<b>352.2</b>
<b>GROWTH 100% 8-CAR TRAINS - 90 *</b>	-	-	-	-	-	-	-	-	-	134.8	102.3	2.1	10.4	0.9	0.7	10.1	<b>261.2</b>
<b>4000 SERIES MID-LIFE REHAB - 100</b>	-	-	-	0.9	5.1	8.8	14.8	19.4	51.8	47.3	5.8	4.4	3.7	1.9	-	-	<b>164.0</b>
<b>TOTAL 7000 SERIES</b>	<b>0.5</b>	<b>0.8</b>	<b>9.4</b>	<b>47.8</b>	<b>117.0</b>	<b>81.4</b>	<b>198.4</b>	<b>360.3</b>	<b>440.3</b>	<b>533.5</b>	<b>151.6</b>	<b>31.4</b>	<b>31.4</b>	<b>19.4</b>	<b>11.3</b>	<b>29.7</b>	<b>2,064.3</b>

\* Excludes development costs



# Capital Program Cost Savings

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• Consolidated Procurement		\$142,634,000
• Commissioning and Warranty Facility		\$ 72,590,000
• Infrastructure Impact		\$ 5,600,000
Cost Savings - Acquisition		<u>\$ 220,824,000</u>
• The acquisition cost of 748 railcars of each design:		
– 7000 Series Design	\$2,064,250,000	\$2.76M/car
– 6000 Series Design	\$2,139,050,000	\$2.86M/car
• Cost Savings - Design	<u>\$ 74,800,000</u>	<u>3.5%</u>
• Total Cost Savings – Capital		\$295,624,000



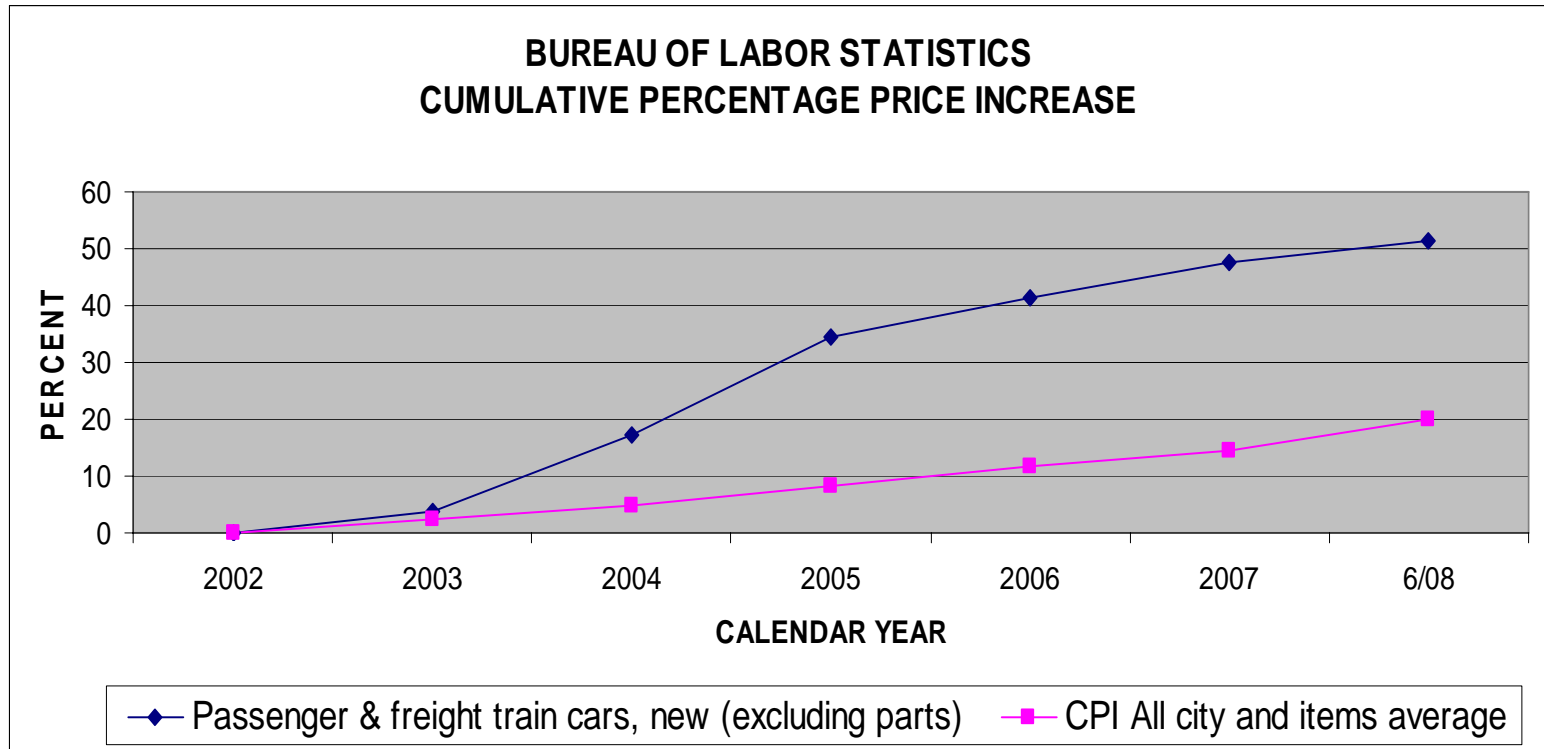
# Operating Program Cost Savings

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• 7-Year Heavy Overhaul Cycle (40 yr)	\$ 55,240,000
• Inventory Management (40 yr)	\$ 54,000,000
• Maintenance for cabs, door operators, electronics (40 yr)	
– Labor	\$ 45,239,000
– Materials	\$ 17,952,000
• Carpet rehab	\$ 53,856,000
• Power Consumption	\$ 13,243,000
Total	<hr/> \$239,530,000



# Escalation Assessment – Historical Data



# 7000 Series Railcar Program

## Next Steps

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- November 2008 – Continue engineering qualification of specification
- November 2008 – Receive Board guidance for 7000-Series specification
- December 2008 – Request approval to initiate a 10-month RFP with award planned for October 2009 for 64 Dulles program vehicles plus several options for the remaining 684 railcars. Options subject to prioritization and availability of funds.
- Spring 2009 – Capital program prioritization

