

PATH Integrated Railcar and Signal System Replacement Program

Overview and Status

**American Public Transportation
Association**

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Douglas Dreisbach

Program Manager, PATH

Integrated Railcar and Signal System Replacement Program Elements



	Total Project Costs
	<u>(In Millions)</u>
340 New Railcars	\$ 779.2
Maintenance Facility Renovations/Updates	17.4
Phase I – Signal System ATC Demonstration	12.0
Phase II – Signal System ATC Purchase/Installation	<u>580.0</u>
Total Authorization	\$ 1,388.6

Background

Breakdown of Original Fleet



FLEET ID	NUMBER OF CARS	DATE	DESIGN LIFE-YRS	Age at 2010	*PLANNED RETIREMENT
PA-1	162	1965	30	45	2010
PA-2	44	1967	30	43	2010
PA-3	46	1972	30	38	2010
PA-4	95	1986	30	24	**2030
TOTAL	347				
** With proposed remanufacture to extend useful life 20 years after remanufacture					

New Railcar Design Considerations

Existing Operations

- **Engineer and Conductor**

Options Studied

- **Fully Automatic Operation**
- **One Person Operation**
- **Two Person Operation**

Choice

- **Design for One or Two Person Operation**
 - **Initial two person**
 - **Full width cab in control cars will permit operator to open and close doors with or without ATC**
 - **Preserve flexibility in future choices**



New Railcar Design Considerations

Other Features

- Retain vehicle configuration
 - A-car (powered with cab)
 - C-car (powered without cab)
- AC propulsion
- ADA compliance
- Advanced diagnostics capability
- Automated on-board train announcements
- On-board video recording
- Integrated design to accept ATC in the future



New Railcar Procurement Process



- Publicly advertised “Best Value” Request for Proposal
- Pre-determined RFP evaluation criteria and weights included:
 - Technical
 - Cost
 - Experience & Business Risk
 - Local Content

New Railcar Procurement Strategy

<u>Two Proposals Explored</u>	<u>New Cars</u>		<u>Rehab PA-4s</u>		<u>Total Base</u>
Base Proposal	246	+	94	=	340
Alternative Proposal	340	+	0*	=	340

- Manufacturers required to remove all older cars from property.
- * Potential cost sharing from sale of PA-4 cars

(Scoring for cost of alternative proposal was adjusted to normalize the difference in vehicle useful life vs. the base proposal)

After initial evaluation and scoring, Alternate Proposal was the most cost effective and received the highest score for each Proposer.

Railcar Contract Award – March 31, 2005



The PA Board of Commissioners authorized the award of contract to:

- Kawasaki Rail Car, Inc. of Yonkers, NY for the manufacture of 340 new PATH railcars in the amount of \$499 million
- LTK/PTG, a joint venture, for program management and other critical support in connection with the implementation of the Railcar and Phase I Signal System Replacement Program



Current Status of the Railcar Project

- As of June 8, 2011:
 - 305 cars have been delivered, 277 conditionally accepted.
 - 35 cars are expected in 2011, which will complete 340 cars
 - 197 cars have been decommissioned and removed to date.
- Option exercised to purchase an additional 10 railcars (A-cars w/cabs), which will be delivered in 2012, bringing the total to 350 new railcars



Signal System Replacement Project

Goals



Replace antiquated fixed block signal system with a state-of-the-art Automatic Train Control (ATC) System using Communications-Based Train Control (CBTC) System to:

- Ensure long-term system viability, reliability, and avoid obsolescence
- Enhance safety through continuous overspeed protection
- Meet FRA Positive Train Control (PTC) legislation
- Improve customer service by providing real-time train location information and smoother train operation
- Reduce headways, increase throughput and system capacity by up to 20%



Phase I Signal System Demonstration

Scope of Work



Phase I - Approach

- Prepare outline procurement specifications
- Competitively select 3 signal suppliers, each contract at \$1 million
- Each supplier defines how their service-proven signal system could be adapted for PATH
- Suppliers also work with PATH/Consultant/Railcar Builder in defining vehicle interfaces
- Limited trials/demonstrations of the supplier's proposed technology
- Successful suppliers permitted to bid on Phase II

Phase I Signal System Demonstration

Scope of Work



Phase I - Deliverables

- PATH Specific Adaptation Report
- Headway/Capacity Analysis Report
- Safety Certification Strategy Report
- Technical Cut-Over Strategy Report
- Implementation Plan
- Training Recommendations

Phase I results would minimize technical, schedule and costs risks for Phase II

Phase II Signal System Replacement ATC Installation – Scope of Work



- Replace signal equipment on 43 track miles, 13 interlockings and 13 stations
- Install CBTC equipment on PA-5 A-cars
- Install equipment for primary and secondary Control Centers, equipment rooms, new data communications system and signal power system
- Provide hardware and software documentation, training, and safety certification
- Remove portions of the existing signal system



(PA-5 Engineer's Cab)

Signal System Contract Award

– October 22, 2009



The PA Board of Commissioners authorized the award of contract the PATH Signal Project, Phase II to:

Authorized the Award of Contracts for:

- Design, Manufacturer and Installation of Automatic Train Control System (\$321 million)
 - Awarded to The Siemen's Team
- Expert professional program management services
 - Awarded to Booz, Allen, Hamilton, Inc.
- FRA required independent safety assessment service and certification of the safety standards and procedures
 - Awarded to The Rail Safety Consulting, LLC

Current Status of the Signal Project

As of June 9, 2011:

- Conceptual Design Review has been completed
- Preliminary Design Review has been completed
- Final Design Review underway
- A Test Signal Control Bungalow is being developed

Overall, the Railcar and Signal System Replacement Projects will enable the implementation of system capacity enhancement consistent with WTC Site build-out.

Overlay of Project Schedules, including WTC Site



Railcar Project

Signal Project, Phase I

Signal Project, Phase II

Newark-WTC

Remaining system

Prior	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
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National 9-11 Memorial

Tower 1 - Freedom Tower

PATH Transportation Hub

Full Build out of the WTC Complex



Redevelopment of the WTC Site

The WTC Site as of June 7, 2011

