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ASSET MANAGEMENT: Opportunities Exist to Enhance Decision-Making Process for Utilization of Long-Distance Equipment

Report No. OIG-E-2015-001 | October 23, 2014



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REPORT HIGHLIGHTS

Why We Did This Review

Amtrak's network of 15 long-distance trains is expected to lose almost \$615 million in fiscal year 2014. In October 2013, the company established a long-distance business line to improve the financial performance of these trains and to help support the company's strategic goal of being profitable on an operating basis, with revenues exceeding operating costs. Optimizing the utilization of equipment assets could help the company capture a portion of up to approximately \$25 million in additional revenue each year.

Given this, we assessed the extent to which the company is using a process for making fleet utilization decisions that consistently follows sound business practices. We did this by comparing the company's practices to sound business practices we had identified in earlier reports.

The full report is at www.amtrakoig.gov/reading-room

ASSET MANAGEMENT: OPPORTUNITIES EXIST TO ENHANCE DECISION-MAKING PROCESS FOR UTILIZATION OF LONG-DISTANCE EQUIPMENT

(Report No. OIG-E-2015-001, October 23, 2014)

What We Found

The company is undertaking initiatives to improve the utilization of its long-distance equipment, but the benefits associated with those initiatives may be overstated because the processes used to support the decisions, although generally sound, have not been as analytically rigorous or disciplined as they should be to support strategic decision-making.

One initiative, led by the long-distance business line, has identified several actions to increase equipment utilization. The business line started implementing two of these actions although it has yet to fully analyze the potential costs and benefits or to fully address the risks associated with each action. These actions may likely improve the financial performance of the trains, but more rigorous analysis will increase the likelihood that actual benefits will meet expectations.

In another initiative, a cross-functional working group established a generally sound process for analyzing how best to utilize 130 new long-distance cars that the company is procuring. Recommendations made to senior leaders in April 2014 were not developed in accordance with this process, and the supporting analysis was flawed. If the plan based on those recommendations is followed, the long-distance business line's operating loss could increase; however, the company has time to reassess the plan.

Recommendations

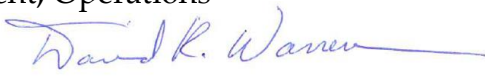
To improve decisions about the utilization of long-distance equipment, we recommend several actions, including implementing a consistent process that assigns clear accountability for decisions and relies on sound analysis. The company generally agreed with our recommendations.

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Memorandum

To: DJ Stadtler
Senior Vice President, Operations

From: David R. Warren 
Assistant Inspector General, Audits

Date: October 23, 2014

Subject: *Asset Management: Opportunities Exist to Enhance Decision-Making Process for Utilization of Long-Distance Equipment* (Report No. OIG-E-2015-001)

Amtrak's (the company) network of 15 long-distance trains is expected to lose almost \$615 million in fiscal year 2014.¹ In October 2013, the company established a long-distance business line to improve the financial performance of these trains and to help support the strategic goal of being profitable on an operating basis, with revenues exceeding operating costs. One way the business line can contribute to this goal is by optimizing how its equipment assets are utilized. By better aligning long-distance train capacity with customer demand, the company could capture up to approximately \$25 million in additional revenue.² Given this, we assessed the extent to which the company is using a process for making fleet utilization decisions that consistently follows sound business practices.

To evaluate the process, we compared the company's practices to four sound business practices we identified in two prior reports:³

¹ The company reported this figure in its April 2014 *FY 2014-2018 Five Year Financial Plan*.

² This estimate of potential revenue is based on the company's estimate of unmet demand on all long-distance trains.

³ See: *Asset Management: Integrating Sound Business Practices into its Fleet Planning Process Could Save Amtrak Hundreds of Millions of Dollars on Equipment Procurements* (OIG-E-2013-014, May 28, 2013), and *Corporate Governance: Planned Changes Should Improve Amtrak's Capital Planning Process, and Further Adoption of Sound Business Practices Will Help Optimize the Use of Limited Capital Funds* (OIG-E-2013-020, September 27, 2013).

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- Identify equipment needs through analyses of route-specific ridership demand and forecasts of equipment availability.
- Develop high-quality cost, benefit, and schedule estimates.
- Analyze alternatives to cost-effectively meet needs.
- Assess risks, including conducting sensitivity analyses on data and assumptions.

For a detailed discussion of our scope and methodology, see Appendix A.

OPPORTUNITIES EXIST TO ENHANCE PROCESSES FOR DECIDING HOW BEST TO USE EQUIPMENT

The company is actively engaged in two major initiatives to improve utilization of its long-distance equipment. These efforts have been conducted by two groups: the long-distance business line management team and a cross-departmental working group that is being led by the Marketing department. These groups are taking different approaches to analyzing the ways to improve financial performance for several long-distance train routes.

In general, both groups applied sound business practices; however, they did not always follow disciplined and consistent decision-making processes, and some of the data analysis could have been enhanced. Further, one of the initiatives is not currently under the purview of the business line general manager who is ultimately responsible for the financial performance of the long-distance trains. Strengthening the decision-making and data analysis processes—and ensuring that improvement initiatives are under the purview of the long-distance general manager—could enhance the likelihood that ongoing and future initiatives produce optimum results.

In the following sections, we discuss the two initiatives. We focus on the processes used to analyze the costs, benefits, and risks of the initiatives—where the processes worked well and where there are opportunities to improve the analysis and decision-making process, including accountability for financial performance improvements.

Initiative 1: Long-Distance Business Line's Process Could be Enhanced by Additional Analysis

The new general manager of the long-distance business line is leading one of the two initiatives. Since 2013 when he assumed the role, he has been accountable for the

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financial performance of long-distance trains. The company established the business line to create accountability, dissolve departmental silos, and move decision-making and accountability closer to Amtrak's customers. The business line's management team (herein referred to as the business line) includes the general manager, several regional deputies, and the directors for the 15 long-distance routes.

The general manager told us that the business line is using the company's strategic management system to identify, analyze, and implement initiatives to improve the financial performance of the long-distance trains. This overall effort has included comparing various initiatives designed to increase revenue and reduce costs in a comprehensive manner in order to determine the best course of action. Using this approach, the business line has started initiatives to improve how it utilizes its equipment on the Sunset Limited and the Auto Train.⁴ Our evaluation of these initiatives concluded that the process they used to develop them generally followed sound practices, and we identified opportunities to improve the processes and their implementation.

Analysis Supporting the Decision to Reassign Equipment from the Sunset Limited Could be Strengthened

The business line generally used sound business practices in making decisions about how best to utilize cars assigned to the Sunset Limited⁵—the company's poorest financially performing long-distance train in terms of cost recovery ratio.⁶ However, the process that was used and the resulting decision could be improved by more fully following sound practices in analyzing costs and benefits and in assessing risk. Further, one of the deputy general managers noted that the business line has only a limited capability to conduct some of the analysis required to support equipment utilization decisions. Also, there is no documented policy to guide the decision-making process.

Equipment needs were identified. As part of its process, the business line reviewed the seasonal demand for long-distance trains and determined that opportunities existed to capture additional revenue if more capacity could be made available and then added to

⁴ These initiatives are part of a larger plan that the business line developed to reduce the operating losses on long-distance trains by about \$200 million by the end of fiscal year 2018.

⁵ The Sunset Limited runs from New Orleans to Los Angeles.

⁶ The company defines cost recovery ratio as a measure of financial performance equal to revenue generated from operations divided by cash operating expenses.

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certain long-distance trains to capture unmet demand. In analyzing its options, the business line determined that they could increase capacity by improving the availability of existing equipment.

Alternatives were analyzed. The business line explored the option to make more capacity available by reducing equipment on the Sunset Limited and redeploying the equipment to other trains. Historically, the Sunset Limited has required four bi-level trainsets to meet its schedule of running three times a week throughout the year. The four trainsets were needed because the maintenance schedule for the trainsets required long layovers on both ends of the route. However, after reviewing maintenance practices, the business line determined that they needed only three trainsets if the train's maintenance schedules could be adjusted. This required transferring four vacant maintenance positions in Chicago to New Orleans and filling these positions with new staff. The business line decided to go forward with this option and completed the necessary actions in March 2014.

Revenue impact was not estimated. Initially, the business line had planned to use the extra equipment to capture revenue opportunities resulting from seasonal demand on other routes. Once the equipment became available, these cars were used to improve the reliability of departure times for two bi-level long-distance trains—the City of New Orleans and Texas Eagle. The business line did not analyze the revenue benefits from improved reliability for either train, and they did not estimate the additional revenue opportunities that could be captured by using the equipment elsewhere. Such an analysis would show whether the equipment was being deployed in an optimum manner.

Operating cost estimates were understated. The business line estimated that the costs associated with changing the maintenance schedule for the Sunset Limited would reduce the train's operating costs by about \$144,000 annually. These savings would be achieved through (1) reducing the costs associated with layover times for train crews and (2) streamlining the process of restocking diner and lounge cars in New Orleans. However, the costs associated with hiring new maintenance personnel in New Orleans were not included in the business line's estimates. To accurately account for the savings associated with this change, these costs need to be included.

Impact of risks has not been quantified. The business line identified cost and revenue risks associated with removing the trainset from service on the Sunset Limited route. With only three trainsets available, a significantly delayed inbound train could delay an

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outbound train's departure, which could increase operating costs and potentially reduce revenue. In implementing the action, the business line decided that the risks associated with this action were acceptable and that the business line could absorb the costs if additional trains were delayed. An estimate of the costs resulting from these delays was not one of the factors considered in the decision. Estimating the costs of delays would have enabled the business line to better understand the potential magnitude and impact of the risks they accepted, and whether a risk mitigation plan was needed.

Analysis Supporting the Decision to Change Equipment on the Auto Train Could be Strengthened

The business line generally utilized sound business practices in making decisions about how best to assign cars to the Auto Train.⁷ We also found that the process they used and the resulting decision could be improved by more fully analyzing costs and benefits and by more fully assessing risk.

Equipment needs were identified. The business line determined that adding passenger cars to the Auto Train could capture more revenue. The analysis showed that at certain times of the year, customer demand exceeds the train's capacity. However, before cars can be added, the company must overcome an obstacle: the Auto Train has a long-standing practice of using no more than 16 passenger cars on each train because of constraints in delivering electric power to longer trains.

Alternatives were analyzed. The business line is looking at ways to overcome the electric power limitation, but in the interim decided to test options for increasing the passenger capacity without exceeding the constraints. For example, they added a 17th passenger coach car to the train and tested the results from January 2014 to March 2014, when less power was needed to operate the train's air conditioners. From April to May 2014, they tested another alternative—keeping the extra coach car and removing a lounge car to reduce the electric power required. In June 2014, the business line started testing the benefits of replacing the lounge car with a sleeper car instead of a coach car, which would not increase the power requirement.

⁷ The Auto Train runs daily between Lorton, Virginia, and Sanford, Florida. It consists of passenger cars and automobile carrier cars. It is the company's best-performing long-distance train in terms of its cost recovery ratio.

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Revenue estimates are not fully developed. Business line managers told us that adding the coach car from January 2014 through May 2014 generated about \$1 million in incremental revenue during the testing period, and that the revenue could amount to about \$2.2 million annually. These managers also estimated that using a sleeper car instead of the extra coach could generate an additional \$0.7 million for a total of up to \$2.9 million annually. The estimates reflect the increased amount of revenue the additional cars could generate annually, but according to the business line officials, they will use the cars only when seasonal demand warrants it.

The analysis has not yet been completed, including testing the sensitivity of the assumptions behind different deployment scenarios. Further, the business line did not analyze the effect of the change in cars on customer satisfaction or the potential revenue impact of eliminating a lounge car from the train. Business line officials stated that they were planning to conduct a more detailed analysis.

Costs are not fully developed. The operating costs associated with running additional equipment has not been factored into the business line's cost-benefit analysis for this initiative. In particular, the cost estimates did not include the operating costs for the additional automobile carriers associated with the increased number of passengers riding in the extra coach or sleeping car. Business line officials told us they believe the additional revenue will exceed the additional costs, but a full incremental cost analysis has yet to be completed.

Analysis of risk can be more complete. The business line has not fully examined the risks associated with changing maintenance practices to support the previously discussed actions. The extra coach and sleeper cars that would be added to the Auto Train would come from reducing the number of coaches (three) and sleeper cars (one) that are kept in reserve to replace cars that break down. Using the cars in the shop count⁸ to increase the revenue capacity of the train would minimize this reserve buffer, particularly for the sleeper cars that now would not have a serviceable backup. The business line managers stated that they recognize the risks associated with this action, but in their judgment the potential for additional revenue outweighs those risks. An

⁸ In this report, we use the term *shop count* to refer to the equipment the company keeps in reserve for maintenance; it also keeps some equipment as *spares*. The company considers the cars in both the shop count and spares as part of the active fleet.

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analysis that quantifies the risks would provide a better basis for decision-making and determining whether a risk mitigation plan is warranted.

Initiative 2: New Car Deployment Process Could be Enhanced by Completing Additional Analysis

In September 2013, the company established a working group to determine how to best utilize the new passenger cars that the company is procuring. Led by an official from the Marketing department, the group used a process that generally followed sound business practices. However, recommendations made at an April 2014 meeting of senior executives were not developed in accordance with the process the group had been following, and the analysis supporting this recommendation was inaccurate and incomplete. Consequently, the long-distance business line's operating loss could actually increase if the cars are used in the manner recommended at the meeting. Because they have time before the cars will be delivered, opportunities exist to further analyze and improve the plan for utilizing the new cars.

Working Group Process Initially Followed Generally Sound Practices

The company is in the process of acquiring 130 new single-level long-distance cars for about \$300 million.⁹ These new cars will enable the company to retire its oldest cars by replacing single-level dining and baggage cars, many of which are more than 60 years old—twice as old as the company's standard for the commercial life of a passenger car. Delivery of these cars has not started, but is planned to be completed in 2016, starting with baggage cars and ending with dining and sleeping cars.

Some of these cars will also expand sleeping capacity on the single-level overnight routes, which the working group believes will enable the company to generate more revenue.¹⁰ The original quantities for the four types of cars included in the procurement are shown in Table 1.

⁹ Amtrak has five long-distance overnight routes into New York City through tunnels that require the trains to be single-level: the Crescent, which runs between New York City and New Orleans; the Lake Shore Limited and the Cardinal, which run between New York City and Chicago; and the Silver Star and Silver Meteor, which run between New York City and Miami. The company also plans to add a sleeping car to an overnight regional train traveling to Boston, New York, and Washington.

¹⁰ The working group also analyzed the effect of using the new sleeping capacity on bi-level long-distance trains such as the Capitol Limited.

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Table 1. Number of Existing Cars Compared to Number of New Long-Distance Cars in Original Order

Car Type	Existing Quantity of Cars	Number of New Cars Ordered
Baggage	64	55
Combination Car* (Baggage and Sleeping)	0	25
Sleeping**	50	25
Dining	21	25

Source: Marketing presentation to Amtrak executives on April 11, 2014

*The combination car includes cargo space for baggage and other items plus sleeping quarters for train crews, making other sleeping car space that had been used by the crew available for passengers.

**The new sleeping cars are intended to augment, rather than replace, existing sleeping cars

When we initiated this evaluation, the original long-distance general manager stated that he planned to put all 130 new cars into the active fleet when they were received, although no specific plan was developed for how and where they would be used. We analyzed the cost and revenues of deploying these cars on all of the single-level overnight routes and briefed the general manager on our work in May 2013. At the time, we estimated that if all of the new sleeping cars were put into full-time service, the company would lose about \$6 million per year because the operating costs associated with the additional cars would outweigh the potential revenue gains.

Subsequent to this discussion and the retirement of the original long-distance general manager in July 2013, the company formed a headquarters-based working group to analyze how to best use the cars prior to the establishment of the long-distance business line. Led by an official from the Marketing department, the cross-departmental team included personnel from the Operations and Finance departments. The group began a sophisticated analysis of deployment options based on different combinations of cars on trains, seasonal demand, and shop count.¹¹ In February 2014, the group briefed the steering committee of company executives¹² on its progress and planned to make its recommendations to the committee when it completed its analysis. Once the steering committee approved the working group's work, they would present their recommendations to the company's executive committee.

¹¹ This initiative was not specifically incorporated into the company's new strategic management system or integrated into the long-distance business line plan.

¹² The current long-distance general manager joined the group's steering committee in November 2013.

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From October 2013 to April 2014, the group conducted several analyses. They generally followed sound practices by testing alternative car deployments on different routes utilizing detailed estimates of costs and revenue from the different scenarios. The scenarios included matching full and combination sleeping car assignments to unmet demands on routes by season, including storing surplus capacity in off-seasons to eliminate operating expenses.

Quantifying baggage requirements for the single-level long-distance trains proved to be a challenge for the group. The company had planned to replace all of the existing baggage cars because of their excessive age, but it was not buying enough new full-baggage cars to replace the old baggage cars on a one-for-one basis. Therefore, some trains needed to use a combination car, which have 60 percent less cargo space than a full-baggage car. The working group attempted to identify the trains that should get the combination cars, but data on baggage requirements for each train were limited and unreliable. Based on the data available, the working group eventually identified only one long-distance train with year-round baggage requirements that could be accommodated by a combination car rather than a full-baggage car. Therefore, they concluded that the company was not buying enough full-baggage cars to meet its requirements.

Decisions Were Made to Change the Mix of Cars Before the Working Group Had Completed its Analysis

On April 11, 2014, senior executives met with the President and Chief Executive Officer to discuss issues related to the new long-distance car procurement. During the meeting, the Marketing department presented an analysis showing that deploying the new cars would result in incremental revenue exceeding incremental costs by \$2.2 to \$2.8 million annually once all the cars are received and are put into the active fleet. Marketing recommended changing the mix of car types to address the shortage of full-baggage cars and also recommended route assignments for the new cars. These recommendations were not intended to be the final word on the ultimate deployment of the new cars, according to the Vice President for Marketing.

Marketing officials told us that the utilization plan presented in the April meeting was developed on short notice by a subgroup of the working group. The plan was not approved by the working group's steering committee, and it was not reviewed before the meeting by the general manager for the long-distance business line. Marketing officials added that the plan did not include a full updated analysis of the operating

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costs from the Finance department because of the truncated timeline, but that they focused on providing sufficient information to make an informed decision at the meeting. They did note that staff from the Finance and Marketing departments discussed and revised some items in the plan before presentation. The plan relied on analysis and estimates that were largely put together from prior working group analyses completed from October 2013 through April 2014, which included estimates that were not relevant to the plan that Marketing presented.

As a result of the April 11 meeting, the company negotiated a reduction in the number of combination cars it was buying from 25 to 10, and an increase in the number of baggage cars from 55 to 70. On June 11, 2014,¹³ this change order was executed, reflecting the working group's conclusion that the company was not buying enough baggage cars to meet requirements. The number of each type of car in the modified order is shown in Table 2.

Table 2. Comparison of the Number of Existing Cars, New Cars Originally Ordered, and New Cars in the Modified Order

Car Type	Existing Amtrak Cars	Original Order	Modified Order
Baggage	64	55	70
Combination	0	25	10
Sleeping	50	25	25
Dining	21	25	25

Source: OIG analysis of Marketing presentation to company executives on April 11, 2014

Deviation from the Established Process Resulted in Inaccurate and Incomplete Analysis

As previously noted, the car utilization plan that Marketing recommended to company executives on April 11, 2014 estimated that incremental revenue should exceed incremental costs by \$2.8 million. Our analysis of the plan showed that it potentially overestimated the incremental revenue that the cars could generate and underestimated the costs associated with putting all of the cars into service. Even if the additional revenue is generated as projected, the underestimation of costs is large enough that it could increase the business line's net operating loss if the plan is followed. Our

¹³ This change could save the company about \$0.2–\$1.3 million on the total order.

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assessment is based on the following limitations in the analysis of cost and revenue estimates:

- **Operating costs were not fully considered.** The plan did not capture the additional annual operating costs generated by adding new sleeper cars to two trains. Based on our analysis of the Finance department's earlier cost projections, which included these operating costs, we estimate that increasing the size of the trains will increase fuel and maintenance costs by about \$1.5 million annually.
- **Savings from staffing changes were inappropriately attributed to the new cars.** The plan attributes about \$1 million annually in cost savings to not having to assign attendants to additional sleeping cars on two trains. However, these crew changes could be implemented now—regardless of whether new cars are added to trains—and therefore should not be considered part of the incremental benefits of adding the cars. The company previously analyzed potential crew changes and found that this could be done with existing equipment. Based on this analysis, we estimate that up to \$3.7 million could be saved by making these crew changes now. This action would result in \$3.7 million in funds that could be put to better use elsewhere.
- **Revenue estimate was not validated.** The plan attributes about \$500,000 in additional revenue that will be generated because the cars are new. Marketing officials told us that this estimate was based on studies referenced in a forecasting demand handbook from the United Kingdom. The handbook states that there was a wide variation in the results of these studies, with half of the studies showing no significant change in ticket sales due to new equipment. While it may be reasonable to assume that new equipment will attract more riders, the group has not conducted the analysis necessary to determine the validity of relying on these studies to estimate the effect of adding new equipment to the long-distance trains.

The new plan also did not account for the costs of keeping a large portion of the cars in the shop count. Each car in the active fleet incurs maintenance costs for time-based inspections and preventive maintenance. The company's planned shop count for these long-distance cars has been typically 1 car per every 3.2–4.8 cars required for service

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(depending on the type of car).¹⁴ However, the number of cars planned for the shop count in the April 11 plan exceeds current maintenance practices for three of the four types of cars, as shown in Table 3, even though the new cars should have higher reliability than the cars they are replacing, according to company officials.

Table 3. Comparison of Current Shop Count Practice to the Proposed Shop Count for the New Cars in the April 11 Plan

Car Type	Current Ratio of Planned Shop Count to Cars Required for Service	Planned In Service in April 11 Plan	Shop Count Based on Current Ratio	Planned Shop Count in April 11 Plan	Excess Cars in Planned Shop Count
Baggage	1 : 4.8	48	10	22	12
Combination*	1 : 4.0	5	2	5	3
Sleeping	1 : 4.0	60	15	15	0
Dining	1 : 3.2	15	5	10	5
Totals			32	52	20

Source: OIG analysis of Marketing's April 11, 2014 utilization plan and the Operation department's December 2012 fleet assignment plan

*We are using the more conservative current ratio between the baggage and sleeping cars as an estimate for the combination car.

This results in 20 cars that are planned to go into the shop count above current practices. We reviewed the company's internal cost allocation database, which showed that time-based maintenance costs per car for the single-level long-distance fleet average about \$27,000–\$35,000 per year. Using these numbers as an estimate for the potential annual maintenance costs of keeping these cars in the shop count, we estimate that the expected annual operating expense of keeping all 20 cars service-ready is about \$540,000. In the past, the company has put equipment into storage until it was needed to reduce the higher costs associated with keeping it service-ready.

Decision-Making Process Did Not Include Risk Analysis

According to sound business practices, once an alternative to meet a business need is selected, the potential risks of pursuing the option should be analyzed, and plans for mitigating these risks should be developed to help ensure that the goals of the initiative

¹⁴ We are defining cars required for service as the number of cars needed to meet peak usage and any spares kept in the active fleet.

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are realized. This has not yet been accomplished for the recommendations for utilizing the new cars that were presented on April 11, 2014.

A well-established method for identifying, assessing, and mitigating the risks associated with alternatives to meet a business need is to conduct a sensitivity analysis on the assumptions and estimates in the assessment supporting the alternative. The working group did not conduct a sensitivity analysis or a similar analysis to consider how its estimate—that incremental revenue attributable to the deployment of the new cars will exceed incremental costs by \$2.8 million annually—might be affected by variations in those estimates. Such an analysis would be necessary to quantify and assess the potential risks and determine the extent to which they need to be mitigated.

CONCLUSIONS

The company has undertaken initiatives to improve the utilization of its long-distance equipment. However, the benefits associated with those initiatives may be overstated because the processes used to support the decisions, although generally sound, have not been as analytically rigorous or disciplined as they should be to support strategic decision-making. As a result, decisions have been made based on incomplete or inaccurate analysis—without the benefit of a risk assessment and related mitigation plans. Also, some of the initiatives have been conducted outside the purview of the general manager who is accountable for the financial performance of long-distance trains. Because the initiatives are ongoing, the company has time to address the issues discussed in this report, make adjustments to the initiatives as determined necessary, and take action to optimize the use of the long-distance fleet and further support the strategic goal of achieving financial excellence.

RECOMMENDATIONS

We recommend that the Vice President, Operations, take the following actions:

1. Ensure that a consistent process that follows sound business practice is developed, documented, and implemented for decisions related to the utilization of long-distance equipment. This process should:
 - a. Assign clear accountability and responsibility for decision-making, and for conducting the analysis required to make sound decisions.

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- b. Include a consistent methodology for determining the appropriate shop count for different types of equipment.
2. Ensure that the analyses of the costs and risks associated with the initiatives for the Sunset Limited and Auto Train are completed to validate the net benefits of each initiative and revise the initiatives as needed to optimize fleet utilization.
3. Ensure that the analysis for optimizing the cost-effective utilization of the new single-level long-distance cars is completed in a manner consistent with sound business practices, including:
 - a. Developing reliable data on baggage requirements to ensure that full-baggage and baggage-dormitory cars are optimally deployed, based on current requirements and any changes to the business model being considered.
 - b. Determining the costs and benefits of putting all of the new equipment into the active fleet as planned, compared with other options such as storing or leasing some of the cars until increased demand or other circumstances warrant their use.
4. Modify the deployment plans for the new single-level long-distance cars, as appropriate, based on the results of the completed analysis.
5. Consider implementing the sleeper car attendant changes proposed in the April 11 plan across all of the overnight single-level long-distance trains.

MANAGEMENT COMMENTS AND OIG ANALYSIS

In response to a draft report of this, the company generally agreed with our recommendations. The actions cited in the management comments address the intent of our recommendations. Therefore, the recommendations are resolved but will remain open pending verification that the actions cited have been implemented. Appendix D contains management's complete response. Presented below is a summary of the company's responses to the recommendations and our analysis.

- In response to **recommendation 1** that addresses the need for a process and accountability for making long-distance fleet utilization decisions, including shop count decisions, the company generally agreed. The company first stated that it is implementing processes to support decision-making on how best to use

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its capital assets and cited examples such as the use of business case analysis. The company also stated that the Vice President of Operations has responsibility for making decisions related to the utilization of long-distance equipment in consultation with the Chief Marketing and Sales Officer. The company further noted that the long-distance business line general manager is responsible for determining how to best use long-distance equipment, and that it will establish a process to determine the appropriate shop count for different equipment during Fiscal Year 2015.

These cited actions and plans address the intent of our recommendation. Because most of these actions are being implemented or planned, their effectiveness cannot yet be determined. Consequently, we will monitor and assess their effectiveness as they are implemented.

- In response to **recommendation 2**, related to the need to analyze the costs and risks associated with the initiatives for the Sunset Limited and Auto Train, the company agreed stating that the analysis will be completed before August 1, 2015. We will review that analysis when it is completed.
- In response to **recommendation 3** the company generally agreed to ensure that the analysis for optimizing the use of the new single-level long-distance cars is completed in a manner consistent with sound business practices. Although the company noted that they cannot fully determine baggage requirements until an electronic baggage tracking system is implemented it reiterated plans to deploy all of the new cars into active service. To the extent a specific type of new car might not be needed due to reduced demand in off peak seasons, it would store older cars because of the likely operating and maintenance benefits that, for example, a new baggage car would have over a 60 year old car.

We understand the rationale for using new equipment and storing older equipment if necessary. However, by the time the new cars are delivered, operating facts and circumstances could change. At this time, our analysis indicates that storing excess new cars is the best financial option, as illustrated in Table 3 of this report. As the company noted throughout its response to recommendations, it is implementing improved processes to support decision-making on how best to use its capital assets. Decision-makers in this case would benefit from the use of those processes as the new cars are delivered and decisions are made on whether they will be used or stored.

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- The company agreed with **recommendation 4** to modify deployment plans for the new single-level long-distance cars based on an analysis with more comprehensive considerations. The company stated that it has not yet made decisions on the deployment of the single-level long distance cars and it continues to analyze scenarios for maximizing the benefits of these assets, including perhaps using some on State-Supported trains.
- In response to **recommendation 5**, related to implementing sleeper-car attendant changes, the company generally agreed stating that it will make the staffing changes on some routes that have sufficient sleeping accommodations to result in a net financial benefit by the end of Fiscal Year 2015. As discussed previously, we estimate that these changes could save the company about \$3.7 million and result in funds that could be put to use elsewhere. Staffing changes on other routes, which could result in additional savings, cannot be made until the new sleeper cars are delivered.

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Appendix A
SCOPE AND METHODOLOGY

This report provides the results of our evaluation of Amtrak's two initiatives to address the utilization of its long-distance passenger cars. The objective of this report is to assess the extent to which the company is using a process for making fleet utilization decisions that consistently follows sound business practices. The scope of our work primarily focused on assessing processes used to guide the work of groups in the Operations and Marketing departments that are planning to improve the financial performance of long-distance trains. We also reviewed information related to the planned use of 130 new passenger cars that are being purchased. We performed our work from February 2013 through October 2014 in Washington, D.C.; Philadelphia, Pennsylvania; and Chicago, Illinois. Although this work spanned 20 months, the evaluation team was assigned to another project from May through September 2013.

To assess the company's decision making process for long-distance train utilization, our overall methodology was to compare the processes being used to sound business practices. Using that comparative analysis, we identified process strengths and opportunities for improvement. We previously identified these practices in two reports, and our analysis showed that these practices provide a framework for enhancing decision-making and minimizing risk. We believe they apply to making decisions about how best to use passenger cars, and we used this criterion to analyze each of the company's efforts. We also collected and analyzed information about each initiative in the following manner:

- **To analyze the utilization initiatives being led by the long-distance business line**, we discussed these initiatives with the senior managers of long-distance services responsible for the financial and operational performance of trains operating in the southwest, southeast, and central regions. We obtained and analyzed the business line's long-term plans, on-time performance data, and cost and revenue estimates developed by business line managers to support the initiatives discussed in this report.
- **To examine the initiative to determine how best to use the new long-distance single-level cars**, we discussed the initiative with officials in the Marketing, Operations, and Finance departments, and the Office of Procurement and Materials Management. We collected and analyzed ridership and revenue data, incremental cost estimates for adding equipment to existing trains, and contract

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documents. We developed a model based on ridership demand and cost data provided by the Marketing and Finance departments to evaluate the financial performance of the different alternatives for using the new cars on different single-level long-distance routes. When we identified opportunities for improvement we developed estimates of the financial impact related to those opportunities. We validated our financial estimate methodologies with officials from these departments.

We performed this evaluation in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our objectives.

Use of Computer-Processed Data

As part of our evaluation, we used data provided by company officials from two information systems. To determine the reliability of the data, we took the following steps. To assess the reliability of the passenger car maintenance data included in the company's internal cost allocation database, we discussed the limitations of the data with officials from the Mechanical department. These limitations are the result of the system relying on a cost-allocation methodology rather than directly assigning expenses to maintenance activities. However, these limitations did not affect how we used this data to identify the operational costs for keeping 20 extra cars in the shop count, and the Marketing department did not consider these limitations in its analysis. Therefore, we determined the data provided was adequate for our purposes, and we did not attempt to further validate the data.

Internal Controls

In conducting the evaluation, we reviewed the company's management control processes and practices for determining how to use long-distance passenger cars within the context of our scope and objective. This included reviewing how the company identifies its equipment needs for long-distance trains, how it developed cost and revenue estimates for utilization initiatives, and how it developed options for deploying new long-distance single-level cars. This report discusses how the management control processes can be improved. We did not review controls over the business line's overall plan for reducing long-distance train operating losses.

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Prior Reports

Two OIG reports are relevant to this evaluation:

- *Corporate Governance: Planned Changes Should Improve Amtrak's Capital Planning Process, and Further Adoption of Sound Business Practices Will Help Optimize the Use of Limited Capital Funds* (OIG-E-2013-020, September 27, 2013)
- *Asset Management: Integrating Sound Business Practices into its Fleet Planning Process Could Save Amtrak Hundreds of Millions of Dollars on Equipment Procurements* (OIG-E-2013-014, May 28, 2013)


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Appendix B
COMMENTS FROM AMTRAK



NATIONAL RAILROAD PASSENGER CORPORATION

Memo

Date	October, 14 2014	From	 DJ Stadtler, <i>VP Operations</i>
To	Tom Howard, <i>Inspector General</i>	Department	Operations
		Subject	Asset Management: Opportunities Exist to Enhance Decision-Making Process for Utilization of Long- Distance Equipment (Draft Evaluation Report for Project No. 003-2013)
		cc	Joseph H. Boardman Matt Hardison Jerry Sokol Mark Yachmetz Mark Murphy Mario Bergeron Melantha Paige

This memorandum responds to your request for comments on the draft report referenced above.

Summary

The referenced draft OIG report is another indicator of Amtrak's continuing progress in advancing toward our corporate goal of Financial Excellence, in particular that we are good stewards of capital in order to secure the long-term viability of the company. Amtrak sees as a theme of the draft OIG report that at the time of the activities OIG reviewed were being undertaken, Amtrak was generally following sound business practices but that these practices could be strengthened. We agree with that conclusion and have already taken steps to strengthen these practices.

The report discusses a meeting on April 11, 2014 at which a decision was made to take advantage of a limited opportunity to remix the number of full baggage and baggage-dormitory cars in the ongoing production of single-level long-distance (*Viewliner II*) cars at no additional cost to Amtrak. As was recognized in the draft OIG report, this decision was informed by six months of analytical work that had concluded that the remix was needed. Amtrak continues to believe that this decision was in the commercial interests of the company.

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The draft OIG report expressed concern that was also discussed at the April 11 meeting was a preliminary scenario for how to deploy the new equipment. The draft OIG report expresses concern that the documentation of that scenario could have been better. However, as also noted in the draft OIG report, no final decision was made then or has yet been made on how to allocate the new single-level long-distance equipment to specific routes. Continuing analyses have shown that there are scenarios for the allocation of this new equipment that generate net additional revenue and thus have a beneficial effect on our financial bottom line. These scenarios will be refined as we get closer to the dates when this equipment is ready for revenue service.

Finally, the allocation of equipment to specific routes and services is a dynamic part of our business. No decisions are final in that with limited exceptions the equipment is a portable asset and can be redeployed to exploit the most promising market opportunities. Our goal is to continue to develop the processes and analytical capabilities needed to assess on an ongoing basis how we can best use our assets to meet our corporate goals. This aligns well with recommendations in the draft OIG report. Amtrak thus generally agrees with the recommendations in the draft OIG report.

Background

Amtrak has made substantial progress over the last year in strengthening our ability to be good stewards of capital. Four milestones are worth noting:

- The comprehensive business case supporting management's recommendation to issue a request for proposals and initiate acquisition of new high-speed trainsets for the NEC¹ (September 2013).
- Approval of the revised strategic plan with its restated goal of Financial Excellence (October 2013).
- New standards for business case analyses to support the use of capital funds (January 2014).
- The first annual business plan in which all proposed capital projects had business cases justifying their inclusion in that business plan (September 2014).

It was during this period of growth in our corporate commercial sophistication that the activities reviewed in the draft OIG report took place.

The commercial reorientation of many of Amtrak's processes, including expanding the use of business case analysis to support decisions on the allocation of capital assets, has required members of the Amtrak team at all levels to look at decision-making differently. This in turn has required a journey up the learning curve in assuring that all the relevant considerations of reasonable options including revenues, costs, opportunities and risks are addressed in the analysis. We have made significant progress over the last year, the period in which the initiatives reviewed in the draft OIG report took place. But we don't see this as an effort with a

¹ ASSET MANAGEMENT: Amtrak followed Sound Practices in Developing a Preliminary Business Case for Procuring Next-Generation High-Speed Trainsets and Could Enhance its Final Case with Further Analysis, Report No. OIG-E-2014-007, May 29, 2014.

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definable end point. We see this as a process of continuing improvement so that next year or the year after we will be better at this than we are today.

The draft OIG report focuses on the Long-Distance Business Line (LDBL) so some background on that business line is appropriate for this discussion. The LDBL has one of the most challenging mandates in Amtrak – to reduce the operating losses on long-distance trains by \$200 million by the end of FY 2018 while improving customer service. For most of Amtrak’s history there have been initiatives and policies, both externally and internally driven, to reduce the operating losses resulting from the long-distance services with little or no effect or staying power. However our corporate strategy requires that this time Amtrak successfully addresses the net operating costs, customer service and safety performance of long-distance service

LDBL was created to take on this challenge. The current LD general manager, however, did not begin his duties until September 2013. During the period covered by the draft OIG report, the LDBL was transitioning to new leadership, identifying key staff including deputy general managers and route directors, aligning its goals and activities with the revised corporate strategic plan, and identifying and implementing initiatives to improve customer service and reduce costs overall, and for food and beverage service in particular.

Initiative 1: Long-Distance Business Line’s Process Could be Enhanced by Additional Analysis

The draft OIG report reviewed initiatives undertaken by the Long-Distance Business Line as part of its effort to reduce the net operating losses on the long-distance trains. Specifically, the initiatives reviewed involved reassigning equipment then used for the *Sunset Limited* service and adding passenger cars to the *Auto Train* service.

The draft OIG report concludes that equipment needs were identified and alternatives were analyzed but revenue and cost impacts and risks were not fully analyzed. The draft OIG report concludes that this was due in part to a lack of a documented policy to guide the decision-making process. The draft OIG report also notes that officials of the LDBL indicated that the business line has only limited capability to conduct some of the analysis required to support equipment utilization decisions.

As discussed above, Amtrak is developing a business case-oriented culture for the allocation of capital assets, using a standardized approach and processes overseen by the Finance Department. This includes development of appropriate documentation and an independent review in Finance of business cases to assure that they are consistent and all relevant factors are considered. These efforts address most if not all of the conclusions discussed in the draft OIG report.

Amtrak also recognizes that it is not in the interest of the corporation to replicate every skill in every business line. The operating business lines will be able to draw upon the capabilities of other parts of Amtrak and the Operations Department, in particular the new Operations Research and Policy group, to supplement their capabilities in assessing whether to undertake initiatives such as those discussed here.

Amtrak believes that the initiatives undertaken are an appropriate approach for testing some of the hypotheses concerning altering equipment utilization on the *Sunset Limited* and *Auto Train*.

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The analytical projections of the possible outcome of the initiatives and assessment of risk could have been more robust. Amtrak also believes, however, that initiatives such as these have a strong element of research because of limited experience we might have with many of the variables and thus there will frequently be a lack of precision in forecasting revenue and cost impacts.

One of the purposes of the research is to better understand these impacts. At times might lead to a trial and adjust approach for a pilot initiative to better understand the relevant factors and to determine whether a larger scale initiative is warranted. Amtrak thus sees that there is a difference between the level of analysis needed to support testing a hypothesis and that needed to support a major initiative.

Initiative 2: New Car Deployment Process Could be Enhanced by Completing Additional Analysis.

Amtrak's management decided at a meeting on April 11, 2014 to remix the number of baggage-dormitory and full baggage cars in the order of long-distance single level (LDSL, also known as *Viewliner II*) cars currently being produced. A working group had been evaluating how best to utilize the new equipment when it was ready for commercial operation. While the working group had concluded that the mix of baggage-dormitory to full baggage cars was not correct and that Amtrak needed fewer of the former and more of the latter, the working group had not yet completed its analysis to support recommendations to management on which routes to deploy the equipment. The draft OIG report expresses concerns over the lack of a comprehensive analysis of the scenario for deployment of the LDSL equipment discussed at the April 11 meeting and that this scenario had not been fully vetted by a steering committee established for that purpose. The draft OIG report concludes that specific scenario, if implemented, could contribute to increased operating expenses.

Amtrak believes that there are two distinct and largely separate decisions covered by the draft OIG report's Initiative 2 discussion; 1) whether to remix the number of baggage-dormitory and full baggage cars being built as part of the LDSL acquisition and 2) how all of the LDSL cars should be deployed when they enter revenue service in mid-2016.

The draft OIG report states that from October 2013 to April 2014, an interdepartmental working group conducted several analyses on how to best deploy the LDSL cars. As the draft OIG report notes, the working group had concluded that the company was not buying enough full baggage cars. They had also concluded that all of the baggage-dormitory cars in the LDSL order could not be productively used and thus there were merits to a remix of the numbers of these two cars in the order.

Amtrak entered into a contract for the manufacture of the LDSL cars in 2009. Thus by April 2014, production was well advanced but behind schedule and Amtrak was addressing at that time how best to resolve issues surrounding the manufacturer's projected delay in the delivery of these cars.

The primary purpose of the April 11 meeting was to resolve issues related to the delayed delivery of the LDSL cars. Management believed that given the advanced state of production, Amtrak had a limited window of opportunity to address the remix of the two car types at no additional

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cost to Amtrak as part of the resolution of delay issues with the manufacturer. The only decisions at the meeting were related to addressing concerns over delays in the procurement such as the negotiating strategy with the manufacturer and taking advantage of the opportunity to change the mix of full baggage and baggage-dormitory cars

The April 11 meeting also discussed the scenario then being developed by the working group for the deployment of the LDSL cars. While the documentation of that scenario might have been more comprehensive, no decisions were made then or have been made since on how we can best use these cars. Ongoing analyses have identified multiple scenarios under which deployment of these cars will yield a net operating revenue benefit for Amtrak. The analyses will continue up to and beyond the time when the cars enter revenue service to assure we use them in a way that maximizes the net benefits to the corporation from these assets. They will benefit from the more comprehensive approach to analyzing the use of capital assets that we now use at Amtrak. It is important to note, however, that no decisions are final in that with limited exceptions passenger equipment is a portable asset and can be redeployed to exploit the most promising market opportunities. Amtrak will monitor the performance of the cars once in service and adjust the deployment based upon actual market performance.

In a matter related to the deployment scenario, the draft OIG report assumed that sleeping car attendant staffing changes considered in that scenario could be implemented on all routes today and thus these should not be considered as benefits of this scenario of LDSL equipment deployment.

The staffing changes discussed can only be realized with a sufficient number of sleeping accommodations available in the train's consist. While some routes have sufficient capacity and these staffing changes will be made in the near future, the routes considered in that scenario (the *Crescent* and the *Silver Meteor*) can only realize the savings from the staffing changes when the consists take on an additional sleeper. This cannot be done for these routes until the new sleepers are delivered given the current number of available sleeping cars. Thus it is appropriate to consider the net cost savings as accruing to the deployment of the new cars to these routes.

Recommendations:

1. Ensure that a consistent process that follows sound business practice is developed, documented, and implemented for decisions related to the utilization of long distance equipment. This process should
 - a. Assign clear accountability and responsibility for decision-making and for conducting the analysis required to make sound decisions.
 - b. Include a consistent methodology for determining the appropriate shop count for different types of equipment.

Response: Amtrak generally agrees with this recommendation and as discussed above is already implementing processes to assure comprehensive assessment of relevant factors to support decisions on how we can best use our capital assets. The accountability and responsibility for decision-making on matters such as the deployment of cars for long-distance service is clear. The VP for Operations, in consultation with the Chief Marketing and Sales Officer, is responsible for the assigning assets to the operating business lines. The operating

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business line general managers (GM) are responsible for determining how to best use those assets to meet Amtrak's strategic goals. Shop count, protect equipment and similar decisions related to providing a safe, customer-centric and cost-effective service is a shared responsibility between the GM and the Mechanical Department with the operating business line GM bearing the ultimate responsibility for assuring the effective utilization of the assigned assets. Determining the appropriate amount of equipment classified as shop count or protect is a dynamic process that needs to reflect the current and prospective operating reliability of not just the equipment but of the services it supports as well. We agree that there should be consistency in how this is done. *The Chief of System Operations with General Managers for the operating business lines, the Chief Mechanical Officer and Chief of Operations Research and Planning will develop a consistent methodology for determining the appropriate shop count for different types of equipment during FY 2015 as part developing the input on long-distance equipment needs for the strategic rail fleet plan.*

2. Ensure that analyses of the costs and risks associated with the initiatives for the Sunset Limited and Auto Train are completed to validate the net benefits of each initiative and revise the initiatives as needed to optimize fleet utilization.

Response: Amtrak agrees with this recommendation and as discussed above is already implementing processes to assure comprehensive assessment of relevant factors to support decisions on how we can best use our capital assets. *The General Manager for the Long-Distance Business Line with the Chief of Operations Research and Planning will complete this analysis before August 1, 2015.*

3. Ensure that the analysis for optimizing the cost-effective utilization of the new single-level long-distance cars is completed in a manner consistent with sound business practices, including:
 - a. Developing reliable data on baggage requirements to ensure that full-baggage and baggage-dormitory cars are optimally deployed, based upon current requirements and any changes to the business model being considered.
 - b. Determining the costs and benefits of putting all new equipment into the active fleet as planned, compared with other options such as storing or leasing some of the cars until increased demand or other circumstances warrant their use.

Response: Amtrak generally agrees with recommendation. The availability of truly detailed baggage data by route and segment cannot be developed until Amtrak implements an electronic baggage tracking system. While Amtrak's current data on baggage use is good enough for high-level decisions on the allocation of equipment, we plan to enhance this data base to become more sophisticated in the assessment of baggage capacity requirements including such considerations of seasonality or day of the week demand and the potential to increase net revenue.

In developing their business plans, the operating business lines are assessing the benefits of storing equipment in off peak periods. We plan, however, to deploy all of the new cars into active service. To the extent a specific car type might not be needed because of factors such as reduced demand in of peak seasons, it will be the older equipment that is stored. As an example, Amtrak believes that a new baggage car will have operating and maintenance benefits over a 60

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year old baggage car and thus we would be better off financially storing the latter than the former. But we will monitor the relative costs and benefits of the new LDSL cars against the comparable cars in the fleet to better inform decisions on car utilization.

The General Manager for the Long-Distance Business Line with the Chief of Operations Research and Planning and Chief Marketing and Sales Officer will develop the data on baggage requirements and complete a cost-benefit analysis on the deployment of the new long-distance single-level cars, including the cost and benefit of consists adjusted for seasonal and other demand-based variances prior to the introduction of the new sleeper cars into revenue service.

4. Modify the deployment plans for the new single-level long-distance cars, as appropriate, based on the results of the completed analysis.

Response: Amtrak agrees with this recommendation. As discussed above we have not yet made decisions on the deployment of the single-level long-distance cars. Amtrak continues to analyze scenarios for how to maximize the benefits of these assets, including perhaps using some on State-Supported instead of Long Distance trains. In doing this Amtrak will use more comprehensive considerations in the analysis. *See the above response to Recommendation 3.*

5. Consider implementing the sleeper car attendant changes proposed in the April 11 plan across all of the overnight single-level long-distance trains.

Response: Amtrak generally agrees with this recommendation. Amtrak will implement these changes in the near future on those routes with sufficient sleeping accommodations in the train's consist to result in a net financial benefit to Amtrak. The changes for some routes, however, are dependent upon expanding the number of sleeper cars in the routes' consists and thus cannot be achieved until the new cars are delivered. *The General Manager for the Long-Distance Business Line will implement changes on routes not requiring new equipment as analyses are performed and market conditions warrant. These changes will be implemented throughout FY 2015 and complete by the end of that fiscal year..*

In conclusion, improving the financial performance of long-distance trains has been a challenge since Amtrak was created. Amtrak appreciates the observations by the OIG on the deployment of assets, in particular equipment, as part of addressing this challenge. If you have any questions, please contact me or Mark Yachmetz, Chief of Strategic Rail Fleet Initiatives.

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Appendix C

ACRONYMS AND ABBREVIATIONS

OIG	Amtrak Office of Inspector General
the company	Amtrak

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Appendix D
OIG TEAM MEMBERS

Calvin Evans, Assistant Inspector General, Inspections and Evaluations

Jason Venner, Senior Director, Inspections and Evaluations

Larry Chisley, Lead Evaluator

Timothy Wells, Principal Operations Analyst

OIG MISSION AND CONTACT INFORMATION

Amtrak OIG's Mission The Amtrak OIG's mission is to provide independent, objective oversight of Amtrak's programs and operations through audits, inspections, evaluations, and investigations focused on recommending improvements to Amtrak's economy, efficiency, and effectiveness; preventing and detecting fraud, waste, and abuse; and providing Congress, Amtrak management, and Amtrak's Board of Directors with timely information about problems and deficiencies relating to Amtrak's programs and operations.

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