

# 2550 Rail Vehicle Program

December 2007



# **2550 RAIL VEHICLE PROGRAM**

## **QUARTERLY PROJECT STATUS REPORT**

THE PREPARATION OF THIS DOCUMENT HAS BEEN FINANCED IN PART THROUGH A GRANT FROM THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL TRANSIT ADMINISTRATION (FTA), UNDER THE FEDERAL TRANSIT ACT OF 1964, AS AMENDED AND WITH FUNDS FROM THE STATE OF CALIFORNIA

December 2007

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## **PROJECT OVERVIEW**

***The 2550 Light Rail Vehicle Base Contract for a Base order of 50 LRVs was awarded to AnsaldoBreda, S.p.A. of Pistoia and Naples, Italy (A.B.). The 2550 Contract also includes two 50-LRV pre-priced options for future growth, expansions, and new lines. These options are subject to specific U.S. Department Of Labor Producer Price Index escalation and will require future Metro Board approval in order to become a binding contract requirement.***

***As a result of the project status evaluation by the new Project Team, AB has made several changes to AB's Project Management staff organization and increased supervision of the project by the addition of new expert vehicle consultants to AB's team.***

Project accomplishments as of this writing and for December 2007 included:

1. The Project Team continued evaluation of the overall project status. A series of four critical technical items list was identified as a basis of discussions with AnsaldoBreda (AB). Numerous meetings have been held with AB engineers to determine the status and to close engineering open items.
2. The Project Team continued meeting with the new Project Director of AnsaldoBreda, Mr. Fantappie and AB's Senior Project Management members. Metro received AnsaldoBreda's pledge to improve their Final Assembly and Delivery performance.
3. AnsaldoBreda resumed shipment of twelve car shells from Italy to Pittsburg, however, shipment of vehicles from Pittsburg to Los Angeles is on hold until such time as quality and workmanship issues are addressed and vehicle configuration is finalized.
4. The Project Team will focus on Pittsburg Final Assembly Plant issues during the next site inspection scheduled in mid-January 2008.
5. To date Metro has received a total of nine (9) vehicles at Los Angeles from the Pittsburg Final Assembly Facility. Further to date twelve (12) vehicles are at Pittsburg Facility. An additional 12 car shells are on route from Pistoia, Italy to Pittsburg, CA. for a total of 54 car shells (enough for 27 vehicles) shipped to USA from Italy. One additional car (#703) is held in Italy to be used as a test car until such time as all qualification testing have been approved.
6. AB informed Metro that all future shipments of car shells from Italy to U.S. will use American Flag Vessels.
7. During this period several tests have been completed by AB with Metro participation. These included Floor Sample Fire Test, ATP/TWC Tests, Formal Conductive and Inductive EMI Test, etc. Further, Metro/AB conducted Static Tests for CPUC's staff in compliance with CPUC General Order 143.
8. Vehicle coupling interference issues were resolved and AB demonstrated successful coupling between P2550 vehicles as well as coupling P2550 with P2000 vehicles.

## **MANAGEMENT ISSUES**

**Concern No. 1:** The Project Team was concerned about AnsaldoBreda's (AB) inability to utilize American Flag Vessels as required by the Contract. Compliance requires that 50% of the shipments to the U.S. be on American Flag Vessels.

**Status/Action No. 1:** The total quantity of carshells required to complete the 50 vehicles is 100. To date, 40 have been shipped via non-US carriers and two shipped via air freight. AnsaldoBreda recently reached agreement with Maersk Lines to ship all remaining 58 carshells using U.S. Flag Vessels. In November and December 2007, 12 carshells were shipped under this new agreement. Metro's concern regarding shipment via US carriers is resolved as AnsaldoBreda has committed to making all future shipments under this agreement. Metro will continue monitoring shipments to assure compliance but for purposes of reporting, this matter is closed.

**Concern No. 2:** The AnsaldoBreda proposed revised "worse-case" schedule displays a considerable slip in the Contract Schedule but still sufficient to meet the operational schedules of the next two light rail lines that are scheduled for substantial completion from 2009 onward. This schedule is currently under revision.

**Status/Action No. 2:** In order to better assess project schedule and to be in a position to evaluate the scope of the work required to accept the first vehicle, the Project Team tasked AB to provide a realistic schedule to have two vehicle (#706 and #708) ready for revenue service. In response AB has proposed a working schedule to accomplish specific tests in order to have the above cars ready for revenue service prior to the end of December 2007. The Project Team has been working with AB and facilitating testing to accomplish the schedule's objectives. However, further delays have occurred as a result of delays in achieving EMI limits, closing critical open items of ATP/TWC Systems. Further, despite numerous Metro formal requests, Metro has not received all documentation necessary to complete the CPUC required specification conformance check list. Metro has formally requested AB to submit an updated Project Schedule.

**Concern No. 3:** The car-borne signaling system is a concern to the Project Team based upon Metro's experience with the same firm, US&S, on the previous LRV procurement. The concern is primarily with the software development by US&S for different Automatic Train Protection (ATP) and Train to Wayside Communications (TWC) for the three Metro light rail systems.

**Status/Action No. 3:** On the 2550 Contract, US&S is a wholly owned subcontractor of AnsaldoBreda instead of totally separate contractor as they were on the previous LRV procurement. Several meetings and conference calls have been held by the new Project Team with AB and US&S to assess the status of technical open items and plan for corrective actions. Both field testing and simulated laboratory testing were conducted in November and December. Though several open items have been closed as a result of above mentioned meetings and testings, three critical open items remains to be addressed by AB/US & S. Metro expects AB's proposal of resolution of open item in January 2008.

**2550 Rail Vehicle Program  
Quarterly Project Status Report**

**December 2007**

**P2550 LIGHT RAIL VEHICLE CONTRACT & PROPOSED DELIVERY SCHEDULE**

No. Of Cars	VEHICLE NUMBER	CONTRACT DELIVERY REQUIREMENT - MONTHS AFTER JUNE 6, 2003 NTP	CONTRACT REQUIRED DELIVERY DATE (End of Month)	UNAPPROVED DELIVERY SCHEDULE	ACTUAL DATE OF ARRIVAL AT METRO	ACTUAL DELIVERY DATE	ACTUAL ACCEPTANCE DATE
1	701	24 MONTHS	JUNE/05	6/15/05	6/11/05		
2	702	24 MONTHS	JUNE/05	7/22/05	7/26/05		
3	705	26 MONTHS	AUGUST/05	10/31/06	1/09/07*		
4	704	27 MONTHS	SEPTEMBER/05	11/30/06	1/30/07*		
5	706	28 MONTHS	OCTOBER/05	12/31/06	2/28/07*		
6	707	28 MONTHS	OCTOBER/05	12/31/06	5/31/07*		
7	708	29 MONTHS	NOVEMBER/05	1/31/07	6/20/07*		
8	709	29 MONTHS	NOVEMBER/05	1/31/07	7/31/07*		
9	710	30 MONTHS	DECEMBER/05	2/28/07	8/30/07*		
10		30 MONTHS	DECEMBER/05	2/28/07			
11		31 MONTHS	JANUARY/06	3/31/07			
12		31 MONTHS	JANUARY/06	3/31/07			
13		32 MONTHS	FEBRUARY/06	4/30/07			
14		32 MONTHS	FEBRUARY/06	4/30/07			
15		33 MONTHS	MARCH/06	4/30/07			
16		33 MONTHS	MARCH/06	5/31/07			
17		34 MONTHS	APRIL/06	5/31/07			
18		34 MONTHS	APRIL/06	5/31/07			
19		35 MONTHS	MAY/06	6/30/07			
20		35 MONTHS	MAY/06	6/30/07			
21		36 MONTHS	JUNE/06	6/30/07			
22		36 MONTHS	JUNE/06	7/31/07			
23		37 MONTHS	JULY/06	7/31/07			
24		37 MONTHS	JULY/06	7/31/07			
25		38 MONTHS	AUGUST/06	8/31/07			
26		38 MONTHS	AUGUST/06	8/31/07			
27		39 MONTHS	SEPTEMBER/06	8/31/07			
28		39 MONTHS	SEPTEMBER/06	9/30/07			
29		40 MONTHS	OCTOBER/06	9/30/07			
30		40 MONTHS	OCTOBER/06	9/30/07			
31		41 MONTHS	NOVEMBER/06	10/31/07			
32		41 MONTHS	NOVEMBER/06	10/31/07			
33		41 MONTHS	NOVEMBER/06	10/31/07			
34		42 MONTHS	DECEMBER/06	11/30/07			
35		42 MONTHS	DECEMBER/06	11/30/07			
36		42 MONTHS	DECEMBER/06	12/31/07			
37		43 MONTHS	JANUARY/07	12/31/07			
38		43 MONTHS	JANUARY/07	1/31/08			
39		43 MONTHS	JANUARY/07	1/31/08			
40		44 MONTHS	FEBRUARY/07	2/28/08			
41		44 MONTHS	FEBRUARY/07	2/28/08			
42		44 MONTHS	FEBRUARY/07	3/31/08			
43		45 MONTHS	MARCH/07	3/31/08			
44		45 MONTHS	MARCH/07	4/30/08			
45		45 MONTHS	MARCH/07	4/30/08			
46		46 MONTHS	APRIL/07	5/31/08			
47		46 MONTHS	APRIL/07	5/31/08			
48		46 MONTHS	APRIL/07	6/30/08			
49		47 MONTHS	MAY/07	6/30/08			
50		47 MONTHS	MAY/07	7/31/08			

\* Note: The Contract defines "Delivery" as arrival at Metro in a final production configuration that allows Metro to immediately commence inspection and pre-acceptance testing. Vehicles that arrive and require further Contractor labor to achieve final production configuration are NOT considered DELIVERED for the purposes of Delivery payment until production configuration is achieved. Project Team's goal is that all future shipments from AnsaldoBreda/Pittsburg be in final configuration.

## **SCHEDULE ISSUES**

*Notice to Proceed was given June 6, 2003. The base contract engineering effort was scheduled to take approximately two years and delivery of the first two cars was scheduled for June 2005. The 50 car base contract funding was divided between Metro (40 cars) and the FTA (10 cars). The last (fiftieth) base contract LRV was scheduled for delivery 48-months after NTP, or approximately May 2007.*

Status as of this writing follows:

This is a performance-based contract under which compensation is only paid when deliverables are received and approved by Metro. Compensation for contract milestone completion is an ongoing process directly related to Contractor performance. While progress is continuing, sufficient accomplishment for payment of Contract payment milestones lags behind. Performance improvement is promised by AnsaldoBreda Project Director, with the addition of more engineering staff at the Pittsburg, California Final Assembly Facility and Project Management staff at Pistoia Italy.

Subsequent to several meetings by Metro Management with AB Management, AB proposed a best effort schedule for delivery of two (2) vehicles (#706 and #708) for conditional acceptance by Metro by mid-December 2007. However, due to lingering technical difficulties with EMI testing and ATP/TWC Testing, the December schedule is being updated to incorporate new schedule dates.

Some of the known time critical and technical/safety related issues that remain to be resolved to achieve the above conditional acceptance schedule are:

- **Vehicle Electro Magnetic Interference (EMI) Test.** Testing of vehicle EMI is ongoing. Though progress was made in November and December, AB is pursuing additional corrective measures to mitigate the remaining specification non-compliance items as of this writing. Tests are scheduled for mid-January 2008.
- **Safety Certification and CPUC requirement compliance.** In order for MTA to perform safety compliance check and obtain CPUC Certification, AB must provide documentation and test reports to demonstrate compliance. AB has successfully conducted a Floor Fire Endurance Test in the second half of November 2007. However, AB is still gathering smoke and toxicity documentation for Metro's approval.
- **Formal Burn-in tests.** A 1,000 mile vehicle Burn-in test is scheduled once the vehicles #706 and 708 have been delivered to Metro for Acceptance Testing. The testing consists of running simulated revenue service as a prerequisite to actual revenue service. However, to expedite the Burn-in Tests and allow AB to gain simulated revenue service operation experience, Metro initiated a Burn-in Program on cars 706 and 708 in January. AB is gathering valuable data on vehicles as a result of revenue simulated revenue service operations.

## **SCHEDULE ISSUES**

Presently nine (9) vehicles have arrived at the MTA's shop facilities. Cars #701 and 702 remain at Metro Green Line facilities and used primarily for Operations and Maintenance staff training. The remaining seven (7) vehicles are located at Metro Gold Line facilities. Vehicles are used for various testing referenced above. Additional work is being performed on vehicles 706 and 708 to address quality and workmanship open items for preparation for conditional acceptance of these vehicles. Metro is planning to return cars #701 and 702 to Pittsburg for upgrade during the first quarter of 2008.



**PROJECT BUDGET STATUS**

<b>ELEMENT</b>	<b>LRV PROJECT BUDGET FOR 800151 (40 LRV'S)</b>	<b>LRV PROJECT BUDGET FOR 800088 (10 LRV'S)</b>	<b>TOTAL LRV PROJECT BUDGET</b>	<b>COMMENTS</b>
<b>Base Buy 50 LRVs</b>	\$119,734,000	\$29,933,500	\$149,667,500	
<b>Base Buy Spare Parts</b>	\$5,849,886	\$1,462,471	\$7,312,357	
<b>Base Buy Special Tools &amp; Test Equip</b>	\$1,407,051	\$351,763	\$1,758,814	
<b>Subtotals</b>	\$126,990,937	\$31,747,734	\$158,738,671	
<b>Contingency</b>	\$12,699,094	\$3,174,773	\$15,873,867	
<b>Subtotals</b>	<b>\$139,690,031</b>	<b>\$34,922,507</b>	<b>\$174,612,538</b>	
<b> </b>				
<b>Rail Consultant</b>	\$6,870,830	\$1,717,707	\$8,588,537	Contract PS 8310-1267 for Rail Consultant staff technical services
<b>Contingency</b>	\$343,542	\$85,885	\$429,427	
<b>Subtotals</b>	<b>\$7,214,372</b>	<b>\$1,803,592</b>	<b>\$9,017,964</b>	
<b> </b>				
<b>MTA Staff</b>	<b>\$6,014,602</b>	<b>\$1,577,798</b>	<b>\$7,592,400</b>	
<b>TOTALS</b>	<b>\$152,919,004</b>	<b>\$38,303,898</b>	<b>\$191,222,902</b>	

To be revised to show reduction in awarded Contractor value resulting from a sales tax exemption on rail cars (Granted by the California State Board of Equalization).

Fiscal Year Cashflow Table (Milestone Payment) is currently under review.

**FINANCIAL/GRANT STATUS**

DECEMBER 2007		STATUS OF FUNDS BY SOURCE							
SOURCE	(A) ORIGINAL BUDGET	(B) TOTAL FUNDS ANTICIPATED	(C) TOTAL FUNDS AVAILABLE	(D) (D/B) COMMITMENTS		(E) (E/B) EXPENDITURES		in \$ millions (F) (F/B) BILLED to FUNDING SOURCE	
				\$	%	\$	%	\$	%
FEDERAL - STIP	71.1	15.4	15.4	15.4	100%	15.4	100%	15.4	100%
FED-SEC 5309 FIXED GUIDEWAY	38.3	25.9	25.9	25.9	100%	25.9	100%	25.9	100%
FEDERAL - RSTP	7.7	7.7	7.7	7.7	100%	0.0	0%	0.0	0%
FEDERAL - CMAQ	14.2	14.2	14.2	14.2	100%	0.0	0%	0.0	0%
STATE STIP	6.0	61.7	61.7	57.7	93%	12.5	20%	10.3	18%
STATE STA	15.6	15.6	12.2	15.6	100%	12.2	78%	8.6	55%
PROPOSITION A 35% BONDS	0.0	12.3	0.0	0.0	0%	0.0	0%	0.0	0%
UNBILLED ACRUALS									
<b>TOTAL</b>	<b>152.9</b>	<b>152.9</b>	<b>137.1</b>	<b>136.5</b>	<b>89%</b>	<b>66.0</b>	<b>43%</b>	<b>60.3</b>	<b>39%</b>

(1) Based on September 06 Regional Programming Funding Plan.  
 Note: Expenditures are cumulative through November 2007.  
 The 2550 Rail Vehicle Program consists of 40 light rail vehicles (LRV) and associated costs. The remaining 10 LRV's and associated costs under Contract P2550 are being charged directly against the Metro Gold Line Eastside Extension Project.

**STATUS OF FUNDS ANTICIPATED**

**STIP STATE:** LACMTA requests for STIP allocation have been approved. \$61.73 million is available for drawdown.

**FEDERAL SECTION 5309:** LACMTA grant applications have been approved. \$25.9 million in section 5309 funds were approved. Funds have been drawdown.

**FEDERAL RSTP:** A grant agreement for \$7.7 million was executed on April 7, 2005. Funds are available for drawdown.

**FEDERAL CMAQ:** A grant agreement for \$14.2 million was executed on August 25, 2005. Funds are available for drawdown.

**STATE TCA:** An additional \$3.544 million is available in FY09 for drawdown.

## CURRENT PHOTOS



2550 LRV Coming Around the Curve into Union Station.



2550 LRV at Metro Gold Line Yard with Decals for LA Olympic Bid.

## **APPENDIX**

### **COST AND BUDGET TERMINOLOGY**

**COMMITMENTS:** The total of actual contract awards, executed change orders or amendments, approved work orders of Master Cooperative Agreements, offers accepted for purchase of real estate, and other Metro actions that will result in specific expenditures at a future time.

**INCURRED COST:** The total value of work performed to date of services received and acquired materials or properties.

**EXPENDITURES:** The total dollar amount of checks written by Metro's Accounting department for contractor or consultant invoices, third party invoices, staff salaries, and closing payments for escrow accounts that is reported in Metro's Financial Information System (FIS).

**CONSTRUCTION:** Includes guideways, yards and shops, systems equipment, stations, and vehicles.

**PROFESSIONAL SERVICES:** Includes general engineering, construction management services, consultant design support services during construction, legal counsel, and agency (Metro staff) costs.

**CONTINGENCY:** A fund established at the beginning of a project to provide for anticipated but unknown additional costs that may arise during the course of the project.

**SPECIAL CONDITIONS:** Includes utilities relocation, environmental compliance and mitigation, master cooperative agreements, insurance program, artwork, systems integration testing and pre-revenue operations.

**APPENDIX  
LIST OF ACRONYMS**

<b>ATP</b>	Automatic Train Protection
<b>CN</b>	Change Notice
<b>CO</b>	Change Order
<b>CMAQ</b>	Congestion Mitigation & Air Quality
<b>CTC</b>	California Transportation Commission
<b>FFGA</b>	Full Funding Grant Agreement
<b>FIS</b>	Financial Information System
<b>FTA</b>	Federal Transit Administration
<b>FY</b>	Fiscal Year
<b>HVAC</b>	Heating, Ventilation, Air Conditioning
<b>LACMTA</b>	Los Angeles County Metropolitan Transportation Authority (Metro)
<b>LNTP</b>	Limited Notice To Proceed
<b>LRV</b>	Light Rail Vehicle
<b>METRO</b>	Los Angeles County Metropolitan Transportation Authority
<b>MGLEE</b>	Metro Gold Line Eastside Extension
<b>N/A</b>	Not Applicable
<b>NTE</b>	Not to Exceed
<b>NTP</b>	Notice To Proceed
<b>PGL</b>	Pasadena Gold Line
<b>PMOC</b>	Project Management Oversight Consultant
<b>QPSR</b>	Quarterly Project Status Report
<b>RSTP</b>	Regional Surface Transportation Program
<b>SSPP</b>	System Safety Program Plan
<b>STIP</b>	State Transportation Improvement Program
<b>TBD</b>	To Be Determined
<b>TWC</b>	Train to Wayside Communications
<b>US&amp;S</b>	Formerly Union Switch and Signal