



**OFFICE of INSPECTOR GENERAL**  
NATIONAL RAILROAD PASSENGER CORPORATION

## **TRAIN OPERATIONS:**

**Adopting Leading Practices Could Improve Passenger  
Boarding Experience**


**OIG-A-2016-011 | September 7, 2016**

This page intentionally left blank.



# Memorandum

**To:** Anthony R. Coscia  
Chairman, Amtrak Board of Directors

**From:** Tom Howard   
Inspector General

**Date:** September 7, 2016

**Subject:** *Train Operations: Adopting Leading Practices Could Improve Passenger Boarding Experience (OIG-A-2016-011)*

The Fixing America's Surface Transportation Act<sup>1</sup> (FAST Act) requires the Amtrak Office of Inspector General (OIG) to evaluate Amtrak's (the company) boarding procedures at the company's busiest stations, compare them to procedures used by commuter and international intercity passenger railroads and transit systems, and make recommendations for improvement. Further, Congress tasked us with reviewing the company's procedures for bicycle boarding. In addition, no later than six months after the date of our report, the FAST Act requires the Amtrak Board of Directors to consider each recommendation for implementation at appropriate locations across the Amtrak system.

In fiscal year (FY) 2015, about 31 million people boarded the company's trains. Of the more than 500 stations that the company serves, the 20 busiest stations accounted for more than 58 percent of these passengers (17.9 million). Our research shows that impressions made during the boarding process can directly influence passengers' perception of—and satisfaction with—their entire journey. Accordingly, boarding plays an important role in advancing the company's strategic goal of acquiring and retaining satisfied customers.

## SUMMARY OF RESULTS

The company's approach to boarding is a mix of station-specific procedures that reflect each station's physical space, passenger volume, boarding times, and passenger type. However, these procedures lack the benefit of a company-wide boarding strategy. Although successful in some locations, we found evidence of passenger frustration,

---

<sup>1</sup> Pub. L. No. 114-94.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

anxiety, and confusion in others, undermining the company's strategic goal of acquiring and retaining satisfied customers.

We identified leading practices—through audit work conducted both domestically and abroad—that could improve the company's boarding process. Although we recognize that individual station characteristics prevent the application of a one-size-fits-all approach, these practices focus on three general areas: (1) maximizing the use of physical facilities, (2) establishing customer-friendly processes, and (3) communicating clearly with passengers. We also found that instituting and maintaining leading boarding practices requires a commitment to continuous improvement. Specifically, conducting extensive qualitative and quantitative analyses—such as pedestrian flow modeling, and customer surveys—are vital steps in this pursuit.

We found that these leading practices are in place to varying degrees at the company's 20 busiest stations; however, opportunities exist to apply them more consistently to improve the passenger boarding experience. Our observations are as follows:

- **Leading practices are in place to varying degrees in the company's busiest stations.** In Chicago Union Station, for example, station managers have sought solutions to crowded facilities by making better use of available space. In New York Penn Station, a pilot program to board trains early improved customer satisfaction scores, and managers at Albany-Rensselaer Station have encouraged Customer Service Representatives (CSRs) to proactively seek out passengers who need help.
- **Opportunities exist to better implement leading practices at all 20 stations included in our review.** These practices include sequencing boarding announcements, making train information more readable, and positioning staff in visible and accessible locations. In New York Penn Station and Washington Union Station, the company's two busiest stations, we observed passengers anxious and frustrated by confusing processes, such as long, unmanaged queues. Similarly, we observed passenger confusion at some smaller stations where signage is incomplete or overly complicated, such as Emeryville, California, and Portland, Oregon. Implementing some of the leading practices may require additional resources, but many can be achieved at no or low cost through better utilization of existing resources. For example, in Sacramento, California, we observed a community volunteer strategically located to help passengers interpret confusing directional signs to the platforms.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

Successfully implementing additional leading practices at the 20 busiest stations will require the company to overcome the following challenges:

- **Lack of a senior accountable official and a company-wide boarding strategy limits the company's ability to improve passenger boarding.** Without a senior accountable official, the management of boarding processes is decentralized, resulting in uneven attention to boarding issues across the company. Some station managers actively pursue improvements, but problematic conditions persist at other stations without redress. In addition, solutions that require coordinated efforts—such as between terminal, station, and onboard crew managers, or between Amtrak and other transportation providers—can be overlooked because no senior accountable official is facilitating that coordination or working in accordance with a company-wide boarding strategy.
- **Other factors may also limit the company's ability to adopt leading practices, and some of these factors are outside the company's control.** The company does not fully own 14 of its 20 busiest stations, which limits its ability to change signage or use the space differently. Further, about one-third of all stations the company serves are listed on the National Register of Historic Places, and any proposed changes—such as adding signage or removing decorative features—may require extensive approvals. We also observed that some employees resist assuming different responsibilities and embracing new processes that could improve the customer experience.

In addition, we found that the company is planning or developing several programs that could directly or indirectly affect the passenger boarding process, including assigned seating, priority boarding, mobile CSRs, and expanded bicycle service. These efforts are still in various stages of planning, and some are complicated undertakings that will require extensive and continued coordination across departments. Without a company-wide strategy to guide these efforts and a senior accountable official to manage them, the company could duplicate other ongoing efforts to improve the boarding process or limit their intended benefits.

We recommend that a senior accountable official, most likely in the Operations department, be designated to lead a company-wide effort to enhance the boarding process to improve the customer experience. Further, that official should be tasked with developing a documented strategy to guide the company-wide effort utilizing the

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

leading practices identified in this report. In commenting on a draft of this report, management agreed.

## **OBJECTIVES**

Our objectives were to (1) identify leading practices for passenger boarding, (2) evaluate the extent to which the company's passenger boarding procedures at its 20 busiest stations followed these leading practices, and (3) identify other factors that may limit the company's ability to adopt leading practices. The appendixes present the following information:

- For our Scope and Methodology, see Appendix A.<sup>2</sup>
- For a list of Amtrak's 20 busiest stations by ridership in FY 2015, see Appendix B.
- For a full discussion of leading practices, see Appendix C.
- For the status of bicycle service, see Appendix D.

## **BACKGROUND**

One of the company's three strategic goals is to acquire and retain satisfied customers, which can be significantly influenced by the ease with which passengers board its trains.<sup>3</sup> Every station the company serves has a unique boarding process, largely established by Operations department station managers and their supervisors (referred to collectively in this report as station managers). For the purposes of this report, we define boarding as starting when passengers enter the station and ending when they are seated on the train.

Station managers generally determine where and when passengers will be allowed to access platforms and board trains, manage service and signage displays, schedule the timing of audio announcements, and decide how and where personnel are deployed throughout the station, according to management officials. The boarding process is also shaped by factors that vary between stations, some of which are beyond the station

---

<sup>2</sup> Although we observed the company's boarding procedures for individuals with disabilities, our scope did not include a comprehensive evaluation of the adequacy of these procedures or an assessment of the company's compliance with the Americans with Disabilities Act.

<sup>3</sup> The company's three strategic goals are (1) safety and security, (2) customer focus, and (3) financial excellence.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

managers' control, including the following:

- **Physical space.** The physical features of a station, including the size of the waiting area, platform length and width, and the number and type of access points (escalators, stairs, and platform levels).
- **Passenger volume.** The number of passengers and trains transiting a station at a given time, including Amtrak, commuter, transit, and other station users.
- **Boarding time.** The amount of time available for boarding, determined largely by whether a train originates at the station or passes through. "Through-trains" generally have shorter dwell times than trains that originate at stations, resulting in compressed boarding windows.
- **Passenger type.** Passenger demographics, which vary by route and station, translate into different levels of passenger need for assistance and information.

Other station-specific considerations influence decisions on the boarding process, such as whether the company shares platform space with other rail providers. Safety concerns may also affect the process, including passengers sharing platforms with service vehicles (for example, baggage or commissary carts) and passengers crossing active tracks en route to their trains.

Although station managers ultimately determine the sequence and timing of passenger boarding, others manage the following functions that play a role in these decisions:

- **Terminal Operations (in the Operations department).** Designates track assignments, which can affect the timing of boarding and the density of queues and other passenger flows.
- **Marketing and Sales.** Conducts market research, forecasts demand, and performs other analyses. Leads efforts to implement mobile CSRs. Manages bicycle program and conducts ad hoc studies related to various aspects of customer service.
- **Infrastructure and Investment Development (IID).** Manages station design and development for five stations: New York Penn Station, Washington Union Station, Philadelphia 30<sup>th</sup> Street Station, Baltimore Penn Station, and Chicago Union Station.<sup>4</sup>

---

<sup>4</sup> These five major Amtrak stations and adjacent properties are being redeveloped under the Terminal Development Initiative.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

- **Asset and Real Estate Development (within IID).** Manages the company's leases with station owners. Manages oversight of operating facility development activities, station program and planning guidelines, and standards for station signage in company-owned stations, according to IID officials.
- **Amtrak Police Department.** Provides security at selected, large stations. Conducts random passenger and baggage checks during the boarding process—alone or in conjunction with other law enforcement agencies.

Although no statute or regulation explicitly dictates how the company should board passengers, the company is bound by the common law duty to conduct its boarding process in a manner that provides passengers with the “highest degree of care” for their safety, consistent with the standards for the industry.<sup>5</sup> The company has written boarding procedures, but they are limited to the timing of ticket sales and how long gates must remain open prior to departure. The company also has station program and planning guidelines, which are intended to aid in station design and renovation efforts.

## **LEADING PRACTICES PROVIDE BENCHMARKS FOR PASSENGER BOARDING**

We identified leading practices in passenger boarding that target the physical boarding process and passengers' perceptions of that process. We identified these practices through a combination of sources, such as a review of academic and industry studies, meetings with experts in queue management and station signage, and observations at the company's 20 busiest stations and 18 large European railway stations. We discussed these practices with domestic and international station managers, security personnel, and infrastructure and real estate officials. These practices also reflect our discussions with representatives from Marketing and Sales (Marketing), Amtrak Police, Operations, Labor Relations, Real Estate, and Amtrak Law, as well as an external rail passenger advocacy group.

We have grouped the leading practices we identified into three areas:

- maximizing the use of physical facilities
- establishing customer-friendly processes
- communicating clearly with passengers

---

<sup>5</sup> 14 Am. Jur. 2d Carriers § 932 [2016].



*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

The leading practices are shown in Table 1. For a full discussion and examples of each leading practice, see Appendix C.

**Table 1. Leading Practices for Passenger Boarding**

<b>1. Maximize the Use of Physical Facilities</b>
<ul style="list-style-type: none"> <li>• <b>Enhance pedestrian flows.</b> Analyze pedestrian flows to identify opportunities to enhance passenger movements and minimize choke points and their causes. Includes removing unnecessary barriers, coordinating terminal and station operations to separate busy trains, and changing direction of passenger flows. At highest volume, or most problematic stations, computer-simulated pedestrian flow modeling tools may be needed to augment analysis.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Fully utilize available space.</b> Identify under-utilized physical space and maximize its use. Structure the space to best accommodate boarding.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Design passenger-friendly facilities.</b> When building or redesigning facilities, maximize the use of spatial organization, natural light, color, and other design techniques to aid in navigation, reduce confusion, and otherwise improve the passenger experience.</li> </ul>
<b>2. Establish Customer-Friendly Processes</b>
<ul style="list-style-type: none"> <li>• <b>Board early.</b> Allow passengers to board originating trains as early as practical before departure. For through trains, allow access to platforms as early as practical.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Sequence boarding.</b> Adjust timing of boarding to minimize queues and manage passenger density. Could involve posting track information earlier, later, or to different groups at different times.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Actively manage queues.</b> Use station staff to actively manage queue formation and flow, ensure fairness, reassure passengers that they are in the correct location, and otherwise organize the process.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Provide distractions.</b> When waiting is inevitable, provide passengers relevant, appropriate distractions. Occupied time feels shorter than unoccupied time.</li> </ul>
<b>3. Communicate Clearly with Passengers</b>
<ul style="list-style-type: none"> <li>• <b>Post clear directional signage.</b> Use clear, uniform signage to direct passengers through the station to common destinations (trains, ticketing, restrooms, platform signs, etc.). Placement and text of signs should minimize passenger confusion and maximize pedestrian flow.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Make targeted and timely announcements.</b> Make clear, targeted, and timely boarding announcements using display boards, personnel, public address systems, and technologies such as texts or email.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Provide a visible, accessible staff presence.</b> Locate staff in key locations to answer questions, give directions, and provide proactive assistance.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Coordinate all information.</b> Communicate consistently, clearly, and concisely across all information channels.</li> </ul>

*Source:* OIG analysis based on station observations, industry literature, academic studies, and interviews with experts. For full methodology, see Appendix A.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

Our work also identified the importance of conducting qualitative and quantitative analyses—such as pedestrian flow modeling and customer surveys—to identify which practices are needed and where. We further identified the importance of systematically and continuously evaluating the effectiveness of these solutions, which includes experimenting, measuring results, and making additional adjustments as needed to maximize the passenger experience.

For example, one European rail provider’s market research found that its boarding process provoked so much anxiety that passengers were less likely to return. To solve the problem, officials told us they conducted extensive analysis, including observing, counting, and timing how and when passengers moved to the trains. They noted that when a platform was announced, some passengers rushed to the trains, which caused everyone to rush. Officials likened the scenario to a “stampede.” To moderate the passenger flow, officials began staggering boarding announcements. Initial announcements were sent via text to electronic ticket holders. Then, at 30-second intervals, the platform was posted successively on various information boards around the station before finally being announced over the public address system. As a result of the change, officials stated that the boarding process has become much calmer and more orderly.

## **MORE EMPHASIS ON LEADING PRACTICES COULD IMPROVE PASSENGER BOARDING EXPERIENCE**

Some leading practices are in place at all 20 of the stations we visited. Nonetheless, we identified a number of opportunities to implement more leading practices and apply them more consistently to improve the customer experience.

### **Leading Practices Are in Place to Varying Degrees in the Company’s Busiest Stations**

We observed examples throughout the country of leading practices being effectively implemented, although their use varies by station. Station managers in Chicago are addressing crowding in small boarding gates by staging some passengers in other areas. Station managers in New York City and Washington D.C. have improved some passengers’ experiences by boarding trains earlier, and other stations have employed pedestrian flow modeling, positioned staff in key positions, and ensured that signage is well designed. Examples of how the company is employing leading practices are described below.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Fully utilizing available space in Chicago.** In Chicago Union Station, station managers have relieved congestion in the space-constrained gate areas by staging general boarding passengers in the previously underutilized space in the station's Great Hall, as shown in Figure 1, while reserving the gate areas for passengers requiring assistance. Station managers told us they are still fine-tuning the boarding process, but report that this adjustment has already reduced crowding in the gate areas.

**Figure 1. General Boarding for Long-Distance Trains, Chicago Great Hall**



*Source: Amtrak Office of Inspector General*

Station managers told us these changes have made the boarding process more organized and have also made it easier for station personnel to identify and assist passengers who need extra help or time to board. Later this year, the company is planning to eliminate passenger choke points in the station by moving and downsizing the ticket counter, removing walls, and making other structural improvements to improve sight lines and passenger flow.

**Early boarding programs in New York City and Washington D.C.** In New York Penn Station, station managers began a pilot program in August 2014 to board three originating Acela trains 20 minutes prior to departure rather than the standard 15 minutes. To test the effectiveness of this pilot, station managers relied on the

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

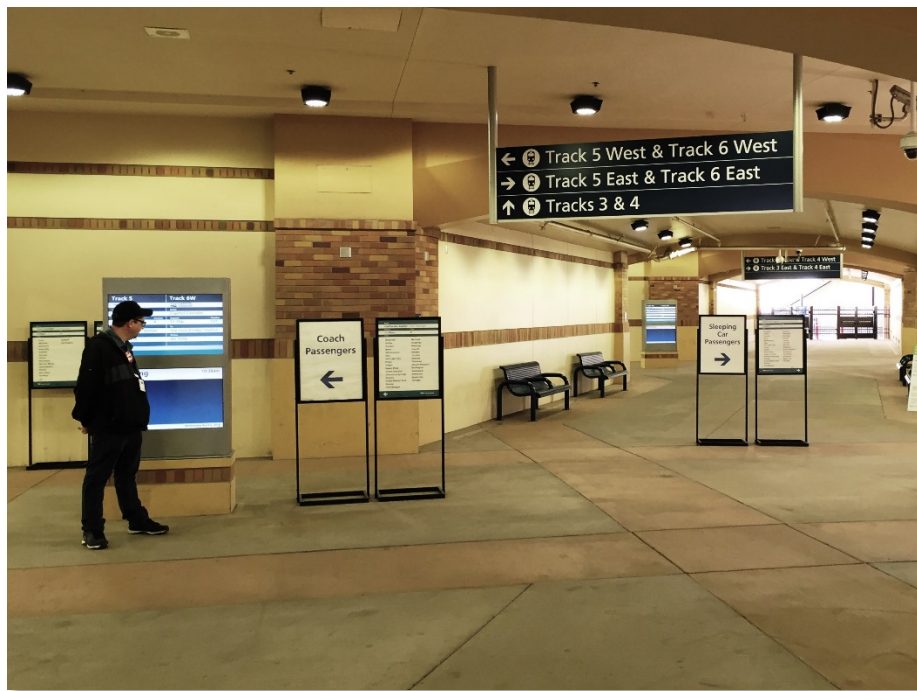
Marketing department's regular passenger satisfaction surveys. Two metrics that indicate customer satisfaction with the boarding changes are customer survey scores for "ease of train boarding" and "value received for price paid." One year after the pilot began, scores for ease of boarding for these three trains increased by 10 percentage points, and the value for price paid scores increased by 9 percentage points. For Acela trains not included in the pilot, the same metrics declined during this period.

A similar early-boarding program is in place for select trains that originate in Washington Union Station, where the goal is to board trains 30 minutes before departure rather than the standard 20 minutes. Station managers in Washington D.C. have not solicited customer feedback, but they report that queues and crowds are generally smaller for trains that board earlier.

**Positioning personnel in key locations in Sacramento.** In Sacramento, passengers must navigate a walk of approximately 1,000 feet between the station and the train platforms. Although signage is clear and readable, directional information can prove confusing—for example, trains traveling west may depart from tracks designated as "East." We observed a community volunteer strategically located in the passageway helping passengers interpret confusing directional signs to the platforms, as shown in Figure 2.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Figure 2. Community Volunteer in Key, Visible Location, Sacramento, California**



Source: Amtrak Office of Inspector General

**Enhancing passenger flow at Albany-Rensselaer Station.** Managers at Albany-Rensselaer Station analyzed the pedestrian flow through the station and, after a series of experiments, established a boarding pattern that eliminated a major chokepoint by separating arriving and departing passengers, as shown in Figure 3. Station managers also encourage station staff to leave the ticket booth and interact with passengers when crowds develop to answer questions or help passengers navigate. To further facilitate the boarding process, station managers have located a service kiosk at the entryway to gates that will soon provide full service to passengers—selling, exchanging, and upgrading tickets. Station managers told us that these improvements required no additional staff; they were accomplished by rewriting existing job descriptions to make the positions more flexible so staff can assume whatever role is needed to provide the best value to customers.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

**Figure 3. Separated Flow of Arriving and Departing Passengers,  
 Albany-Rensselaer Station, New York**



Source: Amtrak Office of Inspector General

## Opportunities Exist to Better Implement Leading Practices

We observed that all 20 of the company's busiest stations could benefit from better application of leading practices, as follows.

**Crowding and choke points in New York Penn Station.** We observed opportunities for the company to improve boarding at New York Penn Station by adopting leading practices. Boarding at New York Penn Station is affected by a series of challenges: narrow, obstructed platforms; limited platform access points; short boarding windows; and a large volume of rail and subway passengers that exceeds the station's original capacity. Station personnel stated that the narrow platforms make it unsafe to allow boarding passengers to access the tracks before disembarking passengers have cleared the area, as shown in Figure 4. The limited number of platform access points contributes to the crowding.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Figure 4. Narrow Platforms, New York Penn Station**



Source: Amtrak Office of Inspector General

Despite these challenging conditions, opportunities exist to implement leading practices. For example, we observed that as crowds grew, some passengers became confused and agitated—especially those who were traveling through the station for the first time. At the same time, we observed that the information booth immediately adjacent to the platform access points was unstaffed, even as large crowds of passengers developed in the concourse.

In addition, most train platforms have two main access points that the company uses for boarding; however, the volume of passengers boarding most trains is sufficiently large that, when platforms are announced, these entry ways become choke points, as shown in Figure 5. Passengers begin to rush, forming a disorganized crowd before funneling onto the one or two escalators down to the platform. Yet, we observed that each platform has two additional access points on a lower level that the company does not officially use. Some passengers surreptitiously take advantage of these lower-level entrances to circumvent the boarding crowd. Although station managers stated that it would be too costly to staff these alternate entrances, we observed instances where the

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

ticket office had a very high ratio of employees to passengers while no staff were assisting passengers in the boarding area. We observed that current conditions create frustration and anxiety for some passengers, especially first-time visitors.

**Figure 5. Crowd Forming at Access Point for Track 7/8, New York Penn Station**



Source: Amtrak Office of Inspector General

The company has long-term plans to renovate the station in conjunction with New York state and other stakeholders. In the interim, opportunities exist to improve the accessibility and comfort in the current location. For example, station managers stated that they have not fully explored using the lower-level access points or adjusting the location and duties of staff. Moreover, despite its documented benefits to passengers, the early boarding pilot was phased out in 2016, according to an Operations official.

**Unmanaged queues and inefficient use of space in Washington Union Station.** We also observed opportunities for the company to improve boarding at Washington Union Station by adopting leading practices. Station managers told us they have instituted gate control procedures in response to large passenger volumes and concerns that passengers may board the wrong trains. Boarding gates are usually posted about 45–60 minutes before departure, and queues immediately begin to form. We observed passengers queuing as early as one hour prior to departure. Queues continue to grow until train boarding begins, usually 20–30 minutes prior to departure. Washington Union Station has several through-trains, for which the boarding window is much



*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

shorter. The boarding window can be further constrained if the train arrives late and boarding must be accelerated.

The gate areas in Washington D.C. are too small to contain the number of passengers waiting to board most trains, and what little space is available is sometimes poorly utilized. The queues quickly spill out of the gates, building down the length of the concourse, crossing other gates, retail entrances, exits, and other passenger queues, as shown in Figure 6. We observed that passengers often do not know whether they are in the correct queue, and that passengers routinely cut the line, resulting in passenger anger and frustration.

**Figure 6. Unmanaged Queue Stretching Through the Concourse, Washington Union Station**



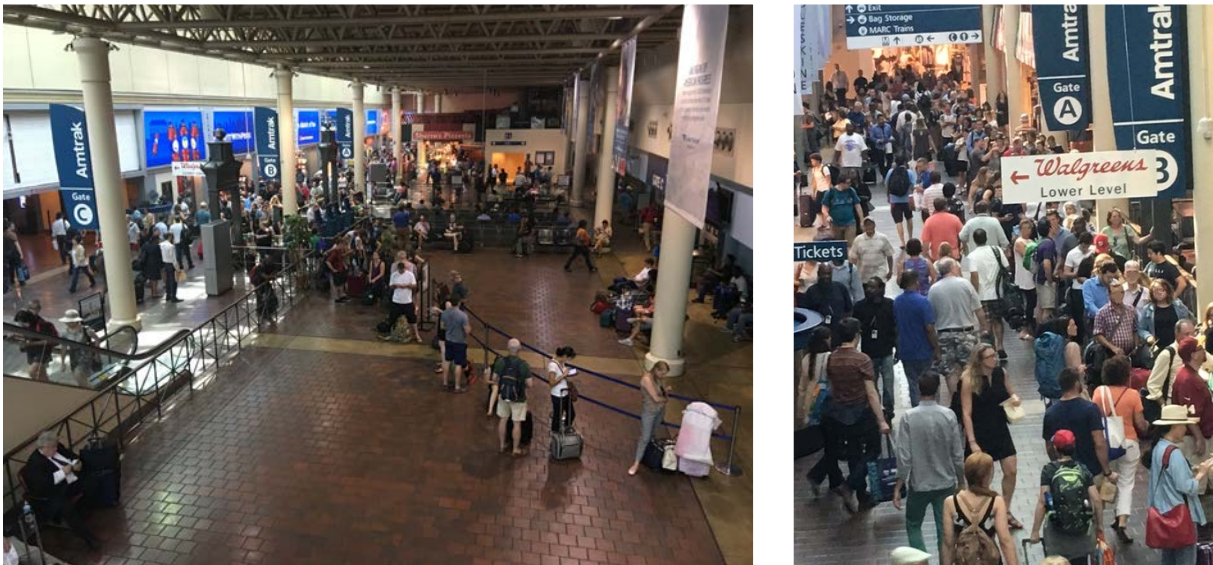
Source: Amtrak Office of Inspector General

We also observed that gate areas are not roped off efficiently to maximize the space available, despite the minimal cost associated with such an action. Further, we observed that station staff make little effort to manage queues and passenger flows. For example, Figure 7 provides two separate perspectives of the same queue for a Friday afternoon Northeast Regional train. The picture on the left shows a crowd lining up inefficiently

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

in underutilized space in the boarding area, and the picture on the right shows the resulting queue amassing in the concourse area. These figures demonstrate how ineffective space division and queue management contribute to concourse crowding. Both solutions are low-cost, which could be beneficial given Amtrak's current budgetary challenges.<sup>6</sup>

**Figure 7. Two Views of Same Queue, Washington Union Station**



Source: Amtrak Office of Inspector General

In addition, we observed instances in which CSRs were not helping manage queues, despite what appeared to be several CSRs in the ticket office who were not engaged with passengers.

We also observed that the station has two large lounges that are occasionally used for queuing passengers, but these are used ad hoc and are not methodically roped off to maximize the space for staging and boarding passengers. The rooms are used intermittently to host employee events such as for flu shots and retirement parties.

<sup>6</sup> As of July 2016, the company was projecting a budgetary shortfall of \$48 million for FY 2016, attributed primarily to cost management issues.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Figure 8. Underutilized Rooms Adjacent to Boarding Areas**



Source: Amtrak Office of Inspector General

Station managers told us that an early boarding program began in FY 2014 that allows trains to begin boarding 30 minutes prior to departure rather than the standard 20 minutes. Station managers report that the program has resulted in smaller queues and improved passenger experience, which is made possible by a special duty conductor who checks and prepares the trains for boarding prior to the arrival of the onboard crew. This allows onboard crews to begin boarding trains immediately rather than having to conduct the same checks. The program applies to trains departing weekdays from 11:00 a.m. to 7:00 p.m. Station managers told us that early boarding would also benefit passengers on early morning trains, but the company does not plan to extend the program because of budgetary constraints.

The company is working with multiple stakeholders on a long-term redevelopment project for Washington Union Station. This project will include improvements to the boarding area and is estimated to be complete in 2020, according to an infrastructure planning official. Station managers and company officials told us that these structural changes will improve the boarding process in Washington; however, they have pursued only limited interim solutions to reduce congestion and passenger anxiety related to conditions in the existing space. For example, station managers stated that they have not conducted any detailed analyses of pedestrian flows or available space that might

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

be used for boarding purposes.

**Poorly sequenced boarding at Boston South Station.** In Boston South Station, we observed long queues developing when boarding announcements were inefficiently sequenced. On several Northeast Corridor trains, platforms were announced and posted before the train crews had finished their mandatory safety checks and were ready to let passengers board. As passengers walked out to the platforms, station staff stopped them, forcing them to queue before they could reach their trains. As a result, long queues developed that impeded the flow of other station users, as seen in Figure 9.

**Figure 9. Queues Develop Due to Poorly Sequenced Boarding,  
Boston South Station**



Source: Amtrak Office of Inspector General

**Unclear signs at smaller stations.** We also observed opportunities at smaller stations for the company to improve boarding by adopting leading practices. For example, in Emeryville, California, the train information board does not have the capability to provide information about two long-distance trains that depart from there—the California Zephyr and the Coast Starlight, as shown in Figure 10. Without clear visual information alerting passengers that their long-distance train is boarding, passengers for these trains must rely on public address announcements, which they sometimes do not hear. Despite staff efforts to ensure that passengers are informed about their departures, station staff told us—and we observed—that some passengers miss their trains.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Figure 10. Train Information Board, Emeryville, California**

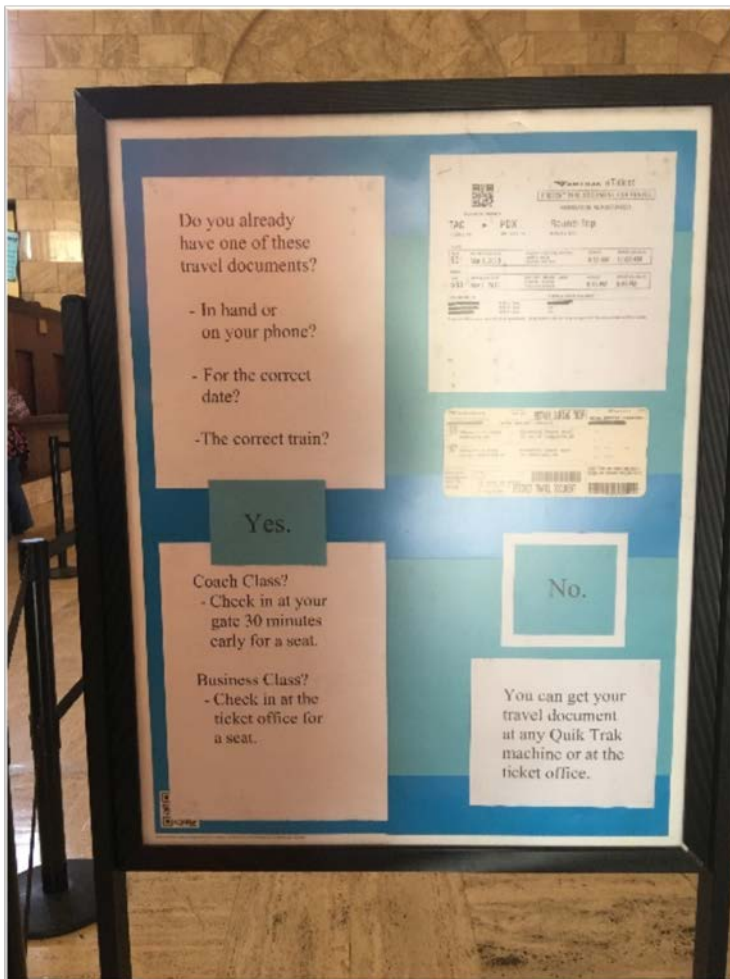


Source: Amtrak Office of Inspector General

Similarly, in Portland, Oregon, ad hoc information signs at the station's entrance are difficult to see and overly complicated, as shown in Figure 11. We observed that instead of clarifying directions for passengers—which was the station managers' intent—this sign actually increased confusion for some passengers arriving at the station.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

**Figure 11. Complicated Informational Signs, Portland, Oregon**



Source: Amtrak Office of Inspector General

## **SEVERAL CHALLENGES COULD IMPEDE THE COMPANY'S ABILITY TO IMPLEMENT LEADING PRACTICES**

Our work identified several challenges that could impede the company's ability to implement leading practices to improve the boarding process, including the lack of a senior accountable official and a company-wide strategy. We also identified other barriers to implementing these practices, some of which are outside the company's control.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## **Lack of a Senior Accountable Official and Boarding Strategy Limits Company-wide Attention to Boarding Procedures**

We found that no single official in the company is accountable for ensuring that deficiencies in boarding procedures are addressed, and that the company does not have a strategy to ensure that boarding receives a company-wide focus. The decentralized management of boarding processes has resulted in uneven attention to boarding issues across the company. Some station managers aggressively pursue improvements, but problematic procedures and conditions persist at other stations without redress. For example, at some stations, staff stated that they had followed the same basic procedures for more than a decade. At others, stations managers were unaware that their signage or processes were leading to passenger frustration, anxiety, and confusion.

In addition, solutions that require internally or externally coordinated efforts—such as between terminal, station, and onboard crew management, or between Amtrak and other transportation providers—can be overlooked because no senior accountable official is facilitating that coordination or doing so in accordance with a company-wide strategy. For example, in Los Angeles we observed a boarding announcement made for a train that was not yet ready for boarding. Passengers waited on the platform 10 minutes for conductors to open the train doors, becoming noticeably frustrated. Although it is unclear whether the platform announcement was too early or the train crew was delayed, better coordination between station managers, onboard crew managers, and Metrolink—the commuter railroad that controls announcements in Los Angeles Union Station—would likely have averted this situation.

Our prior reports have shown that managing programs across multiple departments is challenging for the company. In these reports, we made recommendations to develop a strategy and consolidate responsibilities under a senior accountable official to manage and coordinate efforts across departments.<sup>7</sup> These recommendations were consistent with private- and public-sector management control standards that emphasize the importance of assigning clear roles and responsibilities, and delegating authority to achieve an organization's objectives. Without a company-wide strategy and a senior accountable official tasked with coordinating activities and resources—both internally

---

<sup>7</sup> See *Safety and Security: Progress Made Implementing Positive Train Control, but Significant Challenges Remain* (OIG-A-2015-013, June 19, 2015); *Information Technology: Reservation System Infrastructure Updated, but Future System Sustainability Remains an Issue* (OIG-A-2015-010, May 19, 2015); and *Train Operations and Business Management: Addressing Management Weaknesses Is Key to Enhancing the Americans with Disabilities Program* (OIG-A-2014-010, August 4, 2014).

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

within the company and externally between Amtrak and other stakeholders—the company may be missing opportunities to advance its corporate customer service goals.

### **Other Factors May Limit the Company’s Ability to Adopt Leading Practices**

The company’s ability to adopt leading practices at some stations may be limited by other factors, some of which the company has little or no ability to control. These factors include a lack of control over stations that are not owned by Amtrak, agreements with other transportation providers, historical preservation requirements, employee resistance to change, and coordination with state and local governments.

**Station ownership limits opportunities for changes.** The company does not fully own 14 of its 20 busiest stations, which company real estate officials say can restrict its ability to decide how facilities are used or to make unilateral changes in station design or signage. For example, in Boston South Station, which is owned by the Massachusetts Bay Transportation Authority (MBTA), a proliferation of advertising displays compete with train information boards and directional signs, as shown in Figure 12. MBTA officials acknowledge that the advertising creates visual clutter that makes it difficult for all passengers, including Amtrak’s, to locate and focus on relevant information, but they told us there is increasing budgetary pressure for MBTA to tap ancillary revenues from advertising.



*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

**Figure 12. Visual Clutter, Boston South Station**



Source: Amtrak Office of Inspector General

**Agreements with other transportation providers can limit boarding changes.** At some stations, the company has contractual agreements with commuter rail, bus, and other passenger transportation providers to share space, such as boarding areas, platforms, and tracks, according to IID officials. These agreements can limit the company's ability to unilaterally change boarding processes, even in stations it wholly owns. For example, efforts to improve passenger flows by physically separating high-volume trains or staging passengers in alternate locations may require contracts to be re-negotiated.

**Historic preservation can entail extensive approval processes.** About one-third of all stations the company serves are listed on the National Register of Historic Places. These are covered by the National Historic Preservation Act (NHPA) of 1966,<sup>8</sup> which requires a significant review process before making any proposed modifications that will impact the sites—for example, adding permanent signage or removing decorative features. In addition to other matters, the National Environmental Policy Act of 1969<sup>9</sup> expanded the scope of protection of NHPA. As a result, the company could face an extensive review and approval process, including public hearings, under these federal statutes and other

<sup>8</sup> Pub. L. No. 89-665

<sup>9</sup> Pub. L. No. 91-190

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

requirements before any modifications are made related to boarding procedures at these stations. For example, in Washington Union Station, an IID official stated that the arches at the entrance to station gates restrict passenger flow and add to crowding. However, these gates date to the early 1900s, and the State Historic Preservation Office has requested that they be preserved and integrated into any new concourse design, although not necessarily as a passageway element. Figure 13 shows the gates as they were used in 1968 and in their present location.

**Figure 13. Historic Arches, Washington Union Station, 1968 and 2016**



*Source:* U.S. Library of Congress and Amtrak Office of Inspector General

**Employees may resist procedural changes.** Station managers told us—and we observed—that some company employees are resistant to assuming different responsibilities or changing long-standing practices. During the past decade, the use of station ticket offices has decreased as web sales and mobile device ticketing have increased. With fewer customers to service at the ticket office, station managers stated they have encouraged ticket agents to engage more with passengers in the boarding area. Many told us the response from employees has been mixed; although some ticket agents have embraced the opportunity, others are reluctant to proactively interact with passengers, and some lack critical customer service skills.

To improve the customer service skills of all employees, the company launched a program in 2014 that reinforces the need to put passengers first. The company is also placing a premium on customer service skills in its recruiting efforts and has instituted a new cultural fit assessment tool to ensure that new hires embody these values. Despite these and other efforts, however, we observed that customer service during the

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

boarding process remains inconsistent.

**Coordination with state and local governments can pose challenges.** At some stations, Amtrak relies on passenger information boards operated by states, municipal governments, or other transportation agencies, which can create challenges to communicating clearly with passengers. For example, in the Emeryville station, the automated arrival and departure board receives its train status information from location equipment installed by California on state-supported trains, according to IID officials. Amtrak's long-distance trains do not have this equipment, preventing the train information board in Emeryville and other California stations from being able to display arrival and departure times for Amtrak trains.

In addition, at stations with state-supported trains, different states' preferences for processes that affect boarding can limit the company's ability to make improvements. For example, station managers in Portland, Oregon, and Seattle, Washington, told us that the practice of manually assigning seats—which rail passenger advocates say results in cumbersome and needless queuing—is a state preference.

## **EFFORTS UNDER DEVELOPMENT COULD AFFECT BOARDING**

The company's Marketing, Information Technology, and Operations departments are developing several complex programs that could directly or indirectly affect the passenger boarding process. These include assigned seating, priority boarding, mobile CSRs, and expanded bicycle service. These efforts are in various stages of planning, and some are complicated undertakings that will require extensive and continued coordination across departments.

**Assigned seating.** The Marketing department has been exploring options to introduce assigned seating to improve the boarding process. To date, the company's market research suggests that assigned seating may have mixed benefits, and its implementation may involve challenges. In late 2015 and early 2016, the company conducted customer focus groups on assigned seating to assess passenger receptiveness to the concept. The focus groups indicated that some passengers believed that assigned seating would reduce anxiety by freeing them from the competitive rush to get onboard ahead of others to get their preferred seats.<sup>10</sup> However, a senior Marketing department

---

<sup>10</sup> The Marketing department hired a contractor to conduct 24 focus groups in six cities from December 2015 to January 2016 in New York City, Washington D.C., Chicago, Philadelphia, Baltimore, and Providence, Rhode Island. Groups consisted of Acela, Northeast Regional, and long-distance customers.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

official reported that in actual trials of assigned seating, passengers strongly preferred to choose their own seats once they boarded the train. A Marketing official also stated that implementing a wide-scale assigned seating program would require complex and costly technology upgrades to passenger cars and changes to the company's reservations system.

We also found that European operators approach assigned seating in different ways and have experienced mixed results. All four countries we visited use some model of assigned seating, but we determined that no particular model represented a clear leading practice. Models differ by country, by operator, and by type of train, and they can vary on the same train. Moreover, many trains do not even offer assigned seating. For example:

- In France, the national railroad operates three types of trains, each with different seat assignment rules. Reservations are required on high-speed trains, are optional on intercity trains, and are not available on local regional trains.
- In Germany, assigned seats are mandatory on some trains but are not required on most.
- In the United Kingdom, seat reservations generally are not required but are sometimes recommended.
- In Switzerland, assigned seating is optional.

We also observed differences in how assigned seating is implemented. In some cases, passengers can pre-select specific seats; in others, the operator randomly assigns a seat. Seat reservations may incur an additional fee, be included in the ticket price, or be offered at no additional cost.

Further, we observed that, in circumstances where assigned seating is used, it can both positively and negatively affect boarding. On the positive side, we observed that families and groups were assured they would be seated together on the train. However, train managers in London told us that, even with assigned seats, some passengers still rush to board, either to find limited space for bags or just because of human nature. These managers also told us the technology supporting the system fails occasionally, which leads to significant passenger confusion. Moreover, we observed that passengers do not always sit in their assigned seats, which can create conflicts between passengers.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Priority boarding.** In August 2016, Northeast Corridor business line managers initiated a priority boarding pilot at Washington Union Station to organize the boarding process and improve customer loyalty, according to Marketing officials. The officials, who are working with the Northeast Corridor business line to develop the pilot, stated that they plan to permit several groups to board in advance of general passengers: elite traveler rewards members, first-class and premium-class passengers, families with small children, uniformed military, and passengers requiring assistance. Marketing officials stated that the company plans to extend this pilot to three other Northeast Corridor stations: Boston South Station, New York Penn Station, and Philadelphia 30<sup>th</sup> Street Station.

The success of the priority boarding pilot will depend largely on how effectively and consistently it is carried out by station personnel. For example, in the early days of the pilot's implementation, we observed that some passengers who met the priority boarding criteria were lined up too far away from gates to hear priority boarding announcements, and station personnel made only limited attempts to seek out all the passengers eligible for priority boarding.

The Marketing department, however, has no authority to direct station personnel because they are employees of the Operations department. Therefore, continued coordination between Marketing, station managers, and station personnel will be key. Without a senior accountable official to facilitate this coordination and to do so in accordance with a company-wide strategy, the company could miss opportunities to effectively implement the priority boarding program.

In addition, the introduction of priority boarding illustrates the challenge of simultaneously implementing multiple complex efforts. The company has already documented customer satisfaction with another pilot program (early boarding) that allowed all passengers to board trains earlier. Without a senior accountable official operating in accordance with a coordinated company-wide strategy, the company risks shifting focus from a program that has demonstrated success to one whose benefits are as yet unclear.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

**Mobile CSRs.** According to Marketing officials, the Marketing and Information Technology departments have been working to improve customers' station experience by implementing mobile CSRs as part of Project EPIC, an acronym for "Easy, Personal, Intuitive and Compelling."<sup>11</sup> A component of this project includes developing hand-held devices that will allow station staff to issue or change tickets while circulating in the boarding area. Marketing officials stated that they have worked collaboratively and positively with station staff in the Operations department during development and testing of mobile ticketing devices.

**Expanded bicycle service.** The company is expanding its bicycle service. However, Marketing officials told us that several factors—such as state partner requirements and differences in equipment and station infrastructure—result in differing types and costs of service. For more information on the company's bicycle service, see Appendix D.

Without a well-coordinated, company-wide effort to improve the boarding process and a senior accountable official to strategically manage this effort, projects under development could duplicate or detract from other efforts to improve the boarding process. These potential conflicts, as well as the challenges associated with the complexity of projects under review, illustrate the need for careful company-wide coordination, planning, and testing prior to and throughout all phases of implementation for any of these efforts, consistent with leading program management practices. They also emphasize the difficulty of successfully achieving company-wide goals that require the coordination of multiple departments or operating functions without the leadership of a senior accountable official.

## CONCLUSIONS

One of the company's key strategic goals is to enhance customer service, which can be significantly influenced by the ease with which passengers board its trains. Because of station differences, the company's approach to passenger boarding has resulted in a mix of procedures that in some cases successfully optimize facilities, time, and available personnel, but in other cases result in passenger frustration, anxiety, and confusion. We recognize that individual station characteristics prevent the application of a one-size-fits-all boarding approach. Nevertheless, tasking a senior accountable official with developing a company-wide boarding strategy would help ensure that station

---

<sup>11</sup> The objective of Project EPIC is to "unify the customer and agent-facing booking and ticketing functionality."

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

managers and other personnel focus on analyzing and identifying the most viable solutions for implementing leading practices and improving the boarding process company-wide. A senior accountable official would also be positioned to advance company-wide goals requiring internal coordination between multiple departments and operating functions, or external coordination between Amtrak and states or other transportation providers.

At some stations, leading practices can be implemented and significant improvements can be achieved at low cost and with minimal effort—for example, by actively managing queues and better sequencing boarding announcements. At others, improving the boarding process will require management to make substantial commitments to changing long-standing processes, procedures, and attitudes, as well as to invest in infrastructure improvements consistent with the leading practices referenced in this report. These practices can guide these improvement efforts, forming the basis for station-specific improvements and for a broader company-wide effort. Given that budgetary constraints could affect the company's ability to address all needs in the short term, a senior accountable official would be well-positioned to identify and prioritize improvement plans and coordinate longer-term efforts that can affect customer service.

Finally, boarding challenges are particularly acute in high-volume stations, such as New York Penn Station and Washington Union Station, and merit particular attention. Given the importance of these two stations to the company's business, immediate focus and investment may be warranted, even while the company pursues more extensive plans to expand and redevelop the existing facilities.

## **RECOMMENDATIONS**

We recommend that the Board of Directors direct the company to take the following actions to improve passenger boarding:

1. Designate a senior accountable official, most likely in Operations, to lead a company-wide effort to enhance the boarding process and customer experience, and ensure that this official has adequate authority to manage and implement this effort across the company.
2. Task this official with developing a strategy to guide a company-wide effort to enhance the boarding process and customer experience, emphasizing the leading practices described in this report. The strategy should include, at a minimum,

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

documented action plans for the 20 busiest stations—with particular attention to New York Penn Station and Washington Union Station. The strategy should be administered using generally accepted program management principles, such as goals, requirements, timeframes for completions, and metrics to gauge effectiveness.

## **MANAGEMENT COMMENTS AND OIG RESPONSE**

We provided a draft of this report to the company for review and comment. The company's Executive Vice President/Chief Operations Officer provided written comments and agreed with our recommendations, but asked that we modify the first recommendation to state that the senior accountable official should be appointed from the Operations department. We agreed that this would be a logical choice and modified our recommendation accordingly. The company's written comments are included in their entirety in Appendix E.

We also received technical comments from Marketing, and Infrastructure and Investment Development officials (IID), which we incorporated as appropriate. IID officials agreed with all the leading practices included in the report; they also highlighted additional factors that further support the need for a company-wide strategy and a senior accountable official. For example, they noted that, even when company officials have implemented leading practices, no one is charged with researching and documenting processes or communicating results system-wide. They also cautioned that, although planned structural changes will increase pedestrian and passenger capacity, these alone will not resolve all boarding issues: operational changes will need to occur along with the physical changes. We agree with these assessments and have reflected them in the report where appropriate.



*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## APPENDIX A

### Scope and Methodology

This report provides the results of our audit to identify leading practices for passenger boarding and to evaluate the extent to which the company's passenger boarding procedures followed these practices.<sup>12</sup> The scope of our work included the company's boarding practices at its 20 busiest stations, based on FY 2015 ridership. We conducted our audit work from December 2015 through August 2016 in the following locations:

- Baltimore, Maryland (Penn Station and BWI Thurgood Marshall Airport Rail Station)
- Boston, Massachusetts (Back Bay and South Station)
- Chicago, Illinois
- Emeryville, California
- Los Angeles, California
- Milwaukee, Wisconsin
- New Haven, Connecticut
- New York, New York
- Newark, New Jersey
- Philadelphia, Pennsylvania
- Portland, Oregon
- Providence, Rhode Island
- Rensselaer, New York (Albany-Rensselaer Station)
- Sacramento, California
- San Diego, California
- Seattle, Washington
- Washington D.C.
- Wilmington, Delaware

---

<sup>12</sup> We observed the company's boarding procedures for individuals with disabilities, but our scope did not include a comprehensive evaluation of the adequacy of these procedures or an assessment of the company's compliance with the Americans with Disabilities Act. For our most recent reports related to the act, see *Acquisition and Procurement: Adequate Competition for Most Contracts Awarded Under Americans with Disabilities Act Program, but Procurement Policies Could be Improved* (OIG-A-2016-008, June 8, 2016), and *Train Operations and Business Management: Addressing Management Weaknesses Is Key to Enhancing the Americans with Disabilities Program* (OIG-A-2014-010, August 4, 2014).

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

Our scope also included field visits to the following European cities, which included observations at 18 rail stations:

- Birmingham, England (New Street)
- London, England (Cannon Street, Euston, King's Cross, St Pancras International, and Waterloo)
- Le Mans, France
- Paris, France (Creil, Gare d'Austerlitz, Gare de L'Est, Gare de Lyon, Gare de Montparnasse, Gare du Nord, and Gare St Lazare)
- Frankfurt, Germany
- Mannheim, Germany
- Lucerne, Switzerland
- Zurich, Switzerland

We also interviewed officials from the following domestic commuter railroads and transit agencies:

- Chicago Metra
- Massachusetts Bay Transportation Authority
- New Jersey Transit
- Southeastern Pennsylvania Transportation Authority

To identify leading practices in passenger boarding, we reviewed academic, commercial, and public-sector studies and guidance in operations management. We also met with experts in queue management and station signage, as well as passenger and bicycle advocacy groups. During our field visits and interviews with domestic transit agencies, domestic commuter railroads, and international passenger railroads, we observed or discussed station operations—including signage, announcements, use of space, timing of boarding, pedestrian flows, interaction of employees with passengers, passenger demographics, and safety and security.

To evaluate the extent to which the company's passenger boarding procedures followed leading practices, we met with officials from the Operations department (including terminal and station managers), the Marketing department, Law department, and IID. At select high-volume stations, we interviewed officials from the Amtrak Police Department. At each station, we interviewed station managers regarding issues or challenges with boarding, passenger demographics, past and ongoing efforts to improve boarding practices, limitations on ability to make changes, and safety and security considerations.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

We also observed the passenger and bicycle boarding process at each station we visited, and we observed other factors that affect the boarding process—including signage, public address announcements, adequacy of space, timing and ease of boarding, pedestrian flows, and interaction of company employees and other personnel with passengers. The length of our station visits ranged from one to three days, including multiple days at the company’s busiest and most complex stations in Washington D.C. and New York City.

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

## **Internal Controls**

In conducting this audit, we identified the procedures the company used in passenger boarding at its 20 busiest stations. To evaluate the company’s internal controls, we compared its practices with leading practices that we developed. We also identified and reviewed company policies and procedures for passenger boarding.

## **Computer-Processed Data**

We relied on computer-processed data from Amtrak’s Train Earnings System to provide ridership totals by station. We also reported results from customer satisfaction surveys administered by two Marketing department vendors. We used this data to provide context for Amtrak’s boarding practices. Because these data do not directly support our findings, we relied on the steps the Marketing department takes to verify the accuracy of the data. Based on our judgment and our conversations with Marketing officials, we believe that these data are sufficiently reliable for our purposes in this report.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## **Prior Audit Reports**

In conducting our analysis, we reviewed and used information from the following  
OIG reports:

- *Acquisition and Procurement: Adequate Competition for Most Contracts Awarded Under Americans with Disabilities Act Program, but Procurement Policies Could be Improved* (OIG-A-2016-008, June 8, 2016)
- *Safety and Security: Progress Made Implementing Positive Train Control, but Significant Challenges Remain* (OIG-A-2015-013, June 19, 2015)
- *Information Technology: Reservation System Infrastructure Updated, but Future System Sustainability Remains an Issue* (OIG-A-2015-010, May 19, 2015)
- *Train Operations and Business Management: Addressing Management Weaknesses Is Key to Enhancing the Americans with Disabilities Program* (OIG-A-2014-010, August 4, 2014)

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

## APPENDIX B

### Amtrak's 20 Busiest Stations

The FAST Act requires us to evaluate boarding at the company's 15 busiest stations. Congress subsequently requested that we expand the list to include the 20 busiest stations. Table 2 identifies the company's 20 busiest stations, based on FY 2015 ridership.

**Table 2. Top 20 Amtrak Stations by Ridership, FY 2015**

<u>City (Station)</u>	<u>Rank By Ridership</u>	<u>Ridership (Total Boardings)</u>	<u>Percent of Total Amtrak Ridership (%)</u>
New York, New York ( <i>Penn Station</i> )	1	5,113,115	16.6
Washington D.C. ( <i>Union Station</i> )	2	2,481,112	8.0
Philadelphia, Pennsylvania ( <i>30<sup>th</sup> Street Station</i> )	3	2,074,791	6.7
Chicago, Illinois ( <i>Union Station</i> )	4	1,651,653	5.3
Los Angeles, California ( <i>Union Station</i> )	5	842,731	2.7
Boston, Massachusetts ( <i>South Station</i> )	6	783,284	2.5
Sacramento, California ( <i>Sacramento Valley Station</i> )	7	521,953	1.7
Baltimore, Maryland ( <i>Penn Station</i> )	8	497,343	1.6
Rensselaer, New York ( <i>Albany-Rensselaer Station</i> )	9	412,818	1.3
San Diego, California ( <i>Santa Fe Depot</i> )	10	392,836	1.3
New Haven, Connecticut ( <i>Union Station</i> )	11	352,005	1.1
Wilmington, Delaware ( <i>Wilmington</i> )	12	349,606	1.1
Providence, Rhode Island ( <i>Providence</i> )	13	337,204	1.1
Baltimore, Maryland ( <i>BWI Thurgood Marshall Airport Rail Station</i> )	14	332,425	1.1
Newark, New Jersey ( <i>Penn Station</i> )	15	322,200	1.0
Seattle, Washington ( <i>King Street Station</i> )	16	304,719	1.0
Milwaukee, Wisconsin ( <i>Intermodal Station</i> )	17	298,641	1.0
Emeryville, California ( <i>Emeryville</i> )	18	293,061	0.9
Boston, Massachusetts ( <i>Back Bay Station</i> )	19	292,605	0.9
Portland, Oregon ( <i>Union Station</i> )	20	277,643	0.9

Source: Amtrak Marketing, Government Affairs and Communications, and January 2016 System Timetable.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## **APPENDIX C**

### **Leading Practices for Passenger Boarding**

The leading practices we identified addressed challenges to boarding passengers in three areas: (1) maximizing the use of physical facilities, (2) establishing customer-friendly processes, and (3) communicating clearly with passengers. Our work also identified the importance of conducting extensive qualitative and quantitative analysis—such as passenger flow modeling and customer feedback—to identify problems, develop solutions, and make additional refinements to further improve passenger boarding practices.

#### **1. Maximize the Use of Physical Facilities**

**Enhance pedestrian flows.** Systematically analyze the efficiency of pedestrian movements (flows) through a station. These analyses can include observations, statistical studies of passenger densities and flow rates and—at the busiest or most problematic stations—computer-simulated pedestrian modeling. Use the results of these analyses to minimize station congestion and its causes.

Successful application of this leading practice can improve a station's efficiency and reduce passenger anxiety. Various techniques can be employed to mitigate flow problems, such as alternating the direction of escalators, stairs, and other thoroughfares. Other techniques include coordinating terminal and station operations to separate busy trains. When using computer-simulated modeling, managers can gauge the impact of prospective changes before resources are invested to make them permanent and select the option with the greatest impact. During the design phase of new facilities, European operators also use pedestrian flow modeling to identify the most advantageous location for access points, passenger services, information displays, etc.

**Fully utilize available space.** When boarding space is constrained but major structural changes are not possible, maximize the use of existing facilities by identifying and repurposing under-utilized physical space. Successful application of this leading practice could provide additional space to allow passengers to stage or wait to board, and it could structure the existing space to improve its efficiency. For example, the Transportation Security Administration provides specific guidance on how to position rope lines to maximize the use of constrained space while providing sufficient room for passenger movement. European railroad officials told us they have also trended away

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

from extensive station seating, noting that the primary users are often not travelers, and that the seats themselves present obstacles to efficient passenger movement.

**Design passenger-friendly facilities.** When building or redesigning facilities, maximize the use of spatial organization, natural light, color, and other design techniques to provide clear sightlines, aid navigation, reduce confusion, and create a customer-friendly environment. According to the company's guidelines for station planning, "Spatial organization should be very clear to minimize traveler confusion and uncertainty, and spaces should naturally lead travelers toward their destination." We observed that the design of large European rail stations generally capitalizes on natural light, with clear sightlines from the station entrance to train platforms, as shown in Figure 14.

**Figure 14. Space and Natural Light at King's Cross Station, London, England**



Source: Amtrak Office of Inspector General

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## 2. Establish Customer-Friendly Processes

**Board early.** Allow passengers to board originating trains as early as practical before departure; for through-trains, allow access to platforms as early as practical. According to operations management research, engaging passengers in service-related activities—for example, moving to the platform or boarding the train—gives them the impression that their service has begun, which can reduce anxiety and make waiting more tolerable. For example, a researcher at the Massachusetts Institute of Technology found that the time spent waiting at a bus stop was more onerous and perceived as longer than the same amount of time spent riding on the bus. An official from Virgin Trains in the United Kingdom told us that passenger feedback led them to try boarding originating trains at Birmingham station 40 minutes prior to departure. After the trial, passenger feedback was strongly favorable, and the operator now has made 40 minutes the boarding standard for these trains.

**Sequence boarding.** Stagger or adjust the timing of boarding announcements, or sequence the order in which certain groups of passengers board the train. Successful application of this practice minimizes queues and helps manage passenger densities, which can improve the passenger experience. Techniques to accomplish this could include announcing track information later, earlier, or to different groups at different times. For example, New Jersey Transit officials told us that if two busy trains are ready to board on adjacent tracks at the same time, they will delay announcing one of the trains to stagger the rush of passengers to the platform. Another commonly used airline industry practice is to sequence access to services by allowing specific groups of passengers to board first—such as first-class passengers or travelers needing assistance. Research indicates that passengers are willing to accept this sequencing if they perceive that it is being done equitably. For example, research on medical waiting rooms found that patients do not perceive it as unfair if doctors first see more critically ill patients who may have arrived later.

**Actively manage queues.** When waiting is inevitable, use personnel to actively manage queue formation, ensure fairness, and reassure passengers that they are in the correct location. Our work shows that poorly managed queues can increase passenger anxiety and frustration, particularly if passengers perceive that others may jump in front of them, or if the process is so disorganized they are not sure which queue is theirs. However, active queue management can help mitigate this anxiety. For example, in Paris Gare du Nord station, we observed staff actively managing a queue of passengers waiting to pass through a security checkpoint. Active queue management can also help



*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

ensure that the queues form efficiently, with staff ensuring that passengers utilize all allotted space and that queues do not impede public walkways.

**Provide distractions.** When waiting is inevitable, provide passengers with relevant, appropriate distractions. Multiple academic research studies conclude that occupied time generally feels shorter than unoccupied time. However, any distractions provided must be appropriate to the circumstance. For example, at London St Pancras rail station, station managers have provided pianos for the public to play. At some European stations, passengers can recharge their electronic devices by pedaling stationary bicycles.

### **3. Communicate Clearly with Passengers**

**Post clear directional signage.** Use clear, uniform signage to direct passengers through the station to common destinations—such as exits, restrooms, and platforms. Successful application of this leading practice can help alleviate anxiety, especially for new passengers. Signs should be placed in strategic locations where most passengers transit, but not where they could create crowds that obstruct pedestrian movements. The text, color, and overall design of signs should be consistent. In addition, signs must be considered in context; station designers and managers must avoid visual clutter, which could impede navigation. For example, officials from both the Massachusetts Bay Transportation Authority and the Swiss Federal Railways stated that they must balance revenue generated by station advertising with the need for clear passenger sightlines. These officials stated that they regularly visit stations to make sure local staff have not posted signs that make navigation more difficult.

**Make targeted and timely announcements.** Make clear, targeted, and timely boarding announcements using display boards, personnel, public address systems, and technologies such as texts or emails. Failing to communicate consistently and in a timely manner contributes to passenger anxiety and confusion. European rail providers stated that they have experimented with the timing, frequency, and volume of train announcements to develop a system tailored to each station. For example, in Birmingham, England, station managers stated that after trial and error, they settled on fewer, lower-volume, zoned announcements. With less ambient station noise, managers stated that passengers began paying closer attention to the announcements.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

**Provide a visible, accessible staff presence.** Position staff in key locations to answer questions, give directions, and provide proactive assistance. Successful application of this practice helps mitigate anxiety and reduce passenger stress. According to European rail providers, the placement of staff can be refined through trial and error and may need to vary in response to station conditions. For example, officials with Virgin Trains in the United Kingdom told us they constantly assess where staff will provide the best value and then move them, as shown in Figure 15. They may move staff from ticket windows to the main concourse floor as frequently as every few minutes, based on passenger needs.

**Figure 15. Centrally Located Accessible Staff, Birmingham, England**



*Source: Amtrak Office of Inspector General*

**Coordinate all information.** Rail and transit providers told us that communication with passengers should be clear, concise, and consistent across all information channels. For example, officials at the Swiss Federal Railways told us they have been developing multiple information technology tools that provide real-time train information. Their goal is to provide passengers with consistent information across mobile and station technology.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## APPENDIX D

### Status of Bicycle Service

The company is in the process of expanding its bicycle service; however, several factors result in differing types and costs of service. The company offers four types of bicycle service:

Self Service Options:

- **Carry-on folding bicycle.** Passenger carries on folding bicycle and stores with hand baggage.
- **Roll-on/roll-off.** Passenger rolls bicycle onboard and secures fully assembled bicycle in special bicycle rack, either in baggage or passenger car.

Checked Baggage Options:

- **Boxed baggage.** Passenger partially disassembles and boxes bicycle, and checks as baggage.
- **Train-side checked.** Onboard staff secures fully assembled bicycle in a special bicycle rack in baggage car.

In February 2014, the company created the Amtrak Bike Task Force to engage advocates from the cycling community to help identify improvements in communication and operation, and opportunities to expand the company's bicycle service. The task force includes officials from the Marketing department and representatives of several bicycle advocacy groups. With the encouragement of an advocacy group on the task force, the company has focused on expanding passengers' ability to bring fully assembled bicycles on the train, either through roll-on/roll-off or train-side checked service. According to the company representative charged with managing the bicycle program, the company plans to offer roll-on/roll-off or train-side checked service on 25 routes by the end of FY 2016. The company currently offers boxed baggage service for bicycles at stations that accept checked baggage.

**Factors limit the company's ability to standardize service.** According to Marketing department officials, certain factors—some outside the company's control—limit its ability to standardize bicycle offerings across the system:

- **State partner requirements.** On state-supported routes, state partners play a large role in determining the types of bicycle service offered and at what price.


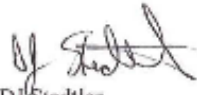
*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

- **Equipment.** Many of the company's fleet of passenger cars are more than 40 years old, and bicycles were not considered during the original design, according to a Marketing official. Finding space on the trains where bicycles can be safely stored and unloaded is a challenge.
- **Station infrastructure.** The height of station platforms varies, which can present an obstacle for loading and unloading bicycles.
- **Station service amenities.** Checked bicycles—train-side or as boxed baggage—can be loaded or unloaded only at stations that support baggage service, according to a Marketing official. The availability of baggage service is a function of several factors, including platform length, train schedule, and state preference.

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
 Passenger Boarding Experience**  
 OIG-A-2016-011, September 7, 2016

## APPENDIX E

### Management Comments

 <b>NATIONAL RAILROAD PASSENGER CORPORATION</b> DJ Stadler, EVP/Chief Operations Officer 60 Massachusetts Avenue, N.E., Washington, DC 20002 Tel 202-906-3369	
<h1 style="font-size: 2em; margin: 0;">Memo</h1>	
<b>Date:</b> August 31, 2016	<b>From:</b>  DJ Stadler <i>EVP/Chief Operations Officer</i>
<b>To:</b> Stephen Lord <i>Assistant Inspector General, Audits</i>	<b>Department:</b> Operations
<b>Subject:</b> GOVERNANCE: Adopting leading practices could improve passenger boarding experience (009-2016)	
<p>Management appreciates the opportunity to review and provide comments on the Draft Audit Report for Project No. 009-2016 dated August 3, 2016. The report was very thorough and provides valuable information on current operations and challenges as well as observations of best practices within Amtrak and at other operations both domestic and abroad. We take this opportunity to provide one suggested change to recommendation #1.</p>	
<p><u>Recommendation 1:</u>          Designate a senior accountable official to lead a company-wide effort to enhance the boarding process and customer experience, and ensure that this official has adequate authority to manage and implement this effort across the company.</p>	
<p><u>Management Response/Action Plan 1:</u>          We agree with the recommendation, however we request that the recommendation include wording that the senior accountable official be an Operations Department official as the Operations Department owns the processes and will be held accountable for the end to end process and ensuring consistency throughout the enterprise.</p>	
<p><u>Recommendation 2:</u>          Task this official with developing a strategy to guide a company-wide effort to enhance the boarding process and customer experience emphasizing the leading practices described in this report. The strategy should include, at a minimum, documented action plans for the 20 busiest stations – with particular attention to New York Penn Station and Washington Union Station – that are administered using generally accepted program management principles, such as goals, requirements, timeframes for completions, and metrics to gauge effectiveness.</p>	
<p><u>Management Response/Action Plan 2:</u>          We agree with the recommendation providing recommendation 1 is included.</p>	
<p><b>Information for Redaction:</b>          No redactions necessary</p>	

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## **APPENDIX F**

### **Acronyms and Abbreviations**

CSR	Customer Service Representative
FAST Act	Fixing America's Surface Transportation Act
FY	fiscal year
IID	Infrastructure and Investment Development
MBTA	Massachusetts Bay Transportation Authority
NHPA	National Historic Preservation Act
OIG	Amtrak Office of Inspector General
the company	Amtrak

*Amtrak Office of Inspector General*  
**Train Operations: Adopting Leading Practices Could Improve  
Passenger Boarding Experience**  
OIG-A-2016-011, September 7, 2016

## **APPENDIX G**

### **OIG Team Members**

Leila Kahn	Senior Director, Audits
J.J. Marzullo	Senior Audit Manager
John Borrelli	Senior Auditor
Andrew W. Mollohan	Auditor

# OIG MISSION AND CONTACT INFORMATION

## Mission

---

The Amtrak OIG's mission is to provide independent, objective oversight of Amtrak's programs and operations through audits 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.

## Obtaining Copies of Reports and Testimony

Available at our website [www.amtrakoig.gov](http://www.amtrakoig.gov)

## Reporting Fraud, Waste, and Abuse

Report suspicious or illegal activities to the OIG Hotline

[www.amtrakoig.gov/hotline](http://www.amtrakoig.gov/hotline)

or

800-468-5469

## Contact Information

**Tom Howard**

**Inspector General**

Mail: Amtrak OIG

10 G Street NE, 3W-300

Washington D.C., 20002

Phone: 202-906-4600

Email: [Tom.Howard@amtrakoig.gov](mailto:Tom.Howard@amtrakoig.gov)