AMTRAK OFFICE *of* INSPECTOR GENERAL
NATIONAL RAILROAD PASSENGER CORPORATION

GOVERNANCE:
More Effective Planning and Coordination of Track Outages
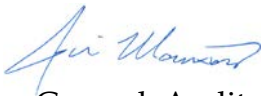Would Help Achieve a State of Good Repair

OIG-A-2020-016 | September 14, 2020

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Memorandum

To: Scot Naparstek
            Chief Operations Officer

From: Jim Morrison
            Assistant Inspector General, Audits

Date: September 14, 2020

Subject: *Governance: More Effective Planning and Coordination of Track Outages Would Help Achieve a State of Good Repair* (OIG-A-2020-016)

Amtrak (the company) has reported it will cost an estimated $31 billion[1] over the next decade to bring tracks, bridges, and other infrastructure to a state of good repair to ensure the reliability and safety of trains running on the Northeast Corridor (NEC).[2] Track outages—taking track out of service to accommodate repairs—are critical to performing this work, but they typically disrupt passenger travel.

Ineffective track outage planning and coordination can negatively affect the company's ability to achieve its state-of-good-repair goal, which impacts revenue, customer service, and its relationships with external stakeholders. This became apparent in 2017 when the company experienced a series of derailments due to failing infrastructure at New York Penn Station. The resulting track outages for repairs caused major travel disruptions for company passengers and other rail commuters.[3] This event highlighted decades of neglect on aging company infrastructure and raised questions about how the company was planning, coordinating, and conducting outage work to address them.

Given these concerns, our audit objective was to assess the effectiveness of the company's efforts to plan and coordinate track outages. We focused on major outages planned for the NEC in fiscal year (FY) 2020. Our audit included reviewing company documents and interviewing senior officials involved with planning and coordinating

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[1] Amtrak, *Amtrak Five-Year: Asset Line Plans Fiscal Years 2020–2025,* February 2020.

[2] The NEC's main line runs 457 miles from Washington, D.C., to Boston, Massachusetts. It passes through eight states, has four right-of-way owners, and carries passenger, intercity, and freight rail.

[3] *Preliminary Observations on the New York Penn Station Infrastructure Renewal Program,* July 7, 2017.

2

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

track outages to identify the process they use and the data they consider when planning major outages.[4]

The responsible management officials were primarily from the company's Engineering department, who establish an outage plan for the company each fiscal year. The Transportation department, which manages train movements, approves the outages and helps coordinate the outage plan with external stakeholders that the outages affect, such as commuter railroads.

Finally, we sought data and feedback from nine rail organizations that operate along the NEC[5] and routinely coordinate with the company on track outages. Six of these nine organizations also conduct their own outages, and we collected information from them to benchmark outage planning practices. We compiled the data we obtained from these rail organizations to identify key planning practices and insights on the company's outage plan coordination. For more information on our scope and methodology, see Appendix A.

SUMMARY OF RESULTS

Starting in 2018, the company has built a more disciplined process to plan and coordinate major track outages. For example, the Engineering department designed and implemented new procedures to help it prioritize capital projects and to identify and plan for the outages needed to accomplish them. The Engineering and Transportation departments also now regularly meet with certain external organizations whose service the company's outages affect.

But the company has not yet institutionalized certain practices, such as conducting longer-term planning and clearly defining departments' roles for coordinating outage plans that are critical to maximizing track access time and reducing service disruptions. In pertinent part, we identified the following practices that will likely improve the company's track outage planning and coordination process:

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[4] We include the process and factors they described in the Background section of this report.

[5] The nine organizations were six commuter railroads (Massachusetts Bay Transportation Authority, Long Island Railroad, Metro-North, New Jersey Transit, Southeastern Pennsylvania Transportation Authority, and Virginia Railway Express); two Class I railroads (CSX and Norfolk Southern), and one state department of transportation (Connecticut).

3

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

- **No multi-year companywide plan.** The existing process does not include steps to plan outages beyond one year. This gap limits the company's ability to ensure that labor is available and leverage opportunities to conduct multiple activities during a single outage—a concept called "piggybacking."

- **Outdated information technology system and software tools.** The Engineering department relies on a manually intensive process to analyze the data it needs to build a plan, which inhibits timely updates. Engineering department officials acknowledged the limitations of their planning tools but have not coordinated with the company's Information Technology department to fully research solutions.

- **Unclear roles for external coordination.** The company has not clearly defined each department's unique role in coordinating the outage plan with commuters and other external organizations. More effective coordination would likely improve the relationship between the company and these customers, some of whom the company depends on to fund maintenance of the NEC.

To better ensure that the company effectively plans and coordinates outages in support of its state-of-good-repair efforts, we recommend that it incorporate a multi-year focus into its planning process, research options with the Information Technology department on ways to update its system and/or software tools, and clearly define departmental roles in coordinating the plan with affected external organizations.

In commenting on a draft of this report, the Chief Operations Officer agreed with our recommendations and identified specific actions the company plans to complete by July 1, 2021, to implement them. These include beginning a multi-year planning initiative and submitting a viable technology option to facilitate outage planning for leadership consideration. The company is also clearly identifying who in the departments is accountable for coordinating the initial plan and any updates with external stakeholders, implementing a schedule to achieve this coordination, and planning to inform the NEC Commission[6] on the results. For management's complete response, see Appendix D.

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[6] The Passenger Rail Investment and Improvement Act of 2008 created the NEC Commission and charged it with, among other things, facilitating collaborative planning. It is made up of 18 members, including representatives from each of the eight NEC states; Washington, D.C.; the company; and the U.S. Department of Transportation.

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

BACKGROUND

Track outages enable the construction and maintenance of the company's infrastructure to ensure that it is in a state of good repair. To help accomplish this, the company implements major track outages.[7] These outages significantly affect train operations; therefore, carefully planning and coordinating them is necessary to balance the need to complete work with desired passenger service levels. Figure 1 shows an overview of the company's outage planning and coordination process for the FY 2020 outage plan.

Figure 1. Outage Planning and Coordination Process for the FY 2020 Outage Plan
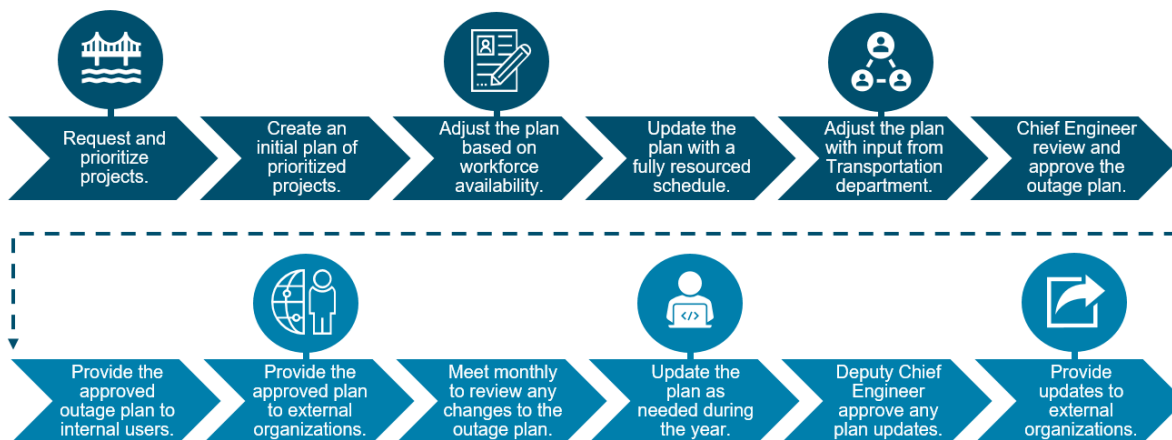
Sources: OIG analysis of company documents and interviews with Engineering department officials

The company's outage planning and coordination process starts with the employees in the Engineering department identifying and requesting projects for the upcoming year. Senior Engineering department officials review all of the project requests and prioritize them. A manager from the Engineering department takes the project priority list and creates an initial outage plan for the projects. The Engineering department's Business Improvements group then assesses the department's workforce to identify how the planned outages can be staffed. The Engineering Project Management Office then adjusts the initial outage plan based on the results of the workforce assessment and develops a schedule that identifies the full resources for the outages.

In addition to workforce availability, the Engineering department considers factors such as equipment availability data, train schedules, and the condition of the company's assets when developing the initial outage plan. (For a list of these factors and how

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[7] The company defines a major outage as either a 55-hour outage from Friday through the following Monday or a continuous outage that lasts many days.

Amtrak Office of Inspector General
Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair
OIG-A-2020-016, September 14, 2020

the company and six organizations we interviewed ranked them in terms of importance to developing the outage plan, see Appendix B.)

The Engineering department then provides the draft outage plan to the Transportation department for review. Because of the service disruptions major outages may cause, the Transportation department reviews the plan to identify potential impacts to the company, commuter railroads, and freight railroads. The Transportation department provides feedback to the Engineering department, which then updates the plan prior to providing it to the Chief Engineer for review and approval.

When the Chief Engineer approves the plan, the Engineering department shares it with internal stakeholders, and the Transportation department provides it to external organizations affected by the planned outages and the NEC Commission,[8] which disseminates the plan to NEC commuters and other organizations.

These other company departments also may be involved in helping the Engineering and Transportation departments plan and coordinate outages:

- **The Planning and Strategy department** may review the plan with a focus on the revenue impact of an outage and on scheduling with commuter and freight railroads. This department may also participate in external meetings to discuss the outage plan and act as a liaison between the Engineering department and freight railroads.

- **The Government Affairs and Corporate Communications department** may assist in communicating the impact of planned work to certain external organizations affected by the company's outages. For example, this department may prepare and release information to the public regarding Amtrak outages so affected organizations can communicate to their passengers.

- **The Legal department** is involved with drafting contracts, including provisions concerning track outages. The department may become involved if there is a disagreement between the company and external organizations concerning these contract provisions.

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[8] In 2019, the NEC Commission began requiring its members to provide an annual track outage plan to facilitate coordination along the NEC. The company met this outage requirement in both 2019 and 2020.

6

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

- **The Finance department** may review the outage plan to provide feedback to the Engineering department from a budget perspective.

Throughout the year, the Engineering department revises the outage plan monthly to account for any changes, such as when labor resources may not be able to cover an outage or when inclement weather forces a schedule change. Deputy Chief Engineers approve these updates, and the company then shares the updates with external organizations affected by them.

OUTAGE PLANNING AND COORDINATION PROCESS IS MORE DISCIPLINED BUT IS MISSING KEY COMPONENTS

Since 2018, the company's leadership drove improvements to outage planning and coordination. For example, the Engineering department introduced a process to help it prioritize projects to maintain or repair company infrastructure, such as tracks and bridges. This has helped the department identify the corresponding outage needs to ensure that it can safely complete projects when tracks are free from train traffic. Company officials from the Engineering and Transportation departments also told us that the two departments are better at sharing information about planned outages under their new leadership over the past two years. As a result, the outage plan and corresponding service impacts have been more transparent to both departments. The Engineering and Transportation departments will need to focus on sustaining these improvements because the Transportation department will have new leadership as the company adjusts to its reduction in force.

The company has also improved its external coordination, partly in response to priorities from new company leadership and NEC Commission requirements to share the outage plan with its members, effective in 2019. For example, the Engineering and Transportation departments have regular meetings called "roadshows" to discuss the annual outage plan with certain external organizations whose train services are affected by the company's outages. As a result, officials from all nine of the organizations we reviewed responded that they were satisfied with how the company communicated its original outage plan, as of May 2020.[9] Many also noted that the company's coordination has improved over the past two years. To build on this progress, we identified

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[9] Two organizations were very satisfied, seven organizations were mostly satisfied, and none were mostly or very dissatisfied.

7

Amtrak Office of Inspector General
Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair
OIG-A-2020-016, September 14, 2020

the following three missing components from the company's planning and coordination process that, if included, could help it be more effective.

1. No Multi-year Companywide Outage Plan

The Engineering department does not plan the company's outages beyond one year, in contrast to organizations we interviewed that also conduct their own outages. Company officials told us that the Engineering department has not focused on companywide multi-year planning in the past because it receives federal funding on an annual basis; therefore, the company does not know what its future funding levels will be and did not want to plan beyond a year given that uncertainty. However, officials from the external organizations we interviewed told us that, regardless of the uncertainty of future funding, multi-year planning helps them better identify resource needs and determine opportunities to piggyback in the current year as well as future years. This information allows them to minimize service disruptions to passengers. The company's Chief Engineer agreed that planning beyond a year would help the company achieve these benefits. We also identified the following inefficiencies the company could address by planning outages beyond a year.

Limited ability to ensure that needed labor resources are available. Employees hired to serve as foremen must have two years of specialized training. In addition, employees must apply for specialized training to operate certain pieces of the company's heavy maintenance-of-way equipment that are necessary for outage work—such as equipment to extract ballast from beneath rails and track laying machines, as Figure 2 shows.

Amtrak Office of Inspector General
Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair
OIG-A-2020-016, September 14, 2020

Figure 2. Track Laying Machine Used During Company Outages
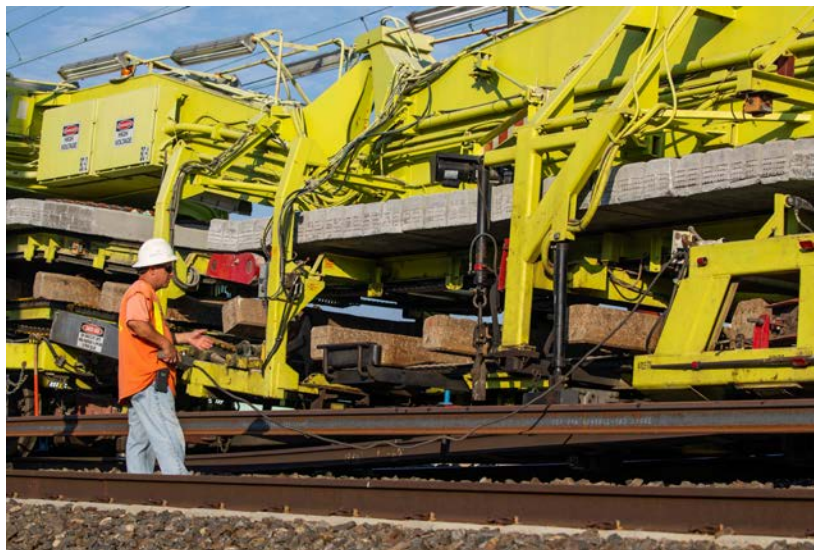
Source: Amtrak

Once trained, foremen can move to a different position after six months, and equipment operators can move after a year. Engineering department officials told us they try to identify the foremen and trained operators they will need to implement the annual outage plan, but they do not have much lead-time to adjust to any shortfalls without looking further out. This can lead to financial losses for the company when it cancels an outage, as well as the external partners who adjusted their own service schedules to accommodate the outage.

Limited ability to identify opportunities for piggybacking. Planning outages on an annual basis does not provide enough lead-time for the Engineering department to effectively identify and coordinate piggybacking opportunities across Engineering and other relevant departments. For example, the Engineering department does not have the lead-time to effectively coordinate the different work gangs it would need to take advantage of the same outage to complete multiple tasks. As a result, it ends up completing signal work[10] *sequentially* after concrete tie and replacement work when it would be more efficient to complete that work *concurrently* during the same outage. The department had to return to the same location a number of times to complete all work, thereby disrupting service more often.

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[10] Signal systems are used to control the movement of trains. Signal work includes the maintenance and testing of these systems.
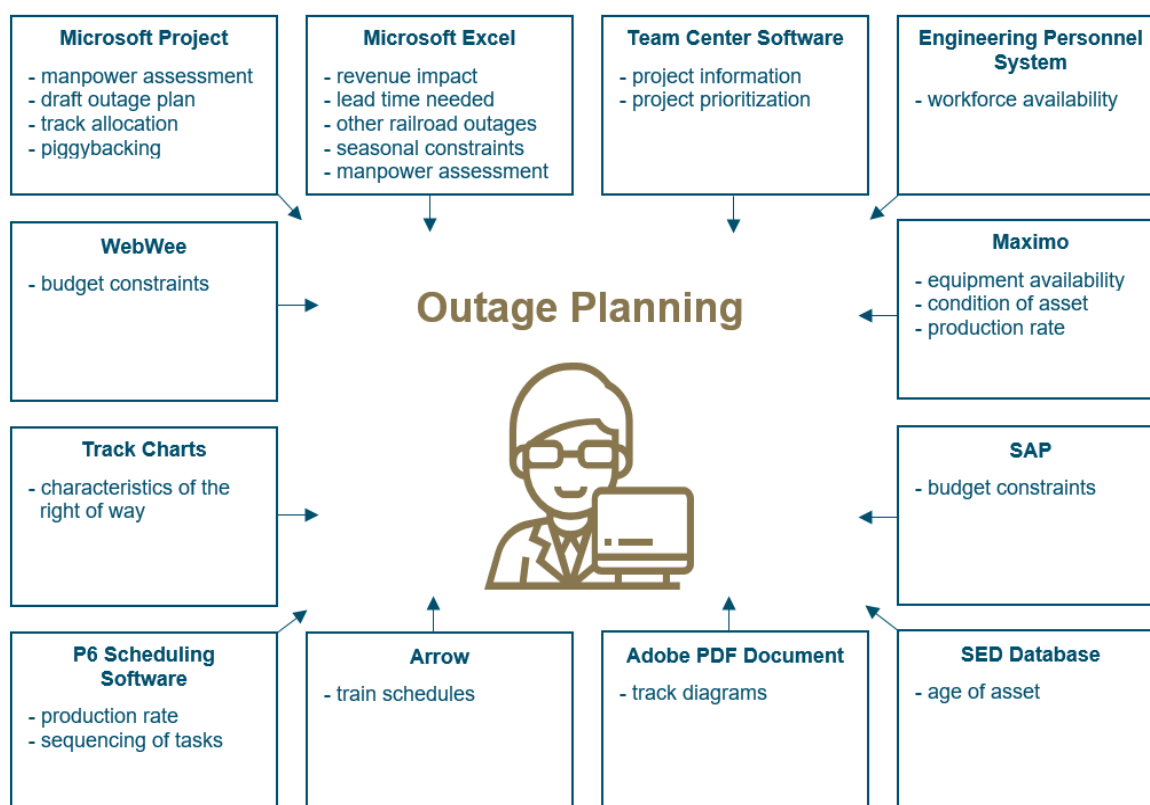
Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

2. Outdated Information Technology System and Software Tools

The Engineering department's outage planning system and software tools do not allow it to efficiently analyze the data needed to build and update the plan. Instead, it relies on manually intensive processes that are causing the following two inefficiencies.

Limited ability to efficiently use available data to drive the plan. Engineering department officials identified 21 complex factors that they consider when developing the plan—ranging from workforce and equipment availability to data on the age and condition of track and other assets. The department collects these data, but they reside in 12 different systems and software tools, such as the Engineering Personnel System and Maximo, the department's asset management system, as Figure 3 shows.

Figure 3. Systems and Software that Employees Use to Obtain Planning Data

Source: OIG analysis of company documents and interviews

Notes: SAP is the company's financial system of record; WebWee is the Engineering department's project management system that flows from SAP; P6 Scheduling is software used to forecast the duration of project activities; and Arrow is the company's customer reservation system.

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

This makes it difficult for company employees to access data in an efficient manner. Further, once employees obtain the data, they must manually balance these factors using separate spreadsheets or through other standalone systems. The two Class I railroads we reviewed told us they use more advanced software that allows them to consider multiple planning factors automatically when developing their outage plans. For example, officials from one of these railroads told us their software allows them to identify workforce constraints during a proposed outage more than a year in advance, which allows them to more efficiently plan their outages.

Limited ability to make timely updates. The company needs to update its outage plan when events such as inclement weather, resource constraints, or changes in train schedules prevent it from completing planned work. Updating the plan is time-consuming for employees, and they told us they must complete manual analyses each time an outage change occurs. For example, staff availability drives the outages the company can complete, and company employees must manually reassess availability every time the company needs to update its plan. One of the Class I railroads we reviewed told us that when staffing availability changes, its software automatically accounts for these changes in real time. Because of the time it takes company employees to manually incorporate updates, they update the plan only once a month when they can consolidate all the changes from the prior month into one version. Between updates, other departments that use the plan do not always have the current information to make informed decisions to notify passengers of related service changes.

The timeliness of outage plan updates also affects several of the external organizations we reviewed. For example, five of these organizations responded that they were satisfied with the overall timeliness of data the company provides on its outage plan. The other four were not satisfied, and some said they did not have enough time to inform passengers of service changes, which could potentially lead to revenue loss.[11] Company officials told us they know that some external organizations want outage information earlier but said the company provides the information as soon as it is ready because the company does not provide incomplete updates to its stakeholders.

The Chief Engineer acknowledged these limitations and that having an advanced planning system and software tools could help the department realize efficiency gains. The department, however, has not coordinated its outage planning needs with the

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[11] Two organizations were very satisfied, three organizations were mostly satisfied, four organizations were mostly dissatisfied, and none were very dissatisfied. For more on our results, see Appendix C.
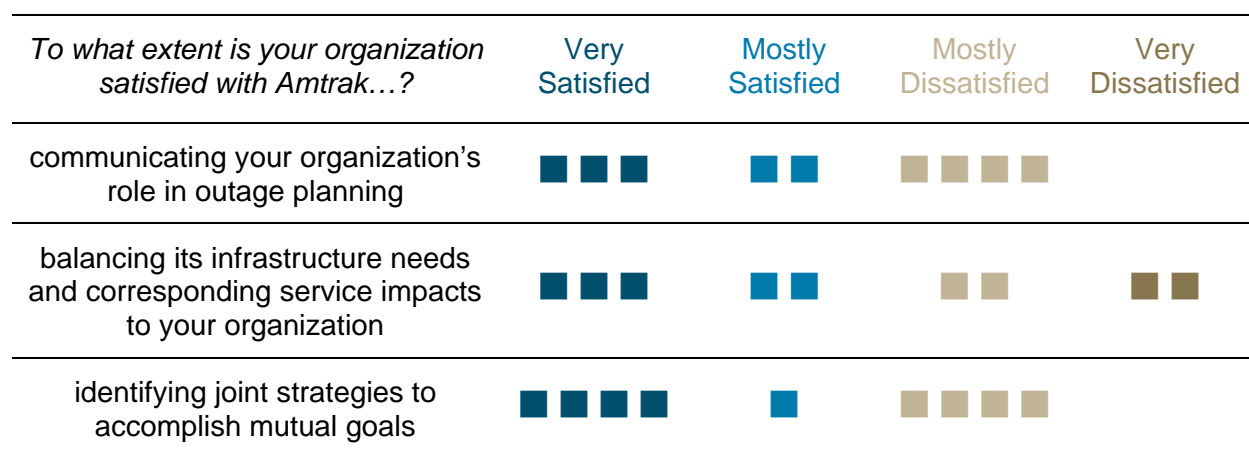
Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

company's Information Technology department because doing so had not been a priority. As a result, the Engineering department attempted to develop its own systems without technical support. Company officials told us that coordination has improved between the departments, including identifying better asset management tools, but they had not fully researched outage planning options to submit a potential solution for company consideration. Such a solution would assist the Engineering department as it reduces its workforce in response to coronavirus, but not the capital work that requires these outages.

3. Unclear Roles for External Coordination

As we discussed earlier, at least five company departments are involved in coordinating the outage plan with commuter railroads and other external organizations affected by the company's outages. The company, however, has not clearly laid out each department's unique role, including which department has the lead on different aspects of coordination, when each department should be involved, and what type of information they each are providing to external organizations. This has led to confusion and inconsistencies with external stakeholders about where to go for information, with whom to communicate, for what purpose, and the extent to which any one department is to solicit planning input. Figure 4, for example, shows how the responses on three coordination topics were inconsistent across the nine organizations we interviewed.

Figure 4: Varying Levels of Satisfaction from External Organizations on Certain Coordination Practices

To what extent is your organization satisfied with Amtrak…?	Very Satisfied	Mostly Satisfied	Mostly Dissatisfied	Very Dissatisfied
communicating your organization's role in outage planning	■■■	■■	■■■	
balancing its infrastructure needs and corresponding service impacts to your organization	■■■	■■	■■	■■
identifying joint strategies to accomplish mutual goals	■■■■	■	■■■■	

Source: OIG analysis of nine organizations' responses to questionnaires administered from March through May 2020

12

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

The Chief Engineer agreed that the company could more clearly define the departments' roles in coordinating the outage plan and the company's expected role for these external organizations. This could ensure more consistency in obtaining planning input from them to balance infrastructure needs with service impacts and could also identify opportunities for joint strategies for more efficient use of outages. The Chief Operations Officer and other company officials also agreed that more effective coordination would improve the relationship between the company and its customers, some of whom the company depends on to fund maintenance of the NEC.

CONCLUSIONS

Over the past two years, the company has made significant process improvements for managing track outages. It can further improve, however, by incorporating some of the track outage practices used by other rail organizations. These include creating a multi-year track outage planning capability, an information technology system that reduces the manual efforts currently performed, and better-defined roles and responsibilities to shape the company's coordination efforts with external stakeholders.

RECOMMENDATIONS

To provide for more effective planning and coordination of the track outages, we recommend that the Executive Vice President/Chief Operations Officer direct the Engineering department—in coordination with the Transportation, Information Technology, and other departments—to take the following actions:

1. Incorporate a multi-year approach into the companywide outage planning process.

2. Research a viable option for an advanced information technology system and/or software tools to facilitate outage planning, and submit it for company consideration.

3. Clearly define and implement departmental roles on coordinating the company's outage plan with external organizations affected by outages.

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

MANAGEMENT COMMENTS AND OIG ANALYSIS

In commenting on a draft of this report, the Chief Operations Officer agreed with our recommendations and described the company's actions and plans to address them, which we summarize below.

- **Recommendation 1:** Management agreed with our recommendation. The company has already taken some steps in FY 2020 to develop a multi-year capital planning approach with an increased focus on piggybacking to drive longer-term outage planning. It is piloting this approach for its Harrisburg Line and plans to expand its focus to the NEC. The target completion date is March 1, 2021.

- **Recommendation 2:** Management agreed with our recommendation. The Engineering department and the Information Technology department will research a viable option for a system or software to facilitate outage planning. Once they have evaluated the options and selected one, they will present it to company leadership for consideration. The target completion date is July 1, 2021.

- **Recommendation 3:** Management agreed with our recommendation. The company plans to identify a point of contact who will be responsible for distributing the initial outage plan to external organizations, identify a key company stakeholder team that will communicate any adjustments to external organizations, produce a schedule that will include dates when the company should provide external communication concerning the outage plan, and inform the NEC Commission of the results. The target completion date is March 1, 2021.

For management's complete response, see Appendix D.

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

APPENDIX A

Objective, Scope, and Methodology

This report provides the results of our audit of Amtrak's outage planning and coordination. Our objective was to assess the effectiveness of the company's efforts to plan and coordinate track outages. Our scope focused on the company's planning and coordination of major outages for FY 2020. We performed our audit work from November 2019 through July 2020 in Boston, Massachusetts; Philadelphia, Pennsylvania; Alexandria, Virginia; and Washington, D.C.

To assess how effective the company's process is for planning outages, we first gained an understanding of the process and the factors that employees consider when developing the outage plan. To do this, we interviewed senior officials from the Engineering, Transportation, Government Affairs and Corporate Communications, Planning and Strategy, and Finance departments to understand their roles and activities for planning and coordinating track outages. We reviewed company documents, including procedures on prioritizing capital projects, two companywide track outage plans for FY 2020 and FY 2021, and supporting documentation for these outages. We also interviewed staff from the NEC Commission, which is partly responsible for facilitating capital planning and related outage coordination for Amtrak and other NEC rail providers.

From the information we collected, we created a document describing the process and the 21 factors that employees told us they consider when developing the outage plan. Engineering department officials then reviewed the process and factors we identified for accuracy and completeness. We also identified, and they confirmed, the information technology systems and software tools the company uses when considering the factors in developing the track outage plan. We then compared the company's process to management control standards, project management standards, and practices identified during our interviews with other rail providers who develop outage plans for the NEC.

To identify planning practices other rail providers use and to obtain input on whether external organizations were satisfied with how the company coordinated its outage plan, we identified external organizations to interview. To do this, we developed a non-probability sample based on the following selection criteria:

- railroads that operate along the NEC

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

- railroads that own tracks on the NEC

- railroads that coordinate on track outage activities with Amtrak

- input from company officials

The results of our sampling approach identified nine organizations: six commuter railroads, two Class I railroads, and one state department of transportation. The organizations were the Massachusetts Bay Transportation Authority, Long Island Railroad, Metro-North, New Jersey Transit, Southeastern Pennsylvania Transportation Authority, Virginia Railway Express, CSX, Norfolk Southern, and Connecticut Department of Transportation.

Planning. Six of these organizations conduct their own outages on the NEC, and we interviewed them in March 2020 to collect information on the practices they use to develop the outage plans. For these interviews, we developed interview questions and a questionnaire to understand which planning practices the organizations use to plan outages and how important different factors are to them when they are developing their outage plan.

To collect this information, we took the 21 factors we identified and, during interviews, obtained the external organizations' insights on how important those factors are for outage planning. The audit team asked the organization how important each factor was to developing their outage plan, with response choices as follows: 1) very important, 2) important, 3) minimally important, 4) not important at all, and 5) not applicable. We pre-tested the interview questions and questionnaire with staff from the Amtrak Office of Inspector General (OIG) and the company's Engineering department. We also completed this exercise with the company's Chief Engineer. For the results, see Appendix B.

To determine key practices for planning major track outages, we analyzed the results of our interviews on planning practices and factors. The results of our review cannot be projected to all external organizations that plan their own track outages. We used this analysis to identify opportunities for improvement as noted in the report.

Coordination. To assess how effective the company's process is for coordinating outages, in March, April, and May 2020, we interviewed officials from the nine organizations and also had them complete a questionnaire we developed so we could obtain data on how satisfied they were with the company's implementation of key

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

coordination practices. To identify the practices, we reviewed reports issued by the U.S. Government Accountability Office that identified leading coordination practices, and we reviewed key practices from public- and private-sector management controls standards. We also reviewed the Engineering department's *Project Management Manual* and the *Project Management Body of Knowledge, 6th Edition*, to identify practices for effective coordination.

For each of our selected nine external organizations, we interviewed individuals the organizations identified who had significant involvement with Amtrak on outage plans and could provide insights on the company's coordination. In total, we interviewed 18 individuals. We set up one-on-one interviews with these individuals to allow for an open forum to collect feedback on the company's coordination and asked them each a consistent set of interview questions to obtain testimonial evidence on the company's coordination. We also developed and used a questionnaire to ask how satisfied they were with the company's use of coordination practices, with response choices as follows: 1) very satisfied, 2) mostly satisfied, 3) mostly dissatisfied, and 4) very dissatisfied. We also pre-tested the interview questions and questionnaire with staff from OIG and several company departments.

We assessed the results from the interviews and questionnaires to identify themes on the company's effectiveness coordinating track outages with external organizations. We averaged the responses for each organization that had more than one official responding for that organization. We then rounded the response to the nearest whole number corresponding with each rating. The results of our review cannot be projected to all external organizations that coordinate with the company. For more information on our results, see Appendix C.

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 provided a reasonable basis for our findings and conclusions based on our audit objective.

Internal Controls

We reviewed the internal controls the company had in place for planning and coordinating track outages. Specifically, we assessed the internal control components

17

Amtrak Office of Inspector General
Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair
OIG-A-2020-016, September 14, 2020

and underlying principles and determined that three of the five internal control areas were significant to our audit objective:

- **Control environment.** Management should establish an organizational structure, reporting lines, and appropriate authorities and responsibilities in the pursuit of objectives. This requires clearly establishing roles and responsibilities.

- **Control activities.** The organization should develop and implement activities through policies and procedures to ensure that the entity achieves its objectives.

- **Information and communication.** Management should provide quality information to achieve the entity's objectives. Quality information is important to both internal and external stakeholders.

We developed audit work to ensure that we assessed each of these control areas. This included reviewing the extent to which the company followed internal controls standards, such as (1) clearly establishing roles and responsibilities in coordinating its outage planning activities to achieve its objectives; (2) communicating timely, relevant, and accurate information to other departments and to external stakeholders related to outages; and (3) developing and implementing control activities to ensure that the company's objectives related to planning and coordinating outages are achieved. Because our review was limited to these internal control components and underlying principles, it may not have disclosed all of the internal control deficiencies that may have existed at the time of this audit.

Computer-Processed Data

We did not rely on computer-generated data from company information systems for our analyses.

Prior Audits

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

- *Better Management of Reimbursable Projects Could Help the Company Consider Benefits and Recover Costs* (OIG-A-2020-002), October 23, 2019

- *Improved Inventory Practices Could Help the Company Better Manage its Maintenance-of-Way and Rolling Stock Equipment* (OIG-A-2019-010), July 25, 2019

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

- *Amtrak: Top Management and Performance Challenges—Fiscal Years 2019 and 2020* (OIG-SP-2018-011), September 28, 2018

- *Asset Management: Better Schedules, Cost Estimates and Project Management Could Help Mitigate Risks to Washington Union Station Projects* (OIG A-2018-008), July 24, 2018

- *Preliminary Observations on the New York Penn Station Infrastructure Renewal Program*, July 7, 2017

19

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

APPENDIX B

Results of Interviews and Questionnaires to Identify Outage Planning Practices and Key Factors

Key Planning Practices

Our interviews with six organizations that also plan outages on the NEC identified several planning practices that most of the organizations use to develop their outage plan. Figure 5 shows the practices we identified that at least four of the six organizations told us they use to facilitate effective outage planning. For more information on our methodology, see Appendix A.

Figure 5. Planning Practices Identified by Other External Organizations

Centralize organization-wide outage planning under one group or employee

Have leaders at the Vice President level or above approve the outage plan

Seek and prioritize opportunities to piggyback during a single outage

Conduct workforce and equipment planning for the outage plan

Have employees develop the plan who also have non-outage responsibilities

Use an annual plan as a baseline outage planning tool

Perform multi-year outage planning

Update the outage plan on a weekly basis

Communicate with internal and external stakeholders for effective planning

Use meetings to coordinate the plan internally and externally

Source: OIG analysis of interviews with six organizations on their outage planning

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

Importance of Factors When Developing the Outage Plan

Our questionnaire completed by six organizations who also conduct their own outages on the NEC identified the factors that they considered important when developing their outage plan. Figure 6 shows the results of our questionnaire and how the company's Chief Engineer rated the importance of each factor. For more information, see Appendix A.

Figure 6. Track Outage Planning Factors and Their Level of Importance for Certain Organizations that Plan Outages

● Rating of one external organization we interviewed   ▢ Amtrak's rating (green shading)

Factor	Very important	Important	Minimally important	Not important at all	Not Applicable
Equipment availability	●●●●●● (Amtrak)				
Workforce availability	●●●●●● (Amtrak)				
Prioritization of project based on need	●●●●● (Amtrak)	●			
Condition of asset	●●●●● (Amtrak)	●			
Amount of time available for an outage/track allocation	●●●●●	● (Amtrak)			
Passenger needs	●●●●● (Amtrak)	●			
Piggybacking, or accommodating multiple disciplines working during the same outage	●●●●● (Amtrak)	●			
Production rate, how much planned work the labor force can complete in a time frame	●●●●	● (Amtrak)	●		
Train schedule	●●●● (Amtrak)	●●			
Physical characteristics of the right-of-way	●●●●	●	● (Amtrak)		
Revenue impact of outage	●●●● (Amtrak)	●		●	
Other railroads' outage needs	●●●	●	● (Amtrak)		●
Major local community events	●●	●	●● (Amtrak)	●	
Season/time of year	●●	●● (Amtrak)	●●		
Budget constraints	●●	● (Amtrak)	●●		●
Political demands placed on your organization	●●	●	●●● (Amtrak)		
Lead time needed to mobilize or execute an outage	●●	●●● (Amtrak)			●
Impacts to other railroads	●● (Amtrak)	●●●			●
Age of asset	●●	●● (Amtrak)	●		●
Major holidays	●	●●● (Amtrak)	●●		
Other railroads' local community events		●	●	●● (Amtrak)	●●

Sources: OIG analysis of external organization interviews and responses from the company's Chief Engineer

Amtrak Office of Inspector General
Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair
OIG-A-2020-016, September 14, 2020

APPENDIX C

Results of Interviews and Questionnaires to Assess How Satisfied Certain External Organizations Are With Amtrak's Coordination

**Level of Satisfaction with Amtrak's Coordination Practices**

We interviewed officials from nine organizations to understand how satisfied they were with the company's implementation of key coordination practices. Figure 7 shows the results of our questionnaire for the nine organizations. For more information on our methodology, see Appendix A.

Figure 7. Nine Organizations' Responses on How Satisfied They Were with Amtrak's Coordination Practices

Question: Overall, how satisfied are you with Amtrak's coordination of its outage plan?

Very Satisfied	Mostly Satisfied	Mostly Dissatisfied	Very Dissatisfied
■ ■	■ ■ ■ ■ ■	■ ■	
2 organizations	5 organizations	2 organizations	0 organizations

Question: More specifically, to what extent are you satisfied with the company's implementation of the following coordination practices?
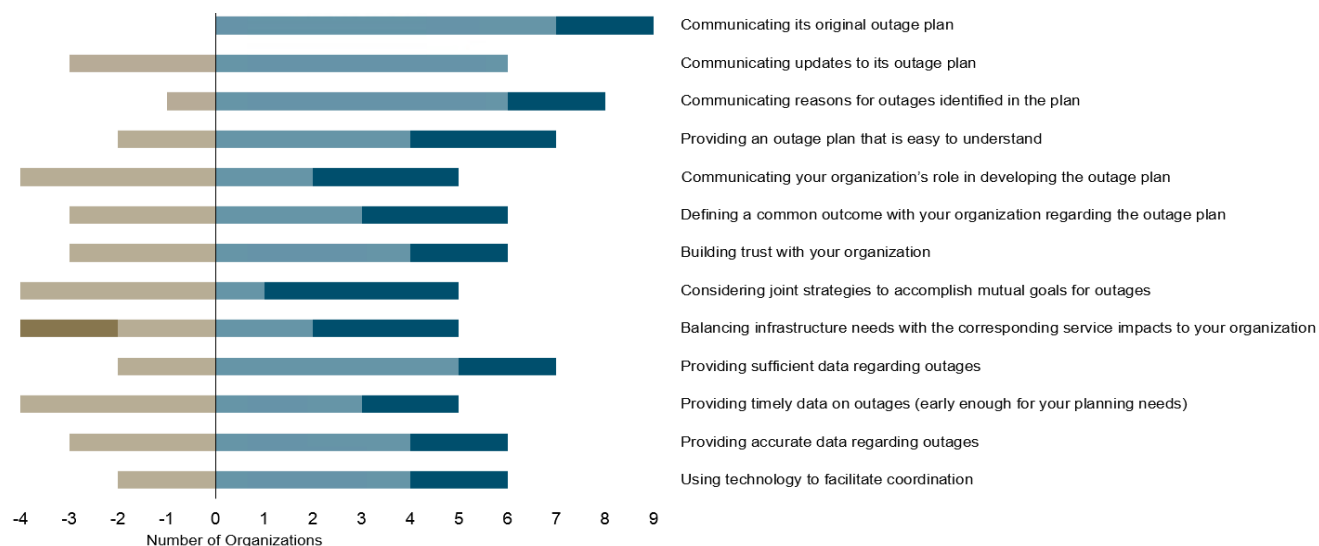
Source: OIG analysis of nine organizations' responses to questionnaires administered from March through May 2020

Note: For the question regarding "using technology to facilitate coordination," one organization responded that this was not applicable as coordination occurred in person.

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

APPENDIX D

Management Comments

NATIONAL RAILROAD PASSENGER CORPORATION

Memo   AMTRAK

Date	September 3, 2020	From	Scot Naparstek, EVP COO
To	Jim Morrison, Assistant Inspector General, Audits	Department	Information Technology
		cc	Eleanor Acheson, EVP General Counsel
			Stephen Gardner, Sr. EVP
			Tracie Winbigler, EVP CFO
			Christian Zacariassen, EVP CIO
			Carol Hanna, VP Controller
			Roger Harris, EVP
			Dennis Newman, EVP
			Steven Predmore, EVP
			DJ Stadtler, EVP
			Jesse Whaley, AVP
			Bob Hutchison, AVP
			Judith Apshago, AVP
			Kevin Connelly, Sr Director
			Mark Richards, Sr Director
			Gerhard Williams, VP
			Ildefonso Burgos Gil, AVP
			Ray Verrelle, AVP
			Byron Comati, VP
			Tom Moritz, AVP

Subject   Management Response to *Governance: More Effective Planning and Coordination of Track Outages Would Help Achieve a State of Good Repair* (Draft Audit Report for Project No. 001-2020)

This memorandum provides Amtrak's response to the audit report for project no. 001-2020 entitled, *"Governance: More Effective Planning and Coordination of Track Outages Would Help Achieve a State of Good Repair."* Management appreciates the opportunity to respond to the OIG recommendations. We agree with each of the OIG recommendations and have initiated actions to address each in a timely manner.

Recommendations:

To provide for more effective planning and coordination of the track outages, we recommend that the Executive Vice President/Chief Operations Officer direct the Engineering department – in coordination with the Transportation, Information Technology, and other departments – to take the following actions:

1. Incorporate a multi-year approach into the companywide outage planning process.

23

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

NATIONAL RAILROAD PASSENGER CORPORATION

Management Response/Action Plan: Management agrees with the OIG recommendation. The Engineering department recognizes that more effective planning and coordination of track usage incorporating a multi-year approach will help in efforts to achieve a state of good repair. The company has taken steps, starting in 2020, to incorporate and draft a multi-year capital planning initiative focusing on "piggybacking" (leveraging opportunities to conduct multiple activities during a single outage), priority asset assessment, and interdepartmental stakeholder collaboration. The multi-year capital plan provides a tentative outlook focused on assets by mile post start and end, task name, project, discipline, and fiscal year of intended work. As of August 2020, a draft five-year capital plan for the Harrisburg (HBG) line has been developed, and the next focus will be on Amtrak's NEC spine. These five-year plans will drive the multi-year approach to outage planning. In addition, the Engineering department will collaborate with IT if any technology improvements arise, or to develop any future applications needed to support this initiative. This process will improve the company's effectiveness in planning and coordination of track outages to achieve a state of good repair.

Responsible Amtrak Official(s): Ildefonso Burgos, AVP Engineering Project Delivery & Ray Verrelle, AVP Engineering and Design

Target Completion Date: March 1, 2021

2. Research a viable option for an advanced information technology system and/or software tools to facilitate outage planning and submit it for company consideration.

Management Response/Action Plan: Management agrees with the OIG recommendation. The Engineering department will partner with the IT team to research a viable option for a system or software to facilitate outage planning. Once options have been evaluated, they will be presented to Leadership for consideration. To accomplish this, Amtrak Engineering and IT will:

a. Define requirements and capabilities necessary to support the outage planning process;

b. Work with Procurement to identify vendors who may have viable solutions; and

c. Review and evaluate the options, and present findings to the appropriate Amtrak Leadership team for consideration of the potential solution(s) and its priority against and within the overall Operations Technology roadmap.

Responsible Amtrak Official(s): Ildefonso Burgos, AVP Engineering Project Delivery, Ray Verrelle, AVP Engineering and Design, and Judith Apshago, AVP IT Corporate & Ops Technologies

Target Completion Date: July 1, 2021

3. Clearly define and implement departmental roles on coordinating the company's outage plan with external organizations affected by outages.

Management Response/Action Plan: Management agrees with the OIG recommendation. Amtrak Corporate Planning, specifically Infrastructure Access and Investment, will perform the following to ensure consistent communication among the agencies:

a. Identify a point of contact (POC) in Amtrak Infrastructure Access and Investment that will coordinate with and be responsible for sending the initial outage plan to each external organization/agency.

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

NATIONAL RAILROAD PASSENGER CORPORATION

b. Identify a key Amtrak stakeholder team with Planning, Engineering and Transportation representation that will communicate major adjustments to the outage plan to external organizations/agencies.

c. Produce a milestone schedule of dates by which outage plans and outreach/communication must be performed, in accordance with PRIIA 212/NEC Commission deliverable dates.

d. Coordinate follow-up sessions, and inform the NEC Commission on the outreach/communication

Responsible Amtrak Official(s): Byron Comati, VP Corporate Planning

Target Completion Date: March 1, 2021

Amtrak Office of Inspector General
**Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair**
OIG-A-2020-016, September 14, 2020

APPENDIX E

Abbreviations

FY	fiscal year
NEC	Northeast Corridor
OIG	Amtrak Office of Inspector General
the company	Amtrak

Amtrak Office of Inspector General
Governance: More Effective Planning and Coordination of Track Outages
Would Help Achieve a State of Good Repair
OIG-A-2020-016, September 14, 2020

APPENDIX F

OIG Team Members

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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

Reporting Fraud, Waste, and Abuse
Report suspicious or illegal activities to the OIG Hotline
www.amtrakoig.gov/hotline
or
800-468-5469

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