



U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF INSPECTOR GENERAL

**FAA Oversight Is Not Keeping Pace With
the Changes Occurring in the Regional
Airline Industry**

FAA

Report No. AV2018012

December 19, 2017





FAA Oversight Is Not Keeping Pace With the Changes Occurring in the Regional Airline Industry

Requested by the Ranking Members of the House Transportation and Infrastructure Committee and its Subcommittee on Aviation

Federal Aviation Administration | AV2018012 | December 19, 2017

What We Looked At

Regional air carriers operate over 40 percent of the Nation's commercial flights, making over 10,000 trips a day. These carriers began operating in the 1970s, primarily to provide flights to cities unable to support major airline service. While it has not suffered a major accident since 2009, the industry has recently undergone significant changes—including consolidations—and changes in requirements for pilots.

In light of these changes, the Ranking Members of the House Transportation and Infrastructure Committee and its Subcommittee on Aviation requested that we analyze FAA's process of identifying periods of growth and determine the Agency's ability to respond to changes in regional air carrier operations. Accordingly, our audit objectives were to (1) evaluate FAA's process for identifying periods of transition and growth of regional air carriers and (2) evaluate how FAA adjusts its oversight to respond to changes in regional air carrier operations.

What We Found

FAA's process for identifying periods of transition and growth at regional air carriers is ineffective in key areas. FAA's tools to evaluate air carrier risk are confusing and subjective, and limit the Agency's ability to be proactive and weight specific risks. Furthermore, inspectors are hesitant to use the tool designed to detect potential financial problems because they do not have the knowledge or information they need to evaluate carriers' financial conditions.

FAA inspectors also do not adjust air carrier surveillance in response to changes because their risk assessment tools are ineffective. Additionally, even when inspectors are able to identify areas of risk, Agency guidance is vague regarding how inspectors should adjust surveillance. Finally, the new oversight system relies heavily on inspector judgement. While sound inspector judgement is crucial for effective oversight, inspectors also need adequate tools and guidance to aid their decision making.

Our Recommendations

We are making 10 recommendations to FAA to improve its risk assessment tools, improve data sharing between offices, and improve the guidance for how inspectors should handle anonymous complaints. FAA concurred with all 10 recommendations.

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Memorandum

Date: December 19, 2017

Subject: ACTION: Final Report—FAA Oversight Is Not Keeping Pace With the Changes Occurring in the Regional Airline Industry | Report No. AV2018012

From: Matthew E. Hampton
Assistant Inspector General for Aviation Audits 

To: Federal Aviation Administrator

Regional air carriers¹ operate over 40 percent of the Nation’s commercial flights, making over 10,000 trips a day and serving 157 million people each year, approximately 20 percent of all airline passengers.² These carriers began operating in the 1970s, primarily to provide flights to cities unable to support major airline service. Although some regional carriers have experienced rapid growth—including the introduction of larger, more sophisticated aircraft, longer average flights, and the expansion of service to larger cities³—others have shrunk, merged, or changed mainline partners. While the regional airline industry has not suffered a major accident since 2009, it has recently undergone significant changes, including airline consolidations,⁴ strict domestic code-sharing partnerships,⁵ and changes in pilot licensure requirements.⁶

¹ There is no formal definition of regional carrier. For the purpose of this report, we use the following definition: a regional carrier is a Part 121 carrier that operates aircraft of 99 seats or fewer for a larger or mainline carrier.

² Bureau of Transportation Statistics, Air Carrier Statistics (U.S. Carriers Only).

³ According to the Regional Airline Association, the average plane size flown by regional carriers grew from 24 seats in 1990 to 61 in 2015, and the average trip increased from 194 miles in 1990 to 478 miles in 2015.

⁴ Regional airlines have purchased other airlines to expand operations. For example, SkyWest Inc. purchased ExpressJet in 2011. Airlines also merge their operating certificates to streamline operations. For example, in 2014, Republic Airways Holdings merged its Chautauqua Airlines certificate with Shuttle America’s certificate.

⁵ In these joint marketing agreements, mainline carriers purchase seat capacity from an independent regional airline or contract for the service of a regional airline to fly passengers to their larger hub airports.

⁶ In response to changes to pilot experience and training requirements that were mandated in 2010, FAA issued a rule in 2013 requiring each pilot flying for a Part 121 carrier to obtain an Airline Transport Pilot license, which requires a minimum of 1,500 hours of flight experience.

In light of these concerns, the Ranking Members of the House Transportation and Infrastructure Committee and its Subcommittee on Aviation requested that we analyze the Federal Aviation Administration's (FAA) process of identifying periods of growth and determine the Agency's ability to respond to changes in regional air carrier operations. Accordingly, our audit objectives were to (1) evaluate FAA's process for identifying periods of transition and growth of regional air carriers and (2) evaluate how FAA adjusts its oversight to respond to changes in regional air carrier operations.

During our review, we conducted interviews with industry organizations, visited six regional air carriers and the corresponding FAA Flight Standards Offices, reviewed air carrier statistics and FAA inspection records, and interviewed representatives from the Department of Transportation's Office of Aviation Analysis and employees from FAA Flight Standards Offices responsible for national policies on pilot and airworthiness oversight. We conducted this performance audit in accordance with generally accepted Government auditing standards.

We appreciate the courtesies and cooperation of FAA and industry representatives during this audit. If you have any questions concerning this report, please call Matthew Hampton, Assistant Inspector General for Aviation Audits, at (202) 366-0500.

cc: The Secretary
DOT Audit Liaison, M-1
FAA Audit Liaison, AAE-100

Results in Brief

FAA's process for identifying periods of transition and growth at regional air carriers is ineffective in key areas.

FAA's tools to evaluate air carrier risk are confusing, subjective, and limit the Agency's ability to be proactive and to weight specific risks. For example, inspectors must choose between similar categories when assessing risks associated with potential financial distress, such as "the carrier is not experiencing any of the 3 financial stability issues" or "the carrier is financially stable." These choices sound similar but could change the risk score. In addition, tools designed to assist inspectors in detecting financial problems or risks related to rapid growth or downsizing are not required to be completed on a regular basis. Additionally, inspectors are hesitant to use the tool designed to detect potential financial problems because they do not have the knowledge or information they need to evaluate a carrier's financial condition. As a result, inspectors evaluating two carriers operating under the same holding company⁷ did not identify multiple indications of financial distress in the 6-month period before the company declared bankruptcy in early 2016. Finally, FAA does not regularly use data sharing and analysis at the interoffice level as part of its new safety oversight system to identify industry-wide issues. As a result, FAA may be missing key changes in the industry, such as periods of growth or financial distress at regional air carriers that could have important safety implications.

FAA inspectors do not adjust air carrier surveillance⁸ in response to changes because the tools they have to assess risk are ineffective.

Specifically, inspectors expressed concern that the risk-assessment tool and decision aids do not help to identify areas that need increased or adjusted oversight. Furthermore, even when inspectors are able to identify areas of risk, according to inspectors, and confirmed by our analysis, Agency guidance is often vague regarding how inspectors should adjust surveillance. Finally, the new oversight system relies heavily on inspector judgement. While sound inspector judgement is crucial for effective oversight, inspectors also need adequate risk assessment tools and guidance to aid in decision-making. For example, when inspectors identify a potential hazard, they create a risk-management process (RMP) to monitor or mitigate the risk. While the inspector uses this process to assign a risk score to identified hazards, the score does not drive required actions, such as developing custom inspections, changing inspection intervals, or

⁷ Under FAA guidance, these carriers are inspected as separate entities.

⁸ FAA refers to its oversight activities and inspections of air carriers as "surveillance."

examining a carrier’s policies and procedures in a specific area. Even a *high risk* hazard can be closed without eliminating or mitigating that risk, provided that the inspector considers the new level of risk to be “acceptable.” Yet the term “acceptable” is not defined in FAA’s guidance. As a result, FAA’s current oversight system does not provide inspectors with the tools and guidance necessary to make informed decisions to mitigate operational risks, which is a central tenet of safety management systems.

Background

Regional carriers operate in a very competitive environment. They usually operate under long-term, fixed-fee capacity purchase agreements with mainline partners, such as American Airlines, Delta Air Lines, and United Airlines. Under these agreements, mainline carriers pay regional carriers a fixed fee for each departure. Table 1 lists the 14 largest regional air carriers and their code-share partners.

Table 1: Regional Carriers and Their Mainline Partners

Carrier	American	Alaska Air Group	Delta Air Lines	United
<i>Envoy Air</i>	•			
<i>Republic</i>	•		•	•
<i>Piedmont</i>	•			
<i>PSA</i>	•			
<i>SkyWest</i>	•	•	•	•
<i>ExpressJet</i>	•		•	•
<i>Compass</i>	•		•	
<i>GoJet</i>			•	•
<i>Tran States</i>	•			•
<i>Mesa</i>	•			•
<i>Endeavor Air</i>			•	
<i>Horizon Air</i>		•		
<i>Air Wisconsin</i>	•			
<i>CommutAir</i>				•

Note: Five regional airlines are wholly owned subsidiaries of mainline carriers. Endeavor Air is owned by Delta Air Lines. Envoy, Piedmont, and PSA are owned by American Airlines. Horizon Air is owned by Alaska Airlines. Source: OIG Analysis of Regional Airline Association and Carrier Data.

These partnership arrangements can be beneficial to regionals because they are sheltered from some business risks, such as fluctuations in fuel prices, fares, and passengers. However, regional carriers do not generally benefit from upward trends in ticket prices (since mainline carriers retain ticket revenue), ancillary revenue (e.g., baggage fees), and passenger enplanements. In addition, they have to keep costs low to remain competitive. Yet regional air carriers are held to the same level of safety and regulatory standards as their mainline partners.

In 2014, FAA began to transition its oversight of all passenger air carriers from the Air Transportation Oversight System (ATOS) to the Safety Assurance System (SAS).⁹ SAS is a risk-based oversight system that is intended to evaluate a carrier's ability to manage risk and ensure safe operations, as part of FAA's broader implementation of its Safety Management System (SMS).¹⁰ FAA's SMS design principles focus on enhancing safety through data analysis to better respond to changes in industry business models and growth. While SAS operates similarly to ATOS in many aspects, there are some important differences in how inspectors are expected to identify risks and adjust oversight. For example, SAS places a greater focus on air carriers' safety systems and controls and provides a risk-assessment tool¹¹ for inspectors to identify and document potential risks at individual carriers. Inspector decision aids for identifying risks specific to financial issues, transition, and growth have largely remained the same, despite the changes in FAA's oversight system and in the industry.

FAA Does Not Have an Effective Process for Detecting Periods of Transition and Growth at Regional Air Carriers

FAA's process for identifying periods of transition and growth at regional carriers is ineffective in some key areas. The tools the Agency currently provides are subjective and confusing to its inspectors. In addition, inspectors do not use the tools effectively due to a lack of available information and financial knowledge. Finally, FAA's new Safety Assurance System does not include a comprehensive system for sharing risk information system-wide.

⁹ SAS includes other types of carriers and operators, while ATOS was limited to passenger air carriers.

¹⁰ SMS is a formal approach to managing safety risk and assuring the effectiveness of safety controls that is required by the International Civil Aviation Organization (ICAO). FAA is a member of ICAO. For additional information on FAA's SMS, see FAA Order 8900.369B, Safety Management System.

¹¹ FAA's main risk-assessment tool is formally named the Certificate Holder Assessment Tool (CHAT).

FAA's Risk-Assessment Tools Are Not Adequate To Identify Periods of Air Carrier Growth and Transition

FAA inspectors are overlooking key risk indicators at regional airlines because the Agency's main risk-assessment tool and decision aids are ineffective. The main risk-assessment tool is subjective and does not include risk scoring, i.e., quantitative metrics to assess the severity of risks related to major operational changes, transition, or growth, such as turnover in key personnel, financial distress, or rapid expansion. For example, under FAA's current oversight system, SAS inspectors reply to only "yes" or "no" questions when assessing organizational risk indicators that could materially affect a carrier's operation. However, the oversight system does not include associated weights for the risk areas. Rather, SAS leaves follow-up actions completely up to an inspector's judgement rather than an actual risk score that could help determine the highest areas of risk. As a result, inspectors may overlook critical areas of risk that need additional attention at regional air carriers. It is important to note that FAA recognizes that weighted scoring is important and plans to include such scoring in a future version of SAS.

In addition to the risk-assessment tool, inspectors also have access to decision aids.¹² While these decision aids are not part of the main risk-assessment tool, they can be used by inspectors to assess risks specifically related to financial condition and rapid growth or downsizing at regional carriers. However, according to inspectors, and as confirmed by our analysis, the decision aids are poorly designed and confusing, which limits their effectiveness. For example, the instructions for the Financial Condition Assessment Decision Aid contain a mathematical error. The instructions tell inspectors to evaluate air carriers in 9 categories on a scale of 1–10; those scores are then tallied for a potential total score of 9–90. However, the decision aid actually includes 10 categories, which means the total score should be from 10–100. Since a higher score indicates a lower risk of financial distress, inspection teams could inadvertently select a lower risk level than they might have if the total score included all 10 categories.

Furthermore, the lack of a clear distinction between scores on the decision aids could lead to a misleading assessment (i.e., an inflated or inaccurate score). For example, part D of the Financial Condition Assessment Decision Aid directs inspectors to review a carrier's safety programs, determine whether there are

¹² For additional details about the decision aids, see FAA Order 8900.1, Change 450, volume 6, chapter 2, section 18, March 17, 2016.

issues in three areas, and assign the appropriate scores. Figure 1 shows the section of the decision aid related to carrier safety programs.

Figure 1: Financial Condition Assessment Decision Aid, Part D

D. Safety Programs

- 1) The operator’s Internal Evaluation Program (IEP) is ineffective.
- 2) The operator is not using existing safety systems, including risk management (RM), effectively.
- 3) The operator’s cooperative relationship with the FAA Certificate Management Team (CMT) is declining.

Score	Word Picture
1-2	The certificate holder is experiencing all three of the above issues and/or adequate safety programs do not exist.
3-5	The certificate holder is experiencing two of the three above issues.
6-7	The certificate holder is experiencing one of the three above issues.
8-9	The certificate holder is not experiencing any of the three above issues.
10	The certificate holder possesses stable safety programs.

Source: FAA.

There is not a clear distinction between “the certificate holder is not experiencing any of the above issues” and “the certificate holder possesses stable safety systems.” These choices sound similar but could change the overall risk score. Inspectors who complete this decision aid can assign scores that range between 8 and 10 points, depending on which of these options they select. Eight of the 10 categories that inspectors are asked to evaluate list these choices. As a result, scores can vary by as much as 16 points out of a possible 90 points, depending on which option the inspector chooses. The 16-point range in scoring could affect subsequent actions once inspectors calculate the overall risk score for the carrier,¹³ even though the options selected by inspectors might be nearly identical.

For many years, FAA inspectors have used these decision aids to evaluate a carrier’s financial condition, transition, and growth rates. The decision aids have been used so long that representatives from the FAA office responsible for them did not know how the risk indicators were developed, why the risk indicators

¹³ Once inspectors have scored all of the categories in a decision aid, they calculate an overall risk score, which falls into one of three categories that then guide the inspector’s subsequent actions.

were weighted equally, or if these risk indicators were still valid given today's operating environment. Without an evaluation of the elements used in the decision aids, FAA cannot be assured that its inspectors are focused on indicators that are relevant and that emphasize those areas that could pose the greatest risk. Such attention on the highest risk areas is also consistent with FAA's SMS approach, which emphasizes that mitigation actions must be developed for hazards that present unacceptable operational risk.

FAA Inspectors Lack a Clear Understanding of Risk Indicators and How To Use Available Tools

FAA inspectors are overlooking risk areas due to a lack of clear understanding of the indicators¹⁴ or how to properly use the tools to assess risk. We found that inspectors did not identify specific indicators of increased risk according to FAA guidance or failed to link the indicators with increased risks related to financial distress or rapid growth or downsizing. For example, FAA inspectors did not recognize the multiple indicators of financial distress, as defined in FAA guidance, at Republic Airways Holdings before that carrier filed for bankruptcy.¹⁵ These indicators included a drastic decline in stock prices, a decrease in scheduled flights due to a pilot shortage, a lawsuit from one of its mainline partners for failing to complete contractually scheduled flights, and an increase in the pilot attrition rate. Although inspectors were aware of these indicators, they did not believe they posed an increased risk at the carrier, and attributed many of the risk indicators to a pending merger between the company's subsidiaries. Therefore, they did not mark "Financial Condition" as a risk indicator for either of the company's two subsidiaries during reviews completed in December 2015 and January 2016. The manager of the FAA office responsible for both subsidiaries stated that the office had been "caught off guard" by the bankruptcy and only found out about it from the carrier the day of the filing.

FAA guidance states that "Certificate Holder District Office personnel should not wait for formal notification of a problem before taking action to identify potential

¹⁴ FAA Order 8900.1, volume 6, chapter 2, section 18, lists a series of indicators that could indicate the presence of increased risk, such as changes in credit rating, noticeable turnover in personnel (including layoffs), and changes in competition on key routes.

¹⁵ In February 2016, Republic Airways Holdings filed for Chapter 11 bankruptcy protection, citing a loss in revenue due to a lack of pilots as well as unfavorable business terms in its long-term agreements. The company continued to provide air service during the bankruptcy restructuring. The company emerged from bankruptcy in April 2017, under the name Republic Airline.

hazards. In addition, the safety impact often has already occurred by the time the problem is formally announced (e.g., declaration of bankruptcy).” The guidance also states that “it is necessary to evaluate the potential for problems before such a formal declaration by observing general stressors and monitoring leading and lagging indicators.” These indicators can include changes in the competition along key routes, significant shifts in stock price, or significant layoffs, many of which were present at Republic Airways Holdings prior to the company’s bankruptcy declaration.

Furthermore, FAA inspectors did not select “Labor/Management Relations” in the main risk-assessment tool as a risk factor for two carriers that were experiencing difficult labor negotiations. FAA inspectors acknowledged that there were warning signs related to labor relations at the two carriers, but they did not identify specific risks and did not believe the labor issues affected airline operations. This is significant because one carrier had been in negotiations with its pilot union for 8 years and had problems recruiting pilots because of concerns about low pay. The other carrier was in contract negotiations for 5 years, and its pilot workforce had rejected an agreement that the carrier had recently negotiated with its union.

While FAA’s guidance states that inspectors should not wait for formal notification of an issue to complete the decision aids, it does not require inspectors to use the aids on a routine basis. Instead, FAA gives inspectors broad latitude in determining when to use the decision aids based on their knowledge of conditions at the carrier. In addition, FAA does not require inspectors to retain copies of completed decision aids when they are used. In many cases, inspectors fill out the decision aids on paper, complete them “informally” (i.e., they do not document the results), or do not keep electronic copies so they can be easily accessed by other inspectors. The lack of a retention policy, combined with the lack of a policy requiring regular completion of the decision aids, prevents inspectors from developing a baseline to compare year-to-year changes. Developing a baseline that can be used to detect changes in an entity’s performance would help inspectors detect early warning signs or changes over time that could introduce risk to specific areas of a carrier’s operation.

In addition, FAA inspectors at four offices stated that they do not always have the information or knowledge they need to adequately complete the Financial Condition Assessment Decision Aid. Inspectors stated that financial data that could help them assess a carrier’s financial state¹⁶—such as credit scores—often are not included in their inspection databases. Furthermore, inspectors stated

¹⁶ FAA used to provide this information to inspectors through its System Performance Analysis System (SPAS) but no longer does so.

that even if they had access to financial information, they do not feel they have the skill set they need to use the information to assess risk.

Even when inspectors have an indication that there are financial problems at a carrier, they may not be able to use the decision aids to identify specific areas of risk. For example, on March 2, 2016—1 week after Republic Airways Holdings filed for bankruptcy—FAA inspectors completed Financial Condition Decision Aids on its subsidiaries, Republic Airline and Shuttle America, and then again for Republic Airline on March 30, 2016. In the case of Republic, both decision aids generated scores that indicated that the carrier had a low risk of financial distress issues, even though its parent company had just filed for bankruptcy protection, which is a significant legal and financial event that can affect key areas of a carrier's operation. A third decision aid was completed for Republic Airline on July 8, 2016, which indicated the carrier did not display substantial financial distress characteristics.

The decision aid for Shuttle America resulted in a score that was in the moderate range for financial distress. However, in addition to having a parent company under bankruptcy protection, Shuttle America had been sued by Delta Air Lines over its failure to meet its contractually obligated flight schedule due to a lack of pilots. FAA inspectors stated they did not believe the bankruptcy would necessarily increase risks at Shuttle America.

During our review of the decision-aid scoring, we also noted the following issues with other air carrier inspectors that illustrate ineffective use of decision aids:

- Inspectors marked that one carrier had "one or two issues" related to maintenance and ground support. However, during our reviews and interviews with inspection teams, we identified four areas where FAA had found issues with the carrier, such as concern regarding the training of maintenance personnel and high turnover in the maintenance department. Had the inspectors included all the risks present, the carrier would have received a score of 9 or 10, rather than the assigned score of 4, for that particular section. While the overall score for the decision aid would have remained in the moderate risk range, FAA inspectors would have been required to initiate risk-management processes focused on those specific areas.
- At another carrier, inspectors used the Rapid Growth and Downsizing Decision Aid to assess changes in management or turnover in personnel and determined that the company had experienced turnover in one area (aircraft mechanics). However, we identified two additional areas (quality assurance auditors and technical support personnel) where the carrier had

experienced significant turnover. The omission of these issues in the decision aid, although known by the inspectors, paints an inaccurate picture of the risks at the carrier and limits the effectiveness of the decision aid.

FAA's New Safety Assurance System Does Not Include a Comprehensive System for Sharing Risk Information

FAA does not routinely share system-wide data on operational risks among its Flight Standards offices. This is because FAA has not yet modified the SAS tool to give it the capability to easily distribute data on operational risks and allow inspectors to analyze trends throughout the airline industry or specific sectors, including regional air carriers. In addition, according to FAA management, the analytical personnel available to Flight Standards have been focused more on report generation than on true hazard and risk analysis. Developing a more robust data-sharing capability would facilitate decision-making at the national level, allow information sharing among Agency offices, and enhance the Agency's performance as stated in FAA's plans, goals, and strategic objectives.¹⁷ Until FAA develops this capability, inspectors will not have ready access to data regarding similar carriers, which could be important when evaluating risks. FAA recognizes that this information would be helpful and plans to enhance its data-sharing and analysis capabilities through the use of additional software; however, the Agency has not yet established firm milestones for implementing these capabilities.

FAA Does Not Effectively Adjust Surveillance in Response to Critical Changes in the Regional Industry

FAA does not effectively adjust its oversight to respond to changes occurring in the regional airline industry, such as rapid growth and periods of financial distress. FAA's main risk-assessment tool and decision aids are ineffective, and inspector guidance does not provide sufficient information on how to identify and manage risk. As a result, decisions regarding the adjustment of surveillance

¹⁷ For additional details, see FAA Order 8900.369B, Safety Management System.

are often subjective and based largely on inspector judgement rather than a data-driven risk analysis.

FAA's Tools and Guidance Are Not Effective in Identifying Necessary Adjustments to Surveillance

FAA's current oversight system, including its main risk-assessment tool and decision aids, does not adequately guide inspectors in determining how or when to adjust air carrier surveillance to mitigate identified risk. The need to adjust surveillance based on risks depends on an inspectors' ability to first identify that risk and then mitigate it through enhanced surveillance. However, as discussed previously, FAA's current tools are not sufficient to provide inspectors with the information they need to make informed decisions about surveillance. According to inspectors and as confirmed by our analysis, even when an inspector has determined heightened risk is present at an air carrier, FAA's current guidance and tools do not provide the inspector with a clear path to take to mitigate those risks. For example, the Financial Condition Assessment Decision Aid did not help inspectors examining Republic Airline and Shuttle America identify the possibility that the carrier was in financial distress. As a result, the inspectors did not adjust surveillance to account for financial concerns, although multiple red flags signaled financial distress, including a sharply reduced stock price, decreased aircraft utilization rates, and a sharp increase in pilot attrition.

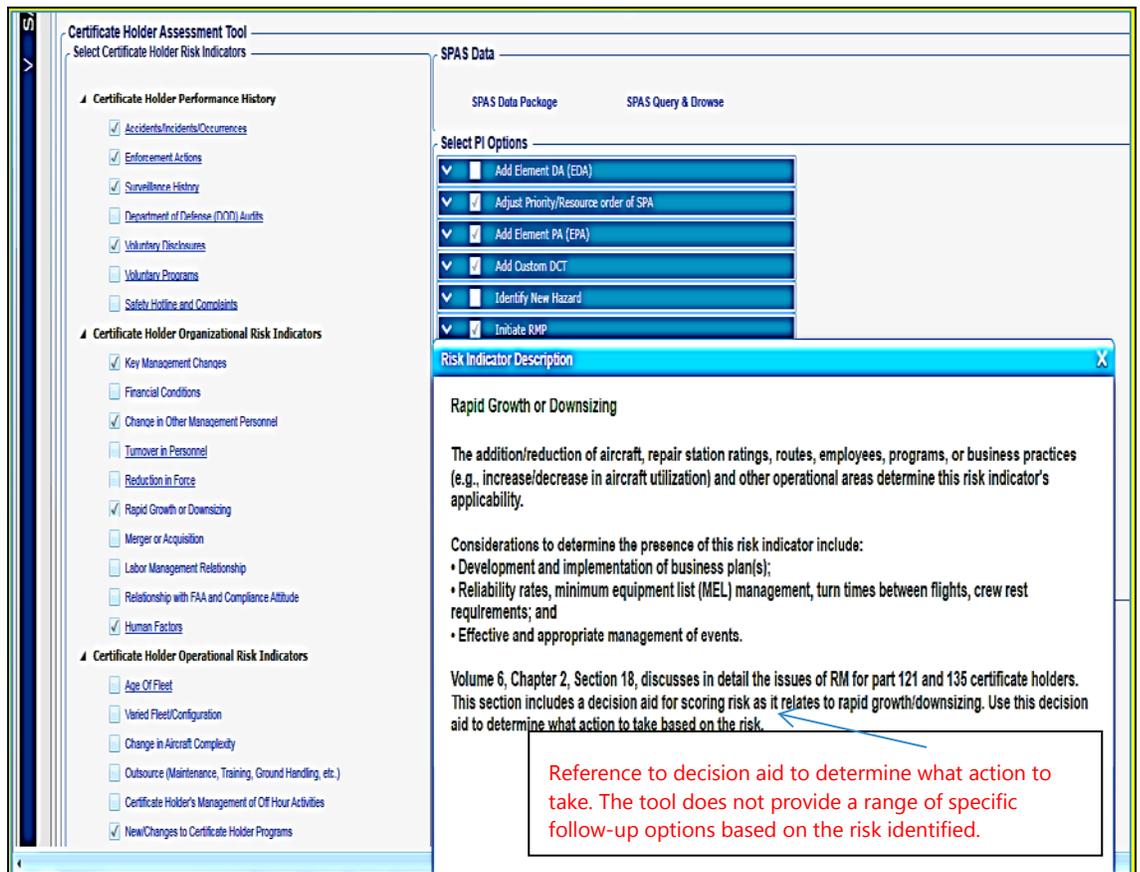
Following Republic Airways Holdings' February 2016 bankruptcy announcement, inspectors did identify areas of concern such as turnover in personnel and key management changes, but did not significantly adjust their surveillance to account for those risks. Inspectors stated they did not make dramatic changes to their surveillance of the two carriers because they did not believe the bankruptcy posed any increased risks to safety. Yet FAA's guidance states that the declaration of bankruptcy indicates the operator is experiencing an imbalance between resources and operational requirements which could impact safety.

An inspector at another airline stated that while a number of operational changes—such as the introduction of new aircraft and a change in mainline partners—had occurred in recent years, FAA had not reviewed the carrier's financial health since 2014. This was due to the fact that inspectors are not required to periodically assess specific conditions at air carriers, such as financial health.

FAA's Tools and Guidance Do Not Provide Sufficient Instructions to Inspectors Once Risks Are Identified

FAA's tools and guidance do not provide sufficient detail on the areas inspectors should emphasize or the specific actions they should take once risks have been identified. For example, when "Rapid Growth or Downsizing" is selected in the SAS tool, it refers inspectors back to the decision aid, which does not identify specific actions (see figure 2).

Figure 2: Screenshot from SAS Showing Reference to Decision Aid



Source: SAS screenshot from FAA; commentary by OIG.

Once inspectors have completed the decision aids and calculated a score that indicates low, medium, or high risk for that area, the guidance (see figure 3)

instructs them to take one of three actions: (1) do not adjust surveillance, (2) go back to the risk-assessment tool to develop a new surveillance plan, or (3) initiate a risk-management process.

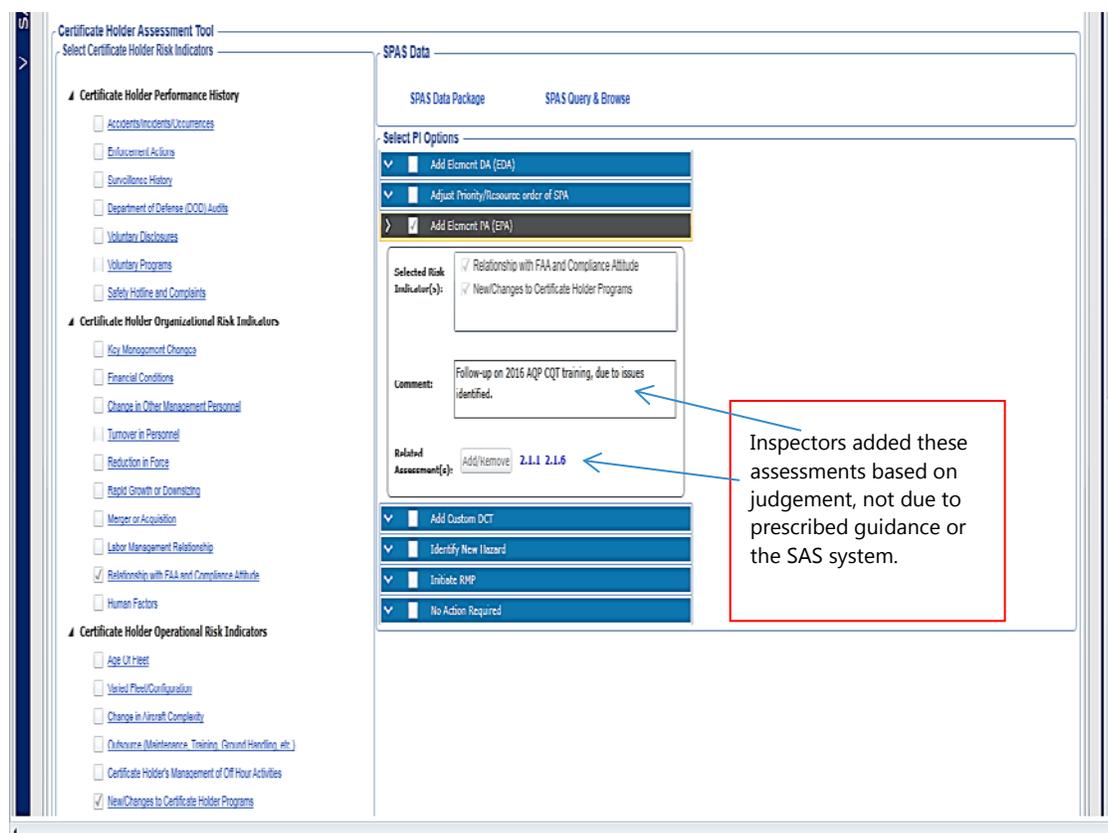
Figure 3: Options for Inspector Actions Following Completion of the Decision Aid

- 1) Initiate RMP.** Decision aid scores indicating a high level of risk require initiation of the RMP that targets the specific risks generated by the imbalance of resources and operational requirements and creates an action plan. The PI will track and close the action plan generated by the RMP.
- 2) Retarget Surveillance.** Decision aid scores indicating a moderate level of risk require inspectors to retarget surveillance plans. Complete a CHAT to develop a surveillance plan that concentrates on the elevated risk areas and that balances the need to validate performance in those areas against priorities for performance validation in other areas of the surveillance plan.
- 3) Continue Current Surveillance Program.** Decision aid scores indicating a low level of risk do not require any immediate actions other than to continue the planned surveillance program to monitor the certificate holder's condition and to address any particular issues of concern if they exist.

Source: FAA Order 8900.1, volume 6, chapter 2, section 18.

Neither the main risk-assessment tool (option 2) nor the risk-management process (RMP; option 1) give inspectors sufficient guidance on what actions to take or where to focus their surveillance once risks are identified. For example, when using the tool, inspectors are given several options for adjusting surveillance, including examining the carrier's systems and procedures, creating customized inspections to address a specific problem, or simply monitoring the carrier to see if the risk continues to be present. However, the guidance is unclear about which specific areas to target once inspectors select a risk indicator in the tool. Additionally, the tool only provides minimal guidance on moving beyond the selection options. Figure 4 illustrates what inspectors might see once they use the risk-assessment tool to identify risks at a carrier.

Figure 4: Screenshot from the SAS Tool Showing Lack of Additional Guidance



Source: SAS screenshot from FAA; commentary by OIG.

The above graphic shows that the actions taken through the main risk-assessment tool were based entirely on inspector judgement, including the identification of the risks, the type of action taken,¹⁸ and the specific areas targeted for additional surveillance. While inspector judgement is a critical component of effective air carrier oversight, supplementing it with specific guidance will ensure a more consistent standard of oversight between offices and improve risk targeting. Currently, FAA cannot ensure corrective actions are taken at different offices once risks are identified. This lack of consistency continues to be an area of concern for the airline industry as evidenced by FAA's recent reorganization of its Flight Standards Service.¹⁹ FAA recognized the need for more consistent inspector actions across the aviation industry and realigned its

¹⁸ In this case, the inspectors added element performance assessments, which are inspections to ensure that the carrier's systems are performing as intended.

¹⁹ In July 2017, FAA informed carriers that it was reorganizing the Flight Standards Service into four functional areas: Air Carrier Safety Assurance, General Aviation Safety Assurance, Safety Standards, and Foundational Business.

inspector workforce by aviation function rather than geography in order to improve inspector consistency.

FAA's risk-management process²⁰ is used frequently by inspectors, but does not provide them with clear guidance. For example, under the Agency's previous oversight system, inspectors assigned a risk score to any identified hazard based on its potential severity and the likelihood it might lead to a safety event. A "medium" or "high" risk score would then determine the required changes to surveillance. Currently, the inspector still assigns a risk score to identified hazards; however, the score no longer drives required actions. Rather, inspectors for each carrier determine how or whether to adjust oversight. No specific action—such as developing custom inspections, changing inspection intervals, or examining a carrier's policies and procedures in a specific area—is required, even if the hazard includes a high risk of a negative outcome or a particularly high severity if such an outcome does occur. As a result, even if a hazard with a *high risk* is identified, it is possible for inspectors to close out the process without eliminating or mitigating that risk, provided that they consider the new level of risk to be "acceptable." Yet FAA does not define the term "acceptable" risk in its guidance on risk-management processes or require inspectors to document a reason why the risk-management process should be closed even if the identified hazard is rated as a "high risk."

Inspectors we interviewed expressed a lack of confidence in SAS's ability to properly target identified risks. Instead, inspectors rely on their air carrier knowledge when determining emphasis areas once actual or potential risks have been identified. For example, an inspector at one office said that he identifies risk primarily by using information voluntarily submitted by the carrier. As a result, inspectors make decisions on adjusting surveillance based solely on information provided by the air carrier rather than on risk-based assessments. This is contrary to FAA's own guidance, which states that a key tenet in a system approach to safety oversight is a formal system of hazard identification and safety risk management, which is essential in controlling risk to acceptable levels.

Adjustments to Surveillance Often Are Due to Inspector Judgement Rather Than Guidance or a Risk-Based Approach

At integral points in the oversight process, inspectors adjust surveillance based on their own discretion, rather than consulting specific FAA guidance or

²⁰ For additional details on FAA's risk-management process, see FAA Order 8900.1, volume 10, chapter 7.

conducting data analysis. This is because, in some areas, FAA's guidance is vague or inadequate, and therefore follow-up action is left to inspector judgement. While inspector judgement and experience are key parts of the oversight process, having clear guidance to complement inspector expertise ensures a consistent oversight standard among offices, advances FAA's SMS oversight approach, and helps to prevent inspectors from overlooking risks. For example, one office received an anonymous complaint regarding the quality of training and flying skills of new pilots at a carrier. FAA planned to conduct eight additional observations of new first officers and two additional observations of newly promoted captains at this carrier, but did not assign any additional inspections of the carrier's training department based on the complaint.

While FAA planned to perform the additional pilot observations at the carrier by June 30, 2016, inspectors only completed a portion of them. According to FAA, inspectors did not complete their inspections of new first officers due to a lack of available resources. The deadline was extended five times before the inspections were completed in October 2017.²¹ Given the potential safety implications of the complaint, we question whether delaying inspections for over a year was the best use of FAA resources. Furthermore, FAA's guidance is silent on how often inspectors can extend deadlines for custom inspections,²² leaving the decision to inspectors' discretion. In addition, the guidance does not address how inspectors should handle anonymous complaints involving a significant safety issue, like the one received in this instance.

To address the complainant's concerns, FAA could have used inspectors who were not dedicated to a specific oversight office to conduct observations of flight crews or inspections in geographically dispersed locations. While these inspectors may not be familiar with every carrier's policies or operations, they can be useful in certain situations, such as addressing "a lack of flying skills" in new pilots.

More troubling, FAA inspectors did not address concerns about the air carrier's training program and the flying skills of its newly hired pilots even though inspectors had been concerned about these same issues since 2014, following several in-flight incidents involving the carrier. During our review, air carrier personnel also stated that they were experiencing difficulties attracting highly qualified pilots. In addition, despite these and growing industry-wide concerns about the availability of qualified pilots, FAA has not evaluated the effect of the

²¹ The final deadline was December 31, 2017—more than a year after the complaint was received. Inspectors did not find any significant issues with pilot performance.

²² While FAA requires certain inspectors of Part 121 carriers to perform certain inspections at regular intervals, custom inspections, such as the ones assigned in this instance, can be opened and closed as needed.

2010 congressionally mandated changes²³ on the pilot population. This raises questions about whether FAA is well positioned to detect changes in the pilot pool that may introduce risk into regional air carriers' operations.

Conclusion

FAA faces a challenge in overseeing regional airlines due to the highly competitive and dynamic nature of the industry, the magnitude of changes that regional carriers are making, and the rapid pace at which those changes occur. To its credit, FAA implemented a new risk-based oversight system that is intended to examine a carrier's ability to manage risk and ensure safe operations. These changes come at a time when the Agency's new oversight system is still evolving to incorporate key SMS principles, such as safety risk management and safety assurance, and to increase the Agency's oversight of carriers' internal safety programs and controls that are designed to detect risks or potential areas of concern. FAA still has a substantial amount of work ahead to effectively implement its risk-based, data-driven oversight system and ensure that its inspectors have the tools, knowledge, and guidance they need to identify risks and adjust surveillance at regional carriers.

Recommendations

To enhance the Agency's oversight of regional air carriers, we recommend that the Federal Aviation Administrator:

1. Revise the Safety Assurance System (SAS) risk-assessment tool to include weighted factors for each organizational risk evaluated by inspectors.
2. Update the scoring system and instructions in the Financial Condition Assessment Decision Aid to reflect that 10 characteristics are being evaluated.
3. Develop and provide additional guidance and training to inspectors to clarify the differences in the choices (word pictures) provided in the decision aids.

²³ FAA responded to those changes in 2013 with a rule requiring pilots flying for a Part 121 carrier to obtain an Airline Transport Pilot license, which requires 1,500 hours of flight experience—or 750 hours for current or former military pilots, 1,000 hours for bachelor-degree candidates with an aviation major, and 1,250 hours for associate-degree candidates with an aviation major.

4. Reevaluate the decision aids to validate that:
 - a. They include the appropriate areas of focus during reviews of the financial condition and transition or growth of regional air carriers;
 - b. The weighting of the focus areas correlates to their potential impact on risks associated with financial distress or rapid growth or downsizing.
5. Revise validated guidance to emphasize the importance of completing decision aids periodically for baseline comparisons.
6. Implement a retention policy for completed decision aids so they will be available to inspectors for comparison and analysis during risk assessments.
7. Develop and provide guidance and training to show inspectors how to detect triggers that require the completion of a decision aid, as well as the importance of using decision aids to adjust surveillance.
8. Refine policies and procedures for collecting and analyzing safety data and metrics from regional airlines sector-wide and sharing that information with FAA's Flight Standards Offices.
9. Revise Agency guidance on risk-management processes to recommend adjustments to surveillance when the risk score is identified as "high" or document a reason for not adjusting surveillance given the risk.
10. Revise inspector guidance to provide actions inspectors should take after risks are identified through complaints, including reaching out to other offices if necessary and ensuring planned surveillance of the issue is actually completed.

Agency Comments and OIG Response

We provided FAA with a copy of our draft report on November 6, 2017, and received the Agency's response on December 5, 2017, which is included in its entirety as an appendix. In its response, FAA concurred with all 10 of our recommendations and proposed completion dates for implementing the recommended actions.

Actions Required

We consider all 10 recommendations to be resolved but open pending completion of FAA's proposed actions.

Exhibit A. Scope and Methodology

We conducted this performance audit between January 2016 and November 2017 in accordance with generally accepted Government auditing standards as prescribed by the Comptroller General of the United States. 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.

We conducted onsite interviews with air carrier management officials; directors of safety, maintenance, and training; and operations personnel at 6 regional airlines, out of the 15 regional carriers that carried over 1 million passengers during calendar year 2014. We selected these carriers based on criteria such as growth rates, significant transition, known labor relations issues, and market share. We also met with union officials to obtain the pilot perspective on the state and challenges of the regional airline industry. We interviewed FAA program officials at FAA Headquarters to discuss the Agency's transition to the SAS oversight of regional air carriers as well as its training of aviation safety inspectors to conduct surveillance of carriers. We also attended and participated in FAA-directed SAS training. We reviewed SAS's internal controls, interviewed Agency officials responsible for implementation, and reviewed relevant documentation to determine the reliability of SAS data. We determined that data from SAS were sufficiently reliable for the purposes of this report. We visited the six FAA Certificate Management Offices (CMO) responsible for the six carriers that we selected for review and interviewed CMO managers, frontline managers, principal inspectors, and aviation safety inspectors to discuss their surveillance, inspections, and planning for oversight of regional air carriers. We discussed how oversight is adjusted or tailored to oversee air carriers that are experiencing periods of growth and transition. We also held meetings with the Regional Airlines Association to gain its perspective on FAA's oversight and safety challenges. Finally, we met with the Office of the Secretary of Transportation to discuss its role in monitoring air carriers' financial and operational fitness. Exhibit B lists all the organizations we contacted during this audit.

In addition to conducting interviews, we also reviewed relevant policies and guidance from FAA's Aviation Safety division. We collected and analyzed FAA program data, surveillance records, inspection plans, and air carriers' records, including risk-management plans and safety-related data. Upon reviewing inspection results, we noted and discussed with FAA and air carrier officials any issues identified as high risk and requiring heightened surveillance or corrective actions. We also discussed the transition to a new oversight program with aviation safety inspectors and FAA Headquarters personnel.

Exhibit B. Organizations Visited or Contacted

Department of Transportation

Office of the Secretary/Office of Aviation Analysis, Washington, DC

Federal Aviation Administration Headquarters

Flight Standards National Field Office, Dulles, VA

Flight Standards Maintenance Division, Washington, DC

Flight Standards Air Transportation Division, Washington, DC

FAA Flight Standards District Offices

Republic Airline, Indianapolis, IN

Shuttle America, Indianapolis, IN

PSA Airlines, Cincinnati, OH

CommutAir, Albany, NY

FAA Certificate Management Offices

Mesa Airlines, Phoenix, AZ

SkyWest Airlines, Salt Lake City, UT

Air Carriers

Republic Airline, Indianapolis, IN

Shuttle America, Indianapolis, IN

Mesa Airlines, Phoenix, AZ

PSA Airlines, Dayton, OH

SkyWest Airlines, St. George, UT

CommutAir, Cleveland, OH

Industry Groups

Air Line Pilots Association, Washington, DC

Regional Airline Association, Washington, DC

International Brotherhood of Teamsters, Airline Division, Local 357,
Indianapolis, IN

Exhibit C. List of Acronyms

ATOS	Air Transportation Oversight System
CHAT	Certificate Holder Assessment Tool
CMO	Certificate Management Office
CMT	Certificate Management Team
DOT	Department of Transportation
FAA	Federal Aviation Administration
FSDO	Flight Standards District Office
ICAO	International Civil Aviation Organization
IEP	Internal Evaluation Program
OIG	Office of Inspector General
PI	principal inspector
RM	risk management
RMP	risk management process
SAS	Safety Assurance System
SMS	Safety Management System
SPAS	System Performance Analysis System

Exhibit D. Major Contributors to This Report

TINA NYSTED	PROGRAM DIRECTOR
CHRISTOPHER FRANK	PROJECT MANAGER
KEVIN MONTGOMERY	SENIOR ANALYST
GALEN STEELE	SENIOR AUDITOR
ANDREW SOURLIS	ANALYST
JASON LEWIS	ANALYST
FRITZ SWARTZBAUGH	ASSOCIATE COUNSEL
PETRA SWARTZLANDER	SENIOR STATISTICIAN
MAKESI ORMOND	STATISTICIAN
JANE LUSAKA	WRITER/EDITOR

Appendix. Agency Comments



Federal Aviation Administration

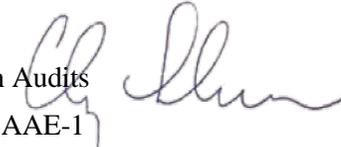
Memorandum

Date: December 5, 2017

To: Matthew E. Hampton, Assistant Inspector General for Aviation Audits

From: H. Clayton Foushee, Director, Office of Audit and Evaluation, AAE-1

Subject: Federal Aviation Administration's (FAA) Response to Office of Inspector General (OIG) Draft Report: FAA Oversight of the Regional Airline Industry



The FAA oversees 74 Federal Aviation Regulation Part 121 air carriers, ranging in size from single airplane operators, to mega-carriers, some with over 1,000 aircraft in 25 fleet types. The FAA is committed to enhancing its oversight of airline operators. In 2016, it replaced the Air Transportation Oversight System—a calendar based, non-scaling tool with the Safety Assurance System, a risk-based, scalable tool that relies on data collection—to drive decisions for adjusting oversight plans. Currently, the FAA is working to incorporate the tools needed for inspectors to identify and adjust surveillance during times of economic hardships, rapid growth or downsizing into guidance and training materials.

Additionally, the FAA is revising its inspector guidance to provide more comprehensive and standardized procedures for air carrier oversight. The FAA is also improving the capabilities and performance of its risk management tools available for FAA inspectors to assess financial distress or rapid growth or downsizing risk. These enhancements will result in more consistent inspection practices and will improve the detection of systemic deficiencies and increase the effectiveness of air carrier safety oversight performed by the FAA.

Upon review of OIG's draft report, we concur with the 10 recommendations as written. The FAA plans to implement the recommendations as follows:

Recommendations	Target Date for Completion
2, 5 and 6	7/31/2018
3	Guidance by 7/31/2018; Training by 12/31/2018
4, 9 and 7	8/31/2018
8 and 10	9/30/2018
1	10/31/2018

We appreciate the opportunity to respond to the OIG draft report. Please contact H. Clayton Foushee at (202) 267-9000 if you have any questions or require additional information about these comments.

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OFFICE OF INSPECTOR GENERAL
U.S. Department of Transportation
1200 New Jersey Ave SE
Washington, DC 20590



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