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ACELA CAR PURCHASE:

Future Revenue Estimates Were Initially Overstated

Report No. OIG-E-2012-010 | March 28, 2012

AMTRAK
NATIONAL RAILROAD
PASSENGER CORPORATION

Office of Inspector General

Memorandum

To: Emmett H. Fremaux, Jr., VP, Marketing & Product Development
Gordon L. Hutchinson, Acting Chief Financial Officer

From: Calvin Evans, Assistant Inspector General, Inspections and Evaluations

Date: March 28, 2012

Subject: *Acela Car Purchase: Future Revenue Estimates Were Initially Overstated* (Report No. OIG-E-2012-010)

Acela Express trains provide high-speed, business and first-class intercity rail transportation on the Northeast Corridor between Washington, D.C.; New York City; and Boston, making 188 trips between these cities during a normal week. Acela is Amtrak's single largest source of revenue, generating about $492 million (26 percent) of Amtrak's overall ticket revenue of about $1.9 billion for Fiscal Year (FY) 2011 from about 3.4 million riders. Amtrak expects the demand for Acela to continue to increase, with about 47.8 million potential riders between FY 2012 and FY 2023 generating about $7.8 billion in potential revenue.

Amtrak is concerned that it will not be able to meet this demand with Acela's current passenger capacity and, therefore, plans to increase the capacity of its Acela trains. An Acela trainset consists of two power cars, one first class passenger car (44 seats), one café car, and four business class passenger cars (65 seats each). Amtrak plans to increase the business class capacity of each train by 50 percent (130 seats) by adding two new business class cars to each train in FY 2015. As of January 12, 2012, Amtrak expected that it will cost about $350 million to procure the 40 new cars, upgrade maintenance facilities to accommodate the longer trains, and acquire spare parts for the new cars. Amtrak previously stated[1] that the costs and expected revenue associated with this acquisition would be incorporated into its FY 2012-2016 *Five Year Financial Plan* when published.

[1] See Amtrak's *Revised FY 2011–2015 Five Year Financial Plan*, June 23, 2011.

This report discusses our analysis of the revenue projections contained in Amtrak's business case supporting the decision to acquire the 40 new cars. We focused on Amtrak's revenue projections as of August 31, 2011, but also discuss the company's revenue projections as of January 12, 2012, which were revised in response to briefings we provided in October and December 2011 on our methodology and preliminary findings.[2] For a detailed discussion of our scope and methodology, see Appendix I. We performed this evaluation in accordance with our statutory responsibilities contained in the Inspector General Act of 1978, as amended.

AMTRAK SIGNIFICANTLY OVERESTIMATED REVENUE TO BE CAPTURED BY THE NEW CARS

In its August 2011 projection, Amtrak overestimated the revenue that the 40 new cars would capture. In preparing the business case for the procurement of the new cars, Amtrak estimated that these cars would enable it to capture about $1.05 billion more in revenue than it could with the current Acela trainsets between FY 2015 and FY 2023. In developing this estimate, Amtrak assumed that a train that was currently sold out, on average, on any day, on any station-to-station segment of a trip, would be sold out in the future *every* day it ran for the *entire* length of its trip and, therefore, could not accommodate any additional riders. According to Amtrak officials, the assumption was made to simplify their analysis, but we questioned the validity of the assumption and undertook our own analysis to determine the effect of that assumption on Amtrak's revenue estimate.[3]

This assumption, according to our analysis, significantly inflated the estimate of the revenue that would be captured by the new cars. Using Amtrak's available data on actual ridership on Acela trains during the 12-month period between July 1, 2010 and June 30, 2011, we found that Amtrak's simplifying assumption significantly overestimated the number of trains that would be sold out in the future, thereby underestimating the number of potential passengers and associated revenue that could be accommodated by the current Acela trainsets. This resulted in Amtrak overstating the revenue that would be captured by the new cars by about $425 million. Figures 1 and 2 graphically depict Amtrak's August 2011 estimate and our estimate of the potential revenues the new cars could capture.

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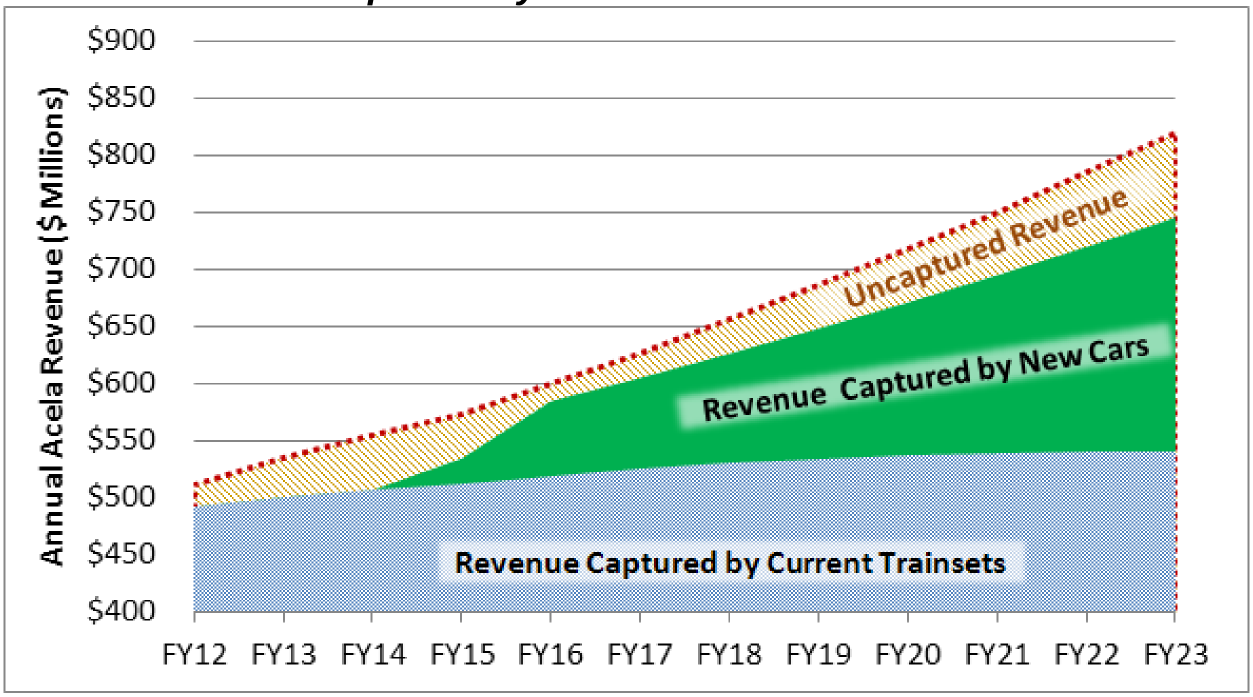
[2] Since its original revenue estimate of about $1.4 billion in December 2010, Amtrak has revised its estimate of the revenue attributable to the additional cars several times.

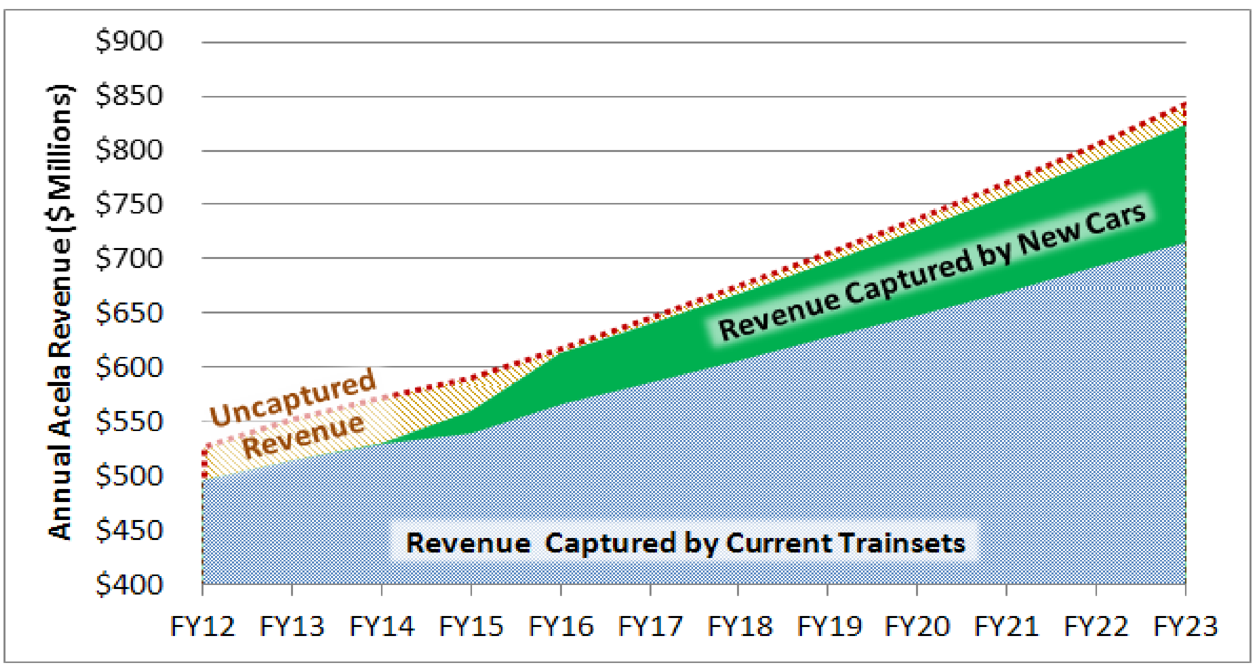
[3] See Appendix I for a description of our methodology and analysis.

Figure 1. Amtrak Estimate of Revenue between FY 2012 and FY 2023 Captured by Additional Acela Cars



Source: OIG, based on Amtrak's analysis

Figure 2. OIG Estimate of Revenue between FY 2012 and FY 2023 Captured by Additional Acela Cars



Source: OIG, based on analysis of Amtrak data

We discussed our methodology and preliminary findings with Amtrak officials in October and December 2011. Since then, Amtrak has eliminated its simplifying assumption and recalculated its revenue estimate based on actual ridership for individual trains in a manner similar to ours. Amtrak's revised methodology appears to have addressed our concerns. Amtrak also revised some of its other assumptions about ridership and ticket price growth, and extended the estimate of the life of the new cars that was stated in its February 2011 *Fleet Strategy*[4] from FY 2023 to FY 2025.

CONCLUSIONS

We commend Amtrak for revising its methodology and incorporating a more detailed approach to estimating the revenue captured by the additional cars. Amtrak's experience in developing the revenue estimate emphasizes the importance of utilizing a process that accurately considers the current capacity of the existing fleet when analyzing the benefit of major procurements to expand the capacity of the fleet. It also highlights the need to ensure that capital investment decisions are consistent with financial and strategic plans.

RECOMMENDATIONS

To incorporate lessons learned from developing the estimate of the revenue attributable to the 40 Acela cars and ensure that the final revenue estimate and life of the cars are integrated into Amtrak's future budgeting and planning decisions, we recommend that the

1. Vice President, Marketing & Product Development, develop a standard framework for explicitly incorporating capacity constraints into future revenue estimates.

2. Chief Financial Officer ensure that the revised revenue projections and other financial data for the new cars are integrated into the next version of the *Five Year Financial Plan*.

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[4] See *Amtrak Fleet Strategy: Building a Sustainable Fleet for the Future of America's Intercity and High-Speed Rail Passenger Railroad*, February 2011.

3. Chief Financial Officer integrate the revised retirement date for the current Acela trainsets and new cars into the next revision of Amtrak's *Fleet Strategy*.

MANAGEMENT COMMENTS AND OIG ANALYSIS

In commenting on a draft of this report, management agreed with our recommendations and committed to incorporating capacity constraints, as appropriate, into future revenue estimates for major procurements of equipment. Management also stated that the results of the business case for the purchase of the 40 Acela cars have been included in budgeting and planning documents. These actions are responsive to our recommendations.

Amtrak's letter commenting on the draft report is reprinted as Appendix II.

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Thank you for your cooperation during the course of this evaluation. If you have any questions, please contact me (calvin.evans@amtrakoig.gov, 202.906.4507) or Jason Venner, Senior Director, Inspections and Evaluations (jason.venner@amtrakoig.gov, 202.906.4405).

cc: Joseph H. Boardman, President & CEO
Donald A. Stadtler, Jr., Acting Vice President, Operations
Stephen Gardner, VP, NEC Infrastructure and Investment Development
Matthew F. Hardison, Chief, Sales Distribution and Customer Service
Sharyn Seitz, Assistant Vice President, Financial Planning
Jessica Scritchfield, Senior Director, Internal Controls/Audit

Appendix I

Scope and Methodology

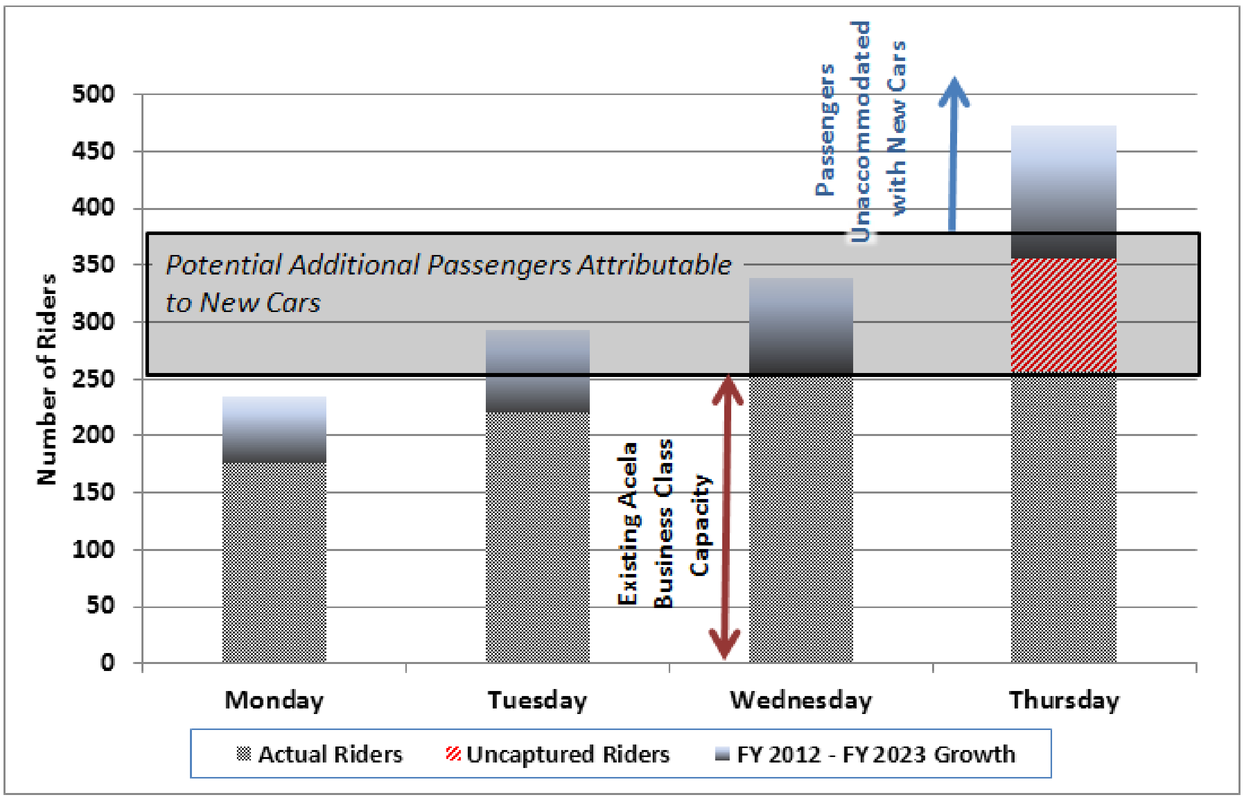
This report discusses our analysis of the revenue projections contained in Amtrak's business case supporting the decision to acquire the 40 new Acela cars. During the course of this evaluation, we learned that Amtrak was planning to apply for a loan in early 2012 from the Federal Railroad Administration to fund this acquisition. Due to the time-sensitive nature of the loan application, we focused our review on Amtrak's revenue projections as of August 31, 2011, and decided to report on the matter now. We performed our work from July 2011 through January 2012.

To address our objective, we obtained and reviewed several versions of Amtrak's revenue projections and supporting data files from December 2010 through January 2012. We discussed with officials from Amtrak's Marketing and Finance departments their roles and responsibilities in developing the methodology used for projections and how the methodology changed over time. We determined that the data in the August 2011 revenue estimate were reliable for the purposes we used them for in the evaluation by verifying that these data were consistent with Amtrak's publicly-released annual ridership and revenue statistics. To analyze the estimate, we compared future revenue projections against past trends and reviewed assumptions of potential changes affecting those trends. We also reviewed Amtrak's criterion for attributing revenue to the additional cars, and then analyzed how it applied the criterion to train ridership statistics. In so doing, we determined that the methodology used in August 2011 to project revenue overstated the number of Acela trains that were sold out between July 1, 2010, and June 30, 2011.

To determine the significance of Amtrak's assumption about revenue, we developed a different methodology to estimate the revenue that the additional cars could capture. We started with the actual ridership on the peak segment of each individual train trip between July 1, 2010, and June 30, 2011. If Amtrak estimated that a train, on average, turned passengers away during this period, we added this estimate to the peak-segment passenger count. We then projected the future demand through FY 2023 using Amtrak's 2.3-percent annual ridership growth estimate. We calculated the number of passengers on each trip that the existing Acela trainsets could accommodate, the number of passengers who could be accommodated only with the additional cars, and the number of potential passengers that would exceed the capacity of the additional cars, to determine when demand would exceed current and future capacity. To estimate the revenue captured by the additional cars in each year, we multiplied each of the three categories by the expected ticket price. We compiled the totals for each year to calculate the annual revenue figures.

Figure 3 illustrates the demand portion of our methodology using an actual 4-day sample of riders on Train 2172—the weekday 4pm departure from Washington to New York City—between Monday, July 26, 2010, and Thursday July 29, 2010. The Monday train will not exceed its current capacity through FY 2023. The Tuesday train will exceed its current capacity in 2017, but will not exceed the additional capacity of two extra cars by FY 2023. Demand for the Wednesday train currently exceeds capacity by three passengers, and therefore could immediately use additional capacity, but still will not exceed the additional car capacity by FY 2023. Lastly, the Thursday train substantially exceeds its current capacity and future demand will exceed the additional seats provided by the two additional cars.

Figure 3. OIG Methodology for Projecting Ridership Growth



Note: Sample data; actual business-class peak-segment riders for Train 2172 for July 26–29, 2010
Source: OIG analysis of Amtrak Marketing data as of 9/20/2011.

We adjusted our methodology to consider other factors. This included adjustments for holidays, passengers buying tickets in business class because first class was sold out, other Amtrak trains recapturing revenue from passengers who may spill over from sold-out Acela trains, and potential additional revenue from non-peak-segment trips.

We performed this work in accordance with government *Quality Standards for Inspection and Evaluation* and our statutory responsibilities contained in the Inspector General Act of 1978, as amended.

Appendix II

COMMENTS FROM AMTRAK'S ACTING CHIEF FINANCIAL OFFICER AND VP, MARKETING AND PRODUCT DEVELOPMENT

NATIONAL RAILROAD PASSENGER CORPORATION

Memo

AMTRAK

Date	March 21, 2012	From	Gordon L. Hutchinson, Acting Chief Financial Officer G.L.H. Emmett H. Fremaux, Jr., VP, Marketing and Product Development
To	Cal Evans, Assistant Inspector General, Inspections and Evaluations	Subject	Draft Evaluation Report, Acela Car Purchase
		cc	DJ Stadtler, Acting VP, Operations Stephen Gardner, VP, NEC Infrastructure and Investment Development Matt Hardison, Chief, Sales Distribution and Customer Service Sharyn Seitz, AVP, Financial Planning Jessica Scritchfield, Sr. Director, Internal Controls / Audit

Pursuant to your memorandum of February 23, 2012, this memo responds to your draft evaluation report entitled "Acela Car Purchase: Future Revenue Estimates Were Overstated."

Overall, we felt that your treatment of the subject was fair and reasonable, both during the review and in the wake of your findings. We appreciate the fact that the Office of the Inspector General (OIG) was willing to suggest ways both to improve our analytic approach and to recommend a framework for future, similar undertakings.

Therefore, our response to the draft report and its conclusions are straightforward.

We agree with the recommendations of the OIG, and are taking action as follows (organized by OIG recommendation):

1. *Vice President, Marketing and Product Development (M&PD), develop a standard framework for explicitly incorporating capacity constraints into future revenue estimates.*

In light of the OIG's initial findings, the M&PD department developed a completely new model that more accurately reflected the capacity constraints of the Acela fleet. This iterative method, which relied on projections at the departure level to ascertain remaining capacity (and corresponding revenue capture) as demand grew over the forecast horizon, will be the central method for projections of demand and revenue in similar circumstances going forward.

There will, of course, be other types of equipment purchases that will be for purposes other than capacity augmentation, such as for new locomotives, baggage cars, end-of-life, or other non-revenue equipment. The business case for each of these may differ from this capacity-constrained model, but will rely on similar principles.

2. *Chief Financial Officer (CFO) ensure that the revised revenue projections and other financial data for the new cars are integrated into the next version of the Five Year Financial Plan.*

   The revised revenue projections and other financial data for the new cars have been integrated into the revised *FY2012 – 2016 Five Year Financial Plan.*

3. *CFO integrate the revised retirement date for the current Acela trainsets and new cars into the next revision of Amtrak's Fleet Strategy.*

   The revised retirement date for the current Acela trainsets and new cars were integrated into the draft *Version 3, Fleet Strategy Plan*.

Thank you again for your thorough review of our work on this important project and the constructive suggestions for how to improve both the quality of this work as well as future undertakings.

Appendix III

ABBREVIATIONS

FY	Fiscal Year
OIG	Office of Inspector General

Appendix IV

TEAM MEMBERS

Calvin Evans, Assistant Inspector General, Inspections and Evaluations

Jason Venner, Senior Director, Inspections and Evaluations

Timothy Wells, Principal Operations Analyst

OIG MISSION AND CONTACT INFORMATION

Amtrak OIG's Mission

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- promote economy, effectiveness, and efficiency within Amtrak;
- prevent and detect fraud, waste, and abuse in Amtrak's programs and operations;
- review security and safety policies and programs; and
- review and make recommendations regarding existing and proposed legislation and regulations relating to Amtrak's programs and operations.

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