



Customer Service, Operations and Safety Committee

Board Action Item IV-C

December 7, 2006

Railcars Semi-Annual Update

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

<input type="checkbox"/> Action <input checked="" type="checkbox"/> Information	MEAD Number:	Resolution: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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PURPOSE

To provide a semi-annual update on the work underway on the 2000/3000, 5000 and 6000 series railcars that represents 63% of the WMATA fleet.

DESCRIPTION

2000/3000 SERIES RAILCARS

Manufactured by Breda in the 1980s, a major rehabilitation program is underway to extend the useful life of 364 railcars for another 20 years. This program has experienced delays with past deliveries. However, as of October 31, 2006, ALSTOM has rehabilitated 204 railcars. With recent refocus on quality and closer monitoring, future deliveries, planned at 10 per month, are achievable. The most recent schedule indicates completion in early 2008.

The senior ALSTOM management continues to pledge the necessary resources to resolve the open engineering concerns and the appropriate resources to complete necessary modifications. ALSTOM has implemented a three-phase modification program on-site to enhance railcar reliability and overall performance. Current production schedules are indicating 16 additional months of production to complete delivery.

5000 SERIES RAILCARS

Manufactured by CAF, 192 railcars have been delivered and are in service. These railcars continue to exceed the WMATA performance standards. However, problems with the door system controls have required a continuation of the warranty process. 91% of planned door modifications are complete, with 15 currently underway.

Railcar reliability is steadily improving and mean distance between delays projections are meeting performance goals. Program level discussions with CAF will begin this month to validate remaining open contractual issues.

6000 SERIES RAILCARS

Manufactured by ALSTOM, this program consists of the design, manufacture and delivery of 184 new railcars. To date, ALSTOM has maintained consistent deliveries since the acceptance of the new pilot cars. WMATA's Greenbelt Facility has served as the "on-site testing site for acceptance" and has continued with four railcars weekly through the month of October. The completion date of Fall 2007 is projected to be approximately four months behind schedule, due to a production stoppage created by the center pin issue. Current production at the ALSTOM car shell facility and their Hornell, New York, final assembly shop are meeting schedules.

WMATA is on schedule to receive 50 railcars in revenue by the end of 2006. Production rates of ten to twelve (10-12) railcars monthly are achievable with ALSTOM's attention to quality and critical suppliers for deliveries starting January 2007.

PRECISION STATION STOPPING PROGRAM

Awarded to ALSTOM, this contract was to upgrade the automatic train control system for all railcars and allow rail operations to run 8-car trains throughout the rail system with stopping accuracy of +/-3.5 feet 99.999% of the time. The 5000 fleet serves as the baseline for all fleets, with testing currently 35% complete. Although automatic train operation (ATO) software is onboard all fleets, the validation process will continue for all fleets after the software is validated on the 5000 fleet. Projected completion is planned for early 2007.

ROHR AC TRACTION MOTOR OVERHAUL AND REWIND

Due to poor reliability and performance conditions, this program is to rewind all 1288 Rohr 1000 series railcar traction motors. Currently, the contractor, Mitsui, has completed 1091 motors, with an anticipated completion of Summer 2007. The results have seen dramatic improvement in reliability of the traction motors.

RAILCAR CAPACITY STUDY

This program is to study potential interior changes to the WMATA railcar and would include one (1) 6000 series railcar and reconfiguration of two railcars, with cameras installed on three vehicles to provide a video data sampling of passenger flow and utilization of the proposed modifications. Using the collected data, WMATA would compare this to the baseline 2000/3000 series railcars. The third reconfiguration railcar is in work to be modified and is expected to begin recording by the end of December 2006.

RECOMMENDATION

Focusing on customer service and improved maintainability, reliability and availability, WMATA will continue close Executive Partnering to address key program issues with ALSTOM as well as jointly with its key sub-suppliers. In addition, a Vehicle Engineering Office has been reconstituted, led by a Chief Engineer, to enhance the capabilities of this group. Staff has been transferred from WMATA's Rail Reliability and Technical Services (RRTS) Office to assist in vehicle monitoring and in trending metrics of the railcar fleet. Reliability and Overall performance of the older fleets will continue as railcar engineering has developed in-house rehabilitation capability at the (old) New Carrollton Rehabilitation Facility (NCRF).



RAILCARS SEMI-ANNUAL UPDATE

Presented to the Board of Directors:

**Customer Service, Operations and Safety
Committee**

December 7, 2006



Purpose

- Semi-annual Update on:
 - 2000/3000 Series Railcars Overhaul (364 railcars)
 - 5000 Series Railcars (192 railcars)
 - 6000 Series Railcars (184 new railcars)
 - 7000 Series Railcars (128 new railcars for Dulles)
 - Key Special Projects in Support of Service

WMATA Railcar Fleet Profile

Railcar Manufacturer	Assigned Cars Nos.	Production Dates	Fleet Size # of Railcars	% of Total Fleet
Rohr	1000-1299	1974-1978	296	26%
Breda	2000-2075	1983-1984	76	41%
Breda	3000-3291	1984-1988	288	
Breda	4000-4099	1992-1994	100	
CAF	5000-5191	2001-2004	192	17%
Alstom	6000-6183	2005-2007	(184)*	16%
Total			952 (1136)*	100%

* 184 railcars are presently in production, successful completion of this order will increase the WMATA fleet size to 1,136 railcars by the end of 2007.

2000/3000 Series Railcars

Major Rehabilitation Program: 364 railcars

- **Program Schedule**
 - Cars Received: 212 rebuilt railcars, with a 36 railcar float
 - Estimated Projected Completion Date: Early 2008
- **Budget**
 - Total: \$382M
 - To-date: 69% expended
- **Engineering/Technical Issues**
 - Systems impacting Mean Distance Between Delays (MDBD)
 - Implementation of engineering modifications to improve performance
- **Reliability**
 - MDBD goal of 72,600 miles surpassed in months of September and October 2006
 - September: 74,384 miles
 - October: 84,003 miles
 - Accelerated on-site modifications to improved reliability
- **Safety & Quality**
 - Improved reliability/quality
 - Corrections of supply-chain problems
 - Implementation of effective engineering solutions
- **Look Ahead**
 - ALSTOM's implementation of three-phase modification program on-site
 - Current production schedules indicating sixteen additional months to delivery completion



5000 Series Railcars

Railcar program: 192 railcars

- **Program Schedule**
 - 192 railcars, with last two railcars completing warranty period in Summer 2006
- **Budget**
 - Total: \$383M
 - To-Date: 97% expended; retaining \$8.3M
- **Engineering/Technical Issues**
 - 91% modifications completed; 15 are currently underway.
 - 85% modifications on door roller and limit switches
 - Redesign of door control units: Action planned
- **Reliability**
 - 60% meet contractual performance goals
 - MDBD FY06 nearing 80,000
- **Safety & Quality**
 - Safety certification complete
- **Look Ahead**
 - Rail reliability improving
 - MDBD projections meeting performance goal
 - Program level discussions with CAF began November 2006 to close remaining open contractual issues



6000 Series Railcars

New Railcar Program: 184 new railcars

- **Program Schedule**

- Project completion date of Spring 2008
 - Greenbelt Facility "On-site Acceptance Testing" in process
 - 4 railcars weekly
 - Minimum of 50 railcars in revenue by end of 2006

- **Budget**

- Total: \$378M
- To-Date; 35% (\$131 M) expended

- **Engineering/Technical**

- 103 carshells produced in Barcelona, Spain
- 91 delivered to Hornell, New York
- #75 has entered production

- **Reliability**

- Upgrades, per 2000/3000 and 5000 Series railcars programs

- **Safety & Quality**

- Safety certification has been achieved



7000 Series Railcar PE



- **Program Schedule**

- To provide Dulles Rapid Transit Partners (DRPT) with the preliminary engineering for the rail car specification by year end 2006.

- **Budget**

- Funded by DRPT
- Total \$550K for initial specification development funded by DRPT

- **Engineering / Technical**

- Utilize 6000 Series Specification as baseline with lessons learned
- Workshops held with internal and external stakeholders interior design criteria inputs
- Develop railcar design goals for improved safety, reliability, comfort, efficiency

- **Look Ahead**

- Industry reviews of PE design with further refinement of 6000 Series platform

Key Special Projects

- **Precision Station Stopping Program**
 - Automatic train control system for all railcars for stopping accuracy of +/- 3.5 feet 99.999%
 - 75% testing complete on 5000 series railcars
 - Projected completion: Early 2007 projected
- **Rohr AC Traction Motor Rewind**
 - Overhaul and rewind 1288 1000 Series railcar traction motors
 - 1091 motors completed
 - Projected completion: Summer 2007
- **Railcar Capacity Study**
 - Three alternate interior designs
 - Install cameras on 6000 Series railcars
 - Projected Completion of third reconfiguration railcar: Spring 2007

Look Ahead

- **Continued Focus on Customer Service**
 - External
 - Internal
- **Improved**
 - Maintainability
 - Reliability
 - Availability
 - Engineering Support
- **Continued Executive Partnering with ALSTOM**
- **Continued Utilization of (old) New Carrollton Rehabilitation Facility**