

July 2009

# NATIONAL TRANSPORTATION SYSTEM

## Options and Analytical Tools to Strengthen DOT's Approach to Supporting Communities' Access to the System



GAO

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Highlights of [GAO-09-753](#), a report to congressional requesters

## Why GAO Did This Study

Since 1978, the Essential Air Service (EAS) program has subsidized air service to eligible communities that would otherwise not have scheduled service. The cost of this program has risen as the number of communities being served and subsidies to air carriers have increased. At the same time, the number of carriers providing EAS service has declined. Given continuing concerns over the EAS program's long-term prospects, GAO was asked to review the program.

GAO reviewed (1) the characteristics and current status of the EAS program, (2) factors affecting the program's ability to provide air service, (3) options for revising the program, and (4) tools for assessing the program, the options for its revision, and the program's performance. GAO interviewed stakeholders and reviewed the results of an expert panel convened by GAO, Department of Transportation (DOT) data and program documentation, and potential methodologies for assessing federal programs.

## What GAO Recommends

Congress should consider re-examining the EAS program in light of changes in its operating environment, and DOT should assess some of its practices as well as whether other forms of air service or other modes of transportation might better serve some communities. DOT concurred with our revised recommendations.

[View GAO-09-753 or key components.](#)  
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## NATIONAL TRANSPORTATION SYSTEM

### Options and Analytical Tools to Strengthen DOT's Approach to Supporting Communities' Access to the System

#### What GAO Found

The EAS program has changed relatively little in 30 years, but current conditions raise concerns about whether the program can continue to operate as it has. Over the past 2 years subsidies to carriers have been increasing, along with EAS program obligations to fund those subsidies. In response, the administration is requesting \$175 million for the EAS program in fiscal year 2010, a \$50 million increase over recent funding levels. At the same time, the number of carriers providing subsidized air service is declining, from 34 in 1987 to 10 in 2009. More than one-third of the EAS-supported communities temporarily lost service in 2008, when 3 carriers ceased operations.

Several factors contribute to the increasing difficulty in providing subsidized air service. The EAS program has statutory requirements for minimum aircraft size and frequency of flights, effectively requiring carriers to provide service that may not be "right-sized" for some small markets. Also, the growth of air service especially by low-cost carriers—which today serve most U.S. hub airports—weighed against the relatively high fares and inconvenience of EAS flights, can lead people to bypass EAS flights and drive to hub airports. Moreover, the continued urbanization of the United States may have eroded the potential passenger base in some small and rural EAS communities.

While Congress, DOT, GAO, and others have proposed various revisions to the EAS program, Congress has not authorized many changes to program requirements. Proposed Federal Aviation Administration reauthorization legislation would include performance-based incentives, among other changes. GAO and others have suggested increasing flexibility and other changes that could make EAS service more sustainable for smaller communities. Finally, members of an expert panel organized by GAO all believed that small and rural communities would benefit from a multimodal approach to transportation. Generally they believed that other modes of transportation could be more responsive to communities' transportation needs in some cases.

Although it is difficult to select options for the EAS program since stakeholders do not always agree on program objectives, certain analytical tools can help policymakers assess the EAS program. Tools include a re-examination framework to revisit the program's objectives, and help evaluate options to make the program more effective. Other analytical tools include an analytical approach GAO developed that, for a sample of small and rural communities, identified their access to different modes of transportation. This approach has the potential for broader application to examinations of communities' access to the national transportation network. Finally, once a change is implemented, performance measures can be used to periodically evaluate program effectiveness.

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## Abbreviations

AIR-21	Wendell H. Ford Aviation Investment and Reform Act for the 21st Century
DOT	Department of Transportation
FAA	Federal Aviation Administration
GIS	Geographic Information Systems
GPRA	Government Performance and Results Act of 1993
EAS	Essential Air Service

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United States Government Accountability Office  
Washington, DC 20548

July 17, 2009

The Honorable John L. Mica  
Ranking Republican Member  
Committee on Transportation and Infrastructure  
House of Representatives

The Honorable Thomas E. Petri  
Ranking Republican Member  
Subcommittee on Aviation  
Committee on Transportation and Infrastructure  
House of Representatives

In 1978, Congress deregulated the airline industry and established the Essential Air Service (EAS) program to ensure that communities that had air service at the time of deregulation would continue to receive at least a minimum level of service. Under the EAS program, if an air carrier cannot provide air service to eligible communities without incurring a loss, the Department of Transportation (DOT) awards the air carrier a subsidy to serve those communities. In 2008, this program helped support commercial air service to about 150 communities throughout the United States. The prospects for the EAS program are a matter of concern to many Members of Congress. In April 2009, 22 Senators submitted a letter to the Director of the Office of Management and Budget requesting that the administration's budget request "reflect the priority of the EAS program to rural America . . ." The administration, in its fiscal year 2010 budget request for DOT notes that the current EAS program is not efficiently designed, and states its intent to work with Congress to develop a sustainable program that will fulfill its commitment while enhancing convenience for travelers and improving cost effectiveness.

Many factors appear to be contributing to increased operating costs for EAS carriers and increasing demand from communities, leading to higher subsidy costs for the EAS program. The administration's fiscal year 2010 budget request includes increased funding for this upcoming year to help cover the costs of increased demand for the program. In addition, over the years Congress has expressed concern that changes in the aviation industry and rising costs may jeopardize the EAS program's long-term

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viability. Finally, in a 2002 report,<sup>1</sup> we also identified several factors that were likely in the near term to create pressure to increase potential future subsidy requirements of the EAS program, and described various options that could promote the long-term viability of the program.

Given continuing concerns over the EAS program's long-term prospects, you asked us to review the program. This report addresses (1) the characteristics and current status of the program, (2) the factors affecting its ability to provide service to communities, (3) options for revising the EAS program, and (4) tools for assessing the program, options for its revision, and the program's performance. To complete this work we reviewed previous reports and studies of the EAS program, including previous GAO reports. We also held a panel discussion attended by experts on community air service including airline officials, program administrators, economists, other transportation providers, and state and local officials. These experts discussed the factors affecting the EAS program and options for providing service to communities across the country, in addition to responding to our questions about the federal government's options for assisting communities with connecting to the national transportation system. We gathered information on the experiences of airports served by the EAS program from a national association of airports, and from seven of their member airports. We obtained DOT data on the EAS program. Our review focuses on communities within the continental United States that have received EAS subsidized service. We focused our review on these communities because the requirements for communities in Alaska are different than for communities in other states, and airports outside the contiguous states and are not representative of the program in the rest of the country.<sup>2</sup> In identifying tools for assessing the program, options for its revision, and the program's performance, we compared the program status to GAO's re-examination criteria and compared DOT's performance measures for this program against the criteria of the Government Performance and Results Act of 1993 and the Office of Management and Budget's Program Assessment Rating Tool. We found DOT's data sufficiently reliable for providing status information on the program.

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<sup>1</sup>GAO, *Options to Enhance the Long-term Viability of the Essential Air Service Program*, [GAO-02-997R](#) (Washington, D.C.: Aug. 30, 2002).

<sup>2</sup>EAS operations to communities in Alaska are subject to different requirements (e.g., carriers may use smaller aircraft) and special provisions.

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We conducted this performance audit from March 2008 through July 2009 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 believed that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. See appendix I for more details on our scope and methodology.

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## Background

In 1978, Congress deregulated the airline industry, phasing out the federal government's control over domestic fares and routes served and allowing market forces to determine the price, quantity, and quality of service. Free to determine which communities they would serve, as well as what fares they would charge, most major carriers became "network" carriers, developing "hub-and-spoke" networks and providing service from their hubs to many "spoke" cities they served. Anticipating that airlines would be free to focus their resources on generally more profitable high-density markets, Congress became concerned that major carriers would eliminate their less profitable routes serving smaller communities, causing these communities to lose air service. In response, Congress established the Essential Air Service (EAS) program as part of the Airline Deregulation Act of 1978. The EAS program subsidizes commercial air service for communities that would otherwise have lost service as a result of deregulation. The law specifies that if an air carrier cannot continue service to a community without incurring a loss, DOT shall then use EAS program funds to award a subsidy to that carrier or another carrier willing to provide service. Congress initially enacted the program for 10 years, and later extended it for another 10 years. In 1996, Congress removed the 10-year time limit.<sup>3</sup>

Under the Airline Deregulation Act, communities that were eligible for air service on October 24, 1978, are eligible for EAS-subsidized service.<sup>4</sup> There are EAS-eligible communities in 49 states, Puerto Rico, and American

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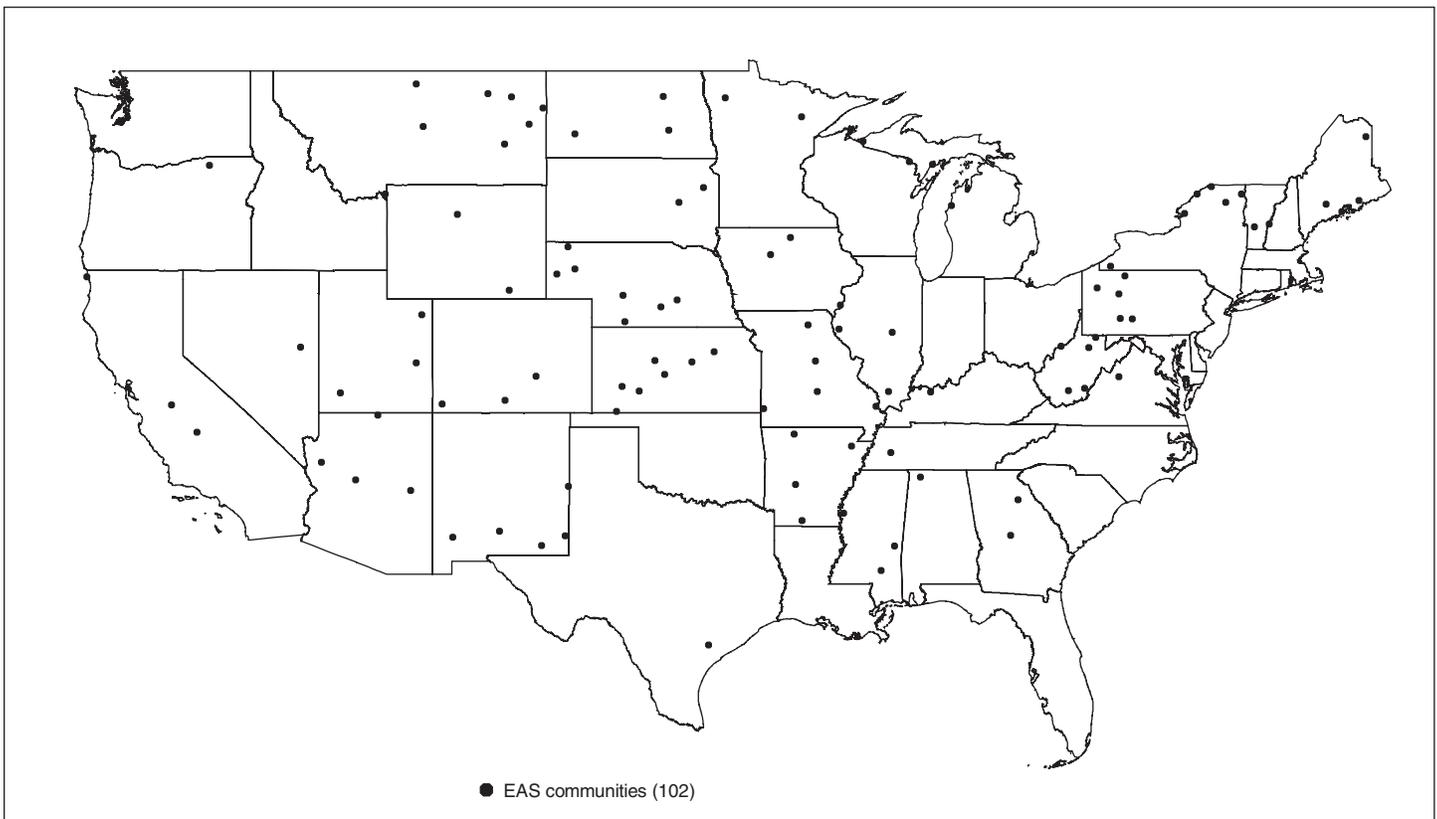
<sup>3</sup>Section 278 of the Federal Aviation Reauthorization Act of 1996, Pub. L. No. 104-264 (Oct. 9, 1996) amended 49 USC § 41742, eliminating an expiration date for the EAS program of September 30, 1998.

<sup>4</sup>Communities did not have to be actively receiving air service in 1978 to be eligible for EAS, but they did have to be listed on an air carrier certificate. These certificates, issued under 49 USC § 41102, authorized a carrier to provide scheduled service along particular routes between named communities.

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Samoa.<sup>5</sup> As of November 2008, DOT had agreements with carriers to provide subsidized service to almost 150 communities—102 in the continental United States, 43 in Alaska, and 2 in Puerto Rico.<sup>6</sup> Not all communities that are eligible for EAS service currently receive it; many currently have unsubsidized air service. Figure 1 shows the communities that had access to EAS service as of January 1, 2009, or are projected to have service starting later in the year.

**Figure 1: Location of EAS Communities as of January 1, 2009**



Source: GAO's analysis of DOT data.

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<sup>5</sup>There are no EAS-eligible communities in Delaware.

<sup>6</sup>Includes agreements awarded as of November 2008, for which service had not yet begun as of that month.

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Communities near airports with EAS service vary in their population. For example, 58 percent of the communities within 40 miles of an airport with EAS-subsidized service as of January 1, 2009, had a population of less than 10,000 while 2 percent had a population of over 100,000.

A multistep process is required for subsidized EAS service to begin at a community. For a community that is not currently receiving EAS subsidies, the process starts when the last air carrier providing unsubsidized service to an EAS-eligible community files a Notice of Termination, which is a 90-day notice of its intent to suspend, terminate, or reduce service below the minimum level of service required by law. If no other air carrier is willing to provide unsubsidized air service to the community, DOT solicits proposals from carriers that would be willing to provide service with a subsidy. Carriers requesting a subsidy must document that they cannot profitably serve the community without a subsidy by submitting various financial data, such as profit-or-loss statements, to DOT. DOT then reviews these data along with information about the aviation industry's pricing structure, the size of aircraft required, the amount of service required, and the number of projected passengers who would use this service. DOT also considers the community's preferences for the proposed service. Finally, DOT selects a carrier based on statutory selection criteria and sets an annual subsidy amount intended to compensate the carrier for the amount by which its projected operating costs exceed its expected passenger revenues as well as a profit element of at least 5 percent of total operating expenses, according to statute.<sup>7</sup> Once air service is under way, DOT makes monthly subsidy payments to the carrier based on the number of scheduled flights completed. DOT's agreement with the carrier is subject to renewal generally every 2 years, at which time other air carriers are permitted to submit proposals to serve that community with or without a subsidy.

In general, the law currently requires that an EAS carrier provide the following:

- service to a hub airport, defined as an Federal Aviation Administration (FAA)-designated medium- or large-hub airport;

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<sup>7</sup>Air carriers are awarded fixed-rate contracts, subject to adjustment based on flights actually completed. The carriers are free to set and adjust the fares charged passengers for EAS flights.

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- two daily round trips, 6 days a week, with not more than one intermediate stop to the hub;
  - flights at reasonable times taking into account the needs of passengers with connecting flights;
  - service in an aircraft with an effective capacity of at least 15 passengers, under certain circumstances,<sup>8</sup> unless the affected community agrees in writing to the use of smaller aircraft;
  - service in aircraft with at least two engines and using two pilots; and
  - service with pressurized aircraft under certain circumstances.<sup>9</sup>

Congress and DOT revised the program's eligibility requirements during the late 1980s and early 1990s, in response to insufficient program funding. For example, in June 1989, Congress prohibited DOT, beginning in fiscal year 1990, from subsidizing service to or from any essential air service point in the contiguous 48 states where the subsidy exceeded \$300 per passenger.<sup>10</sup> In December 1989, DOT implemented a regulation that, among other requirements, would eliminate EAS funding for communities that had EAS service with a per-passenger subsidy exceeding \$200 per person, or that were located less than 70 highway miles from the nearest medium- or large-hub airport, if appropriations for the EAS program were less than the amount needed to maintain EAS service at the communities being served.<sup>11</sup> The Aviation Safety and Capacity Expansion Act of 1990<sup>12</sup> superseded this regulation by prohibiting DOT from declaring any community ineligible for any reason not specifically set forth in statute.<sup>13</sup> Finally, in fiscal year 1994, Congress prohibited DOT from subsidizing

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<sup>8</sup>Aircraft with at least 15-passenger capacity are required for communities that averaged more than 11 daily boardings in any year from 1976 through 1986, according to DOT guidance.

<sup>9</sup>49 USC 41732(b)(6). Service is to be provided by pressurized aircraft, when that service is provided by aircraft that regularly fly above 8,000 feet in altitude.

<sup>10</sup>The Dire Emergency Supplemental Appropriations Act of 1989, Pub. L. No. 101-45 (June 30, 1989).

<sup>11</sup>14 CFR § 398.11 (1989).

<sup>12</sup>Pub. L. No. 101-508 (1990).

<sup>13</sup>Codified in 49 USC § 41731(b).

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service to communities that (1) are less than 70 highway miles from the nearest medium- or large-hub airport, or (2) require a per-passenger EAS subsidy in excess of \$200.<sup>14</sup> Communities located more than 210 miles from the nearest medium- or large-hub community airport are exempt from this \$200-per-passenger subsidy limit.

Over the years, several communities have lost eligibility for EAS service for various reasons. In some instances—after the requirements went into effect—it was because the per-passenger subsidy for their service exceeded the allowable limit, or because the community was less than 70 miles from a medium- or large-hub airport. Other communities lost EAS service in the early 1990s as Congress took actions to address program funding constraints. DOT monitors participating air carriers' operations to help ensure their service complies with program requirements. For example, DOT periodically reviews carriers' enplanement data for the EAS routes carriers serve, to determine whether the carriers' per-passenger subsidy exceeds the statutory cap of \$200. Because DOT's subsidy payments to carriers are based on the number of flights completed, regardless of the number of passengers on board, an EAS route with few passengers has a higher per-passenger subsidy than it would have with more passengers. When DOT does find that a carrier's subsidy per passenger exceeds \$200 for an EAS route, the agency warns the community of its tentative decision to terminate the route subsidy and allows the community 20 days to object if the community finds that DOT has made a mistake in its calculations. Since 1989, 61 communities have lost EAS service because they became ineligible to receive subsidized service.

- Twenty-six communities lost service in fiscal year 1990 as a result of reduced program funding. Six of these communities lost service as of October 1989 because their carrier's subsidy per passenger exceeded the \$300 limit then in effect, and 20 more lost service as of January 1990 because their carrier's per-passenger subsidy was over \$200.
- Twelve communities lost service in fiscal year 1994, a year when funding for the EAS program was reduced, because their carrier's per-passenger

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<sup>14</sup>Department of Transportation and Related Agencies Appropriations Act for fiscal year 1994, Pub. L. No. 103-122 (Oct. 27, 1993). This provision was repeated in DOT appropriations acts for fiscal years 1995 through 1999. The provision was made permanent in the Department of Transportation appropriations act for fiscal year 2000.

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subsidy exceeded \$200 or because they were within 70 miles of a medium- or large-hub airport.

- Twenty-two more communities became ineligible at various times since fiscal year 1995 because their carrier's per-passenger subsidy exceeded \$200.
- One community became ineligible to receive subsidized service in 1995 because a nearby small hub was reclassified as a medium hub.

Also, 11 communities that were not receiving EAS-subsidized service lost their eligibility for EAS service when the last unsubsidized carrier filed to suspend service at their airport and DOT determined that the community was ineligible because it was within 70 miles of a medium- or large-hub airport.

Finally, in addition to EAS, other DOT programs can support community air service. Congress authorized the Small Community Air Service Development Program in 2000 as a pilot program in the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21)<sup>15</sup> to help small communities enhance their air service. AIR-21 authorized the program for fiscal years 2002 and 2003, and subsequent legislation<sup>16</sup> reauthorized the program through fiscal year 2008 and eliminated its "pilot" status. Through the Small Community Air Service Development Program, DOT may award up to 40 grants each year to communities with non- or small-hub airports that have demonstrated air service deficiencies or higher than average fares. Communities use these grants to pursue different strategies to enhance air service. Such strategies have included offering subsidies or revenue guarantees to airlines, marketing, and hiring personnel.<sup>17</sup> In addition, under the Airport Improvement Program, small airports receive certain funds to make capital improvements—such as runway and taxi improvements.

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<sup>15</sup>Pub. L. No. 106-181 (Apr. 5, 2000).

<sup>16</sup>Vision 100—Century of Aviation Reauthorization Act, Pub. L. No. 108-176 (Dec. 12, 2003).

<sup>17</sup>GAO, *Commercial Aviation: Initial Small Community Air Service Development Projects Have Achieved Mixed Results*, GAO-06-21 (Washington, D.C.: Nov. 30, 2005). Also, DOT-OIG, *The Small Community Air Service Development Program*, CR-2008-051, May 13, 2008.

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## The EAS Program Is Providing Air Service to More Communities, but Service Is Costing More and the Number of Carriers Providing Service Is Declining

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### EAS Program Obligations and Appropriations Have Generally Increased to Support Service to More Communities and Higher Carrier Subsidies

The number of communities served by the EAS program in the continental United States has risen in recent years— from 87 communities as of June 1, 2003, to 102 communities<sup>18</sup> as of November 1, 2008.<sup>19</sup> The subsidies that carriers require to serve those routes have also increased since 2003, adding to the long-term cost of the EAS program. For example, the average annual subsidy DOT has awarded for EAS service per community in the continental United States increased from about \$883,000 as of June 2003 to about \$1,371,000 as of November 2008. After adjusting this growth for the effects of inflation, the average EAS subsidy in 2008 was about 35 percent higher than in 2003.

In addition, significant increases in carrier subsidies per community have come within the past 2 years. Between November 2007 and November 2008, DOT renewed or awarded agreements to 57 communities in the EAS program in the continental United States, with the total annual subsidy for those communities increasing from \$52.4 million to \$86.3 million (in nominal dollars)—an increase of 65 percent. For many of these routes, the carrier's annual subsidy amount more than doubled.

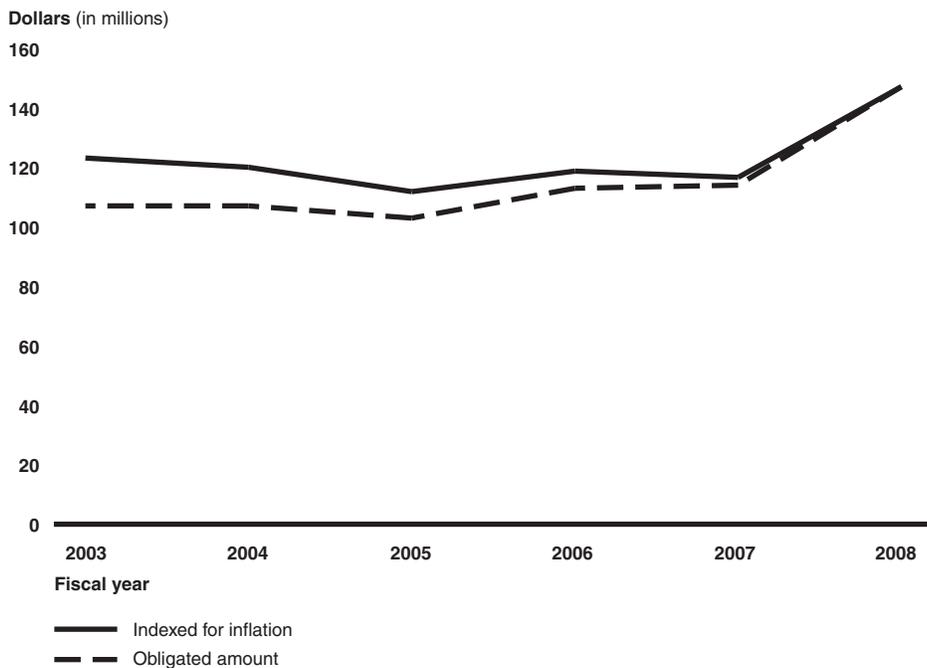
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<sup>18</sup>This includes 6 communities for which DOT had an agreement with a carrier to begin service, but the carrier subsequently withdrew before service began.

<sup>19</sup>While the number of communities served has increased, the number of passengers on EAS flights has been relatively stable in recent years, declining somewhat in 2008. According to DOT, approximately 1.04 million passengers flew EAS flights in fiscal year 2003, compared to 1.10 million passengers in calendar year 2007. (EAS passenger data were not available on a comparable year basis for all years). The number of EAS passengers in calendar year 2008 decreased to about 960,000. The economic decline toward the end of 2008 and service interruptions in 2008 may largely account for this decrease.

While the number of EAS communities and the amount of subsidies have increased, annual obligations ranged between \$103 million and \$114 million (in nominal dollars) from fiscal year 2003 through fiscal year 2007.<sup>20</sup> In fiscal year 2008, obligations for EAS subsidies increased to about \$116 million. An additional \$31 million in balances from completed EAS agreements that could not be retained for the EAS program was returned to FAA, bringing total obligations to \$147 million as shown in figure 2.

**Figure 2: Total Obligations, Fiscal Years 2003–2008**



Source: GAO's analysis of DOT data.

Note: Includes obligations for the entire program.

EAS program obligations in fiscal year 2008 were less than they potentially could have been because DOT did not have to subsidize certain EAS carriers that ceased operations and discontinued service to several

<sup>20</sup>While our review focuses on EAS service in the 48 contiguous states, obligations are reported for the EAS program as a whole, including obligations for Alaska, Hawaii, and Puerto Rico. However, EAS service outside of the 48 contiguous states does not represent a large portion of EAS program funding—DOT estimates service to these locations accounted for about 8 percent of total program subsidies as of 2008.

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communities. Specifically, in the first 6 months of 2008, three carriers serving 37 communities ceased operations.<sup>21</sup> Most of these communities were without service for several months because replacement carriers were not able to start up immediately.

Keeping pace with the rising financial requirement to manage the program, total appropriations for the EAS program have generally increased in recent years.<sup>22</sup> Total appropriations have increased from about \$102 million in fiscal year 2003 to just over \$124 million in fiscal years 2007 and 2008. For fiscal year 2009, appropriations available for the program include \$123 million in fiscal year 2009 appropriations and a supplemental appropriations act which provides an additional \$13.2 million in fiscal year 2009 supplemental funding for the EAS program.<sup>23</sup> This increases EAS's fiscal year 2009 appropriations to \$136.2 million.<sup>24</sup> The administration has requested about \$175 million for the program in 2010, which would represent a further increase in program funding.

EAS program funding comes from multiple sources. Each year, the EAS program receives \$50 million in overflight fees.<sup>25</sup> Recently, Congress also has annually appropriated additional funds from the Airport and Airway Trust Fund and has supplemented these EAS program funds in 2005, 2007, 2008, and 2009 with additional appropriations, as shown in figure 3. DOT had requested additional funding for 2005, 2007, and 2008 to account for the higher dollar amounts required to reimburse carriers for serving EAS communities. For example, in fiscal year 2005, DOT transferred \$5 million from the Small Community Air Service Development Program, which

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<sup>21</sup>In addition, a fourth carrier ceased operations in early 2007, affecting 11 communities.

<sup>22</sup>As with obligations data, appropriations data are for the entire EAS program, including Alaska, Hawaii, and Puerto Rico.

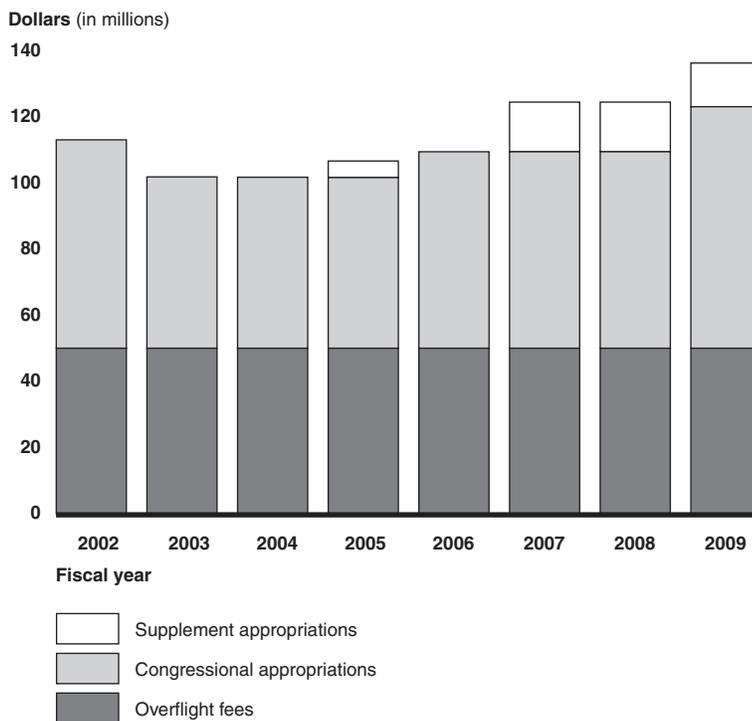
<sup>23</sup>Pub. L. No. 111-32, title XII (June 24, 2009). In Pub. L. No. 111-32, in addition to \$13.2 million being made available for EAS, \$13.2 million was rescinded by Congress from the FY 2008 Airport Improvement Program account.

<sup>24</sup>According to DOT officials, an additional \$14 million from previous years' appropriations also is available to be expended in fiscal year 2009 if needed.

<sup>25</sup>Beginning in fiscal year 1998, Congress funded the EAS program at \$50 million a year from overflight fees assessed through the Rural Air Service Survival Act, which is part of the Federal Aviation Administration Reauthorization Act of 1996, Pub. L. No. 104-264 (Oct. 9, 1996). Overflight fees are user fees for air traffic control services provided by FAA to aircraft that fly over, but do not land in the United States.

provides grants to enhance small communities' air service, to help fund the EAS program's increased costs.<sup>26</sup>

**Figure 3: EAS Appropriations, Fiscal Years 2003–2009**



Source: GAO's analysis of DOT data and appropriations acts.

Recently, DOT officials have been concerned about whether the EAS program has sufficient funding to serve both current EAS communities and additional communities that may be eligible for subsidized service. The EAS program is appropriated a specific amount each fiscal year. However, since fiscal year 2005, language has been included in appropriations legislation stating that if the annual amount provided for EAS is insufficient to meet the costs of the EAS program in the current fiscal year, the Secretary of the Department of Transportation is required to transfer funds to EAS from any other amounts appropriated to or

<sup>26</sup>*Emergency Supplemental Appropriations for Defense, the Global War on Terror, and Tsunami Relief*, 2005, Pub. L. No. 109-13 § 6064 (May, 11, 2005).

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directly administered by the Office of the Secretary.<sup>27</sup> This would require DOT to draw upon other funding sources within the Office of the Secretary to be able to make payments to carriers and enter into new service agreements. DOT had to do this once, using some Small Community Air Service Development Program funding for the EAS program in 2005. In addition, a DOT official noted that the EAS program faces a significant potential financial liability, in that there are about 40 other EAS-eligible communities in the country with airports currently served by a single unsubsidized commercial carrier. DOT officials believe that the agency would encounter a significant financial liability—about \$60 million annually—if the airlines serving these single-carrier airports all filed a Notice of Termination requiring DOT to subsidize continued service. In fact, three communities that have not previously had EAS service have come into the program since June 2008, and a fourth is expected to obtain subsidized service later this year.

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**Carrier Withdrawals from the Program in 2008 Caused Service Interruptions for Many Communities, While Others Still Do Not Have EAS Service Restored**

According to a DOT official, the EAS program has recently experienced an unusually high level of carrier turnover. In 2008 alone, three EAS carriers serving 37 communities ceased operations in the first 6 months of the year. According to a DOT official, various factors caused the three carriers to cease operations, and recent fuel price increases might have accelerated this situation. DOT was able to obtain a replacement carrier to continue service, without interruption, for one of the 37 communities. However, 30 of the other 36 communities were temporarily without EAS air service for up to 10 months, and 6 communities<sup>28</sup> are still without service because the carrier that DOT selected in 2008 to serve those communities withdrew before it started service. An official of the carrier stated that it withdrew because it was unable to finance the refurbishing of aircraft needed to serve those routes. In late June 2009, DOT awarded agreements to two carriers to provide EAS service to these 6 communities; dates for the start of service had not been set.

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<sup>27</sup>See, e.g., the Transportation, Treasury, and Housing and Urban Development, the Judiciary, District of Columbia, and Independent Agencies Appropriations Act, Fiscal Year 2006. Pub. L. No. 109-115, 119 Stat. 2396, 2398 (Nov. 30, 2005). Also, Pub. L. No. 109-13 § 6064 (May 11, 2005).

<sup>28</sup>El Dorado/Camden, Harrison, Hot Springs, and Jonesboro, Arkansas; Jackson, Tennessee; and Owensboro, Kentucky.

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A DOT official noted that while the number of communities that experienced carrier turnover in 2008 was unprecedented, the number of carriers providing air service to communities under the EAS program has actually been declining over many years. The number of carriers providing EAS service has declined from 34 as of February 1987 to 10 in 2009. In addition, as the number of carriers has declined, the percentage of EAS routes served by just a few carriers has increased. In February 1987, the largest number of routes served by any one carrier was 13, and the four carriers that served the most communities accounted for 33 percent of the EAS routes. At present, four carriers serve about 85 percent of the routes in the EAS program, with a single carrier serving nearly half of the EAS routes. As noted above, one carrier recently withdrew from 6 EAS routes that it was awarded last year before it even started service. Also, DOT faces a potential rise in the number of communities requiring subsidized air service should their single unsubsidized carrier end operations. Should additional EAS carriers withdraw from the program or be financially unable to serve additional communities seeking EAS service—the remaining carriers may not have enough capacity to provide EAS service to all communities that qualify.

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## The EAS Program's Ability to Provide Service Is Affected by the Financial Viability of Service on EAS Routes

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## Program Requirements and Other Factors Appear to Contribute to Increasing Costs of EAS Service for Carriers and Higher Program Subsidies from DOT

Many of the expert panelists and other stakeholders we interviewed stated that some EAS program requirements significantly add to the cost of providing subsidized air service to communities. For example, members of our expert panel thought the EAS mandate requiring carriers to use aircraft with a 15-seat capacity for most communities presented the biggest challenge to providing and sustaining air service to communities under the EAS program.<sup>29</sup> The mandate requires carriers to use larger aircraft than may be needed to adequately serve some communities. In addition, the 15-seat aircraft that this requirement was based upon are no longer available. Currently, to satisfy the 15-seat minimum, most EAS routes are served by 19-seat twin-engine turboprop aircraft. (See fig. 4 for an example of a 19-seat twin-engine turboprop aircraft.)

**Figure 4: Example of a Beechcraft 1900 Series Turboprop Aircraft**



Source: Great Lakes Aviation.

According to industry representatives, these 19-seat turboprop aircraft used on many EAS routes are relatively costly to operate. First, the aircraft are no longer in production, are in limited supply, and are also relatively costly to acquire and refurbish to comply with current operating standards. Second, the “Commuter Safety Rule” which FAA implemented in 1997, has increased EAS carriers’ costs for operating 19-seat turboprop

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<sup>29</sup>For most EAS-eligible communities, the law requires carriers to provide service with aircraft of at least 15-passenger capacity, two engines, and carrying two pilots, unless the community served agrees to accept service with smaller aircraft.

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aircraft. Through the rule, FAA intended to increase safety by requiring aircraft in the 10-to-30 passenger range to meet more stringent safety requirements.<sup>30</sup> The increased safety standards made some aircraft, including 19-seat turboprop aircraft, more costly to operate, because they required carriers to improve ground deicing programs, carry additional safety equipment for passengers, and comply with additional operating constraints. For example, an industry group, in a petition to DOT for exemptions from this rule, provided information showing that one EAS carrier's training costs increased by almost 600 percent because of the additional training required for its captains by the revised rule. An EAS carrier official stated that the carrier's cost to operate 19-seat aircraft, calculated as cost per passenger seat mile, is now about twice what it was in 1994 primarily due to these additional regulatory requirements. According to industry representatives, the increased operating costs associated with the required safety upgrades have contributed to some carriers' decisions to eliminate their inventory of 19-seat planes. As a result, there are fewer airlines with the type of equipment suitable to serve most EAS routes.

The EAS minimum service requirements may also require a carrier to provide more service than needed to meet the demands of a community and can therefore increase the carrier's operating costs. For example, the EAS program statutes stipulate a minimum level of service for EAS subsidized routes—two daily round-trip flights, 6 days per week to a hub airport. Carriers flying 19-seat aircraft can be effectively locked into service that may not be right sized—that is, with capacity exceeding passenger demand—for some smaller markets, and possibly more costly than necessary to fulfill communities' service needs.<sup>31</sup> If the need to meet EAS program requirements results in carriers providing more capacity than some communities might be able to support, EAS service to those communities may be too costly for the carrier, leading it to withdraw from the EAS program.

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<sup>30</sup>The change required these aircraft to meet more stringent FAR part 121 requirements, rather than part 135 requirements.

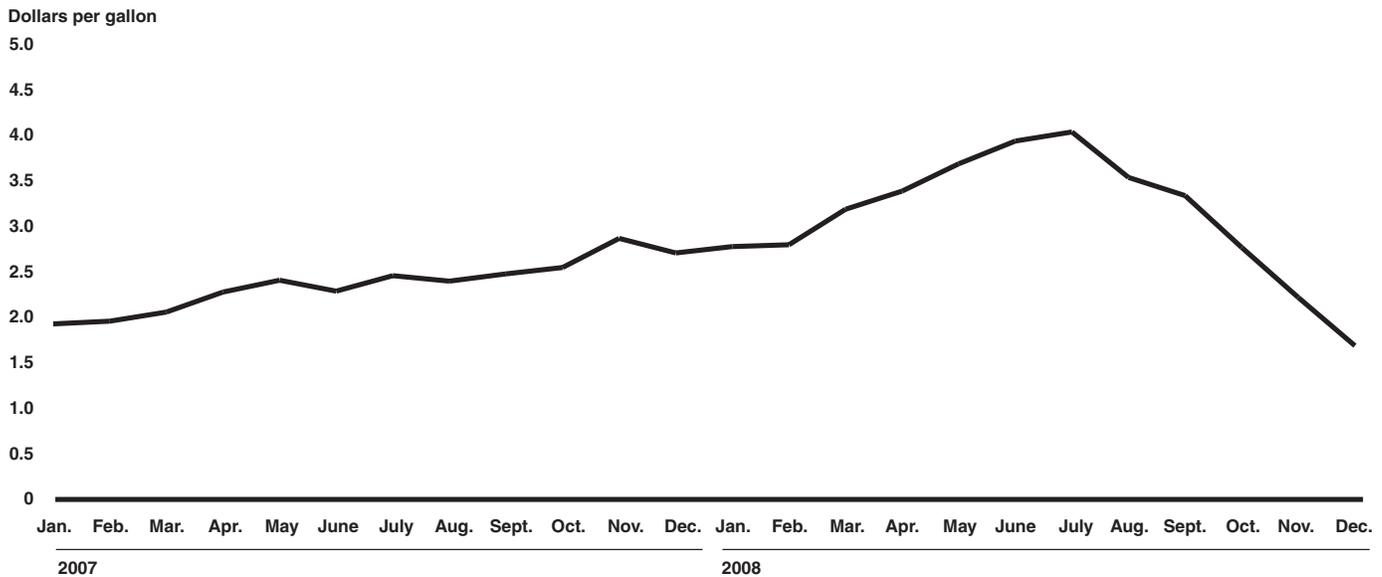
<sup>31</sup>DOT officials indicated there are generally no environmental issues with the 19-seat airplanes. Further, historically, turboprop aircraft generally are more fuel efficient, and thus have lower emissions, than jets. However, flying planes with few passengers may not be fuel efficient.

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Further, the carriers' 2-year agreements with DOT to provide EAS service can complicate the carriers' efforts to lease aircraft to serve EAS routes. For example, some industry officials maintain that the 2-year agreements that DOT enters into with carriers can be too short because carriers often must lease aircraft for longer periods, such as 5 years. Therefore, a carrier entering into a 5-year lease to obtain aircraft to serve EAS routes risks having to maintain excess aircraft if it loses the routes after 2 years. However, DOT officials note that under the EAS program's current funding structure, longer-term agreements would still be subject to availability of annual funding, so the agreement would not be guaranteed.

Finally, spikes in fuel prices may add to EAS carriers' costs and make it difficult to continue service. Although fuel prices typically vary over time, in 2008 fuel began to comprise an increasing portion of airlines' costs, in some cases contributing to carriers ceasing operations. For example, one EAS carrier reported that its fuel costs increased from 28 percent of its operating costs in 2007 to 35 percent of its operating costs in 2008, although fuel prices began to decline late that year. We also found that last year, selected EAS carriers experienced a rapid and dramatic spike in fuel prices, as the average per-gallon fuel price for selected EAS carriers more than doubled between January 2007 and July 2008, before declining through December 2008, as illustrated in figure 5. December 2008 was that latest month for which fuel price data were available for these carriers.

**Figure 5: Average Fuel Prices for Selected EAS Carriers, Jan. 2007–Dec. 2008**



Source: GAO's analysis of data from BACK Aviation Solutions, Inc.

Note: The average fuel price reflects total fuel price and gallons used data from Atlantic Southeast Airlines, Horizon Air, SkyWest Airlines, Mesaba Airlines, and Mesa Airlines, which provide both EAS subsidized and unsubsidized commercial service. Therefore, average fuel prices are not based solely on the carriers' EAS operations.

Legislation passed in 2003 explicitly provided DOT with the option of adjusting the subsidy paid to an EAS carrier if the carrier's expenses substantially increased.<sup>32</sup> However, according to an industry group that represents regional airlines and the majority of EAS carriers, DOT officials are generally not willing to renegotiate EAS agreements to reflect increased costs because the DOT officials are concerned about retaining sufficient funds to renegotiate the agreements and provide service for all the communities that may qualify for service. DOT officials indicated they are also concerned that establishing a policy of renegotiating subsidies upward for fuel costs could lead carriers to underestimate fuel costs in order to be selected as the carrier for a route, only to turn around soon after selection and ask for fuel rate relief. However, industry officials explained that if a carrier is unwilling to continue providing service under

<sup>32</sup>DOT, using existing general authority under 49 USC § 41733, had provided across-the-board rate relief after the first Gulf War and after the terrorist attacks of September 11, 2001.

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an EAS agreement because of operating cost increases, the carrier's only recourse is to file a formal Notice of Termination with DOT of its intent to terminate service. For example, in June 2008, Mesaba Airlines filed such a notice informing DOT of its intent to terminate service at two communities in Michigan because of fuel price increases. Mesaba indicated that it would withdraw the notice if DOT agreed to apply a fuel adjustment to bring the EAS subsidy rate for the communities in line with current fuel conditions. DOT denied the request and rebid the routes. DOT eventually reselected Mesaba Airlines to serve the routes and awarded the airline a 28 percent increase over its previous annual subsidy for the routes. Still, industry and small airport officials said that filing a termination notice is an undesirable option for airlines because service interruptions and carrier turnover can negatively affect communities' confidence in EAS service, and result in a further reduction in ridership.

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### The Declining Number of Willing Carriers Reduces Competition for EAS Routes

As the pool of carriers willing to provide EAS service declines, competition for EAS routes has also declined. For example, of the 37 routes that DOT awarded after three EAS carriers in 2008 ceased operations, 20 were awarded without competition, including 7 that were awarded to the one viable bidder remaining after the only other bidder went out of business. However, DOT officials informed us that their sealed-bid process prevents carriers from knowing whether there are competing bids from other carriers. They also indicated that they can reject bids that they believe are too high, and they can negotiate with the carrier. For instance, the officials cited a recent example of one carrier's subsidy request of approximately \$2.3 million being negotiated down to about \$1.6 million. Nevertheless, a declining number of carriers willing to provide EAS service can reduce the level of competition among carriers for EAS routes.

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### The Continued Urbanization of the United States and Changing Characteristics of the Airline Industry Contribute to Low Ridership of EAS Flights

The viability of EAS routes also depends on the number of passengers that take EAS flights. According to DOT data, some EAS routes do not carry many passengers, creating a financial challenge for the carriers attempting to serve these communities. During fiscal year 2008, the average load factor—the percentage of available seats filled by paying passengers—was 37 percent across all EAS flights. By comparison, the average load factor for unsubsidized commercial flights nationwide has averaged about 80 percent in recent years. Two factors may contribute to the lack of passenger traffic on EAS flights. First, the EAS program has always served areas with limited population, but demographic shifts in the last 30 years may have reduced the population of some EAS communities, further

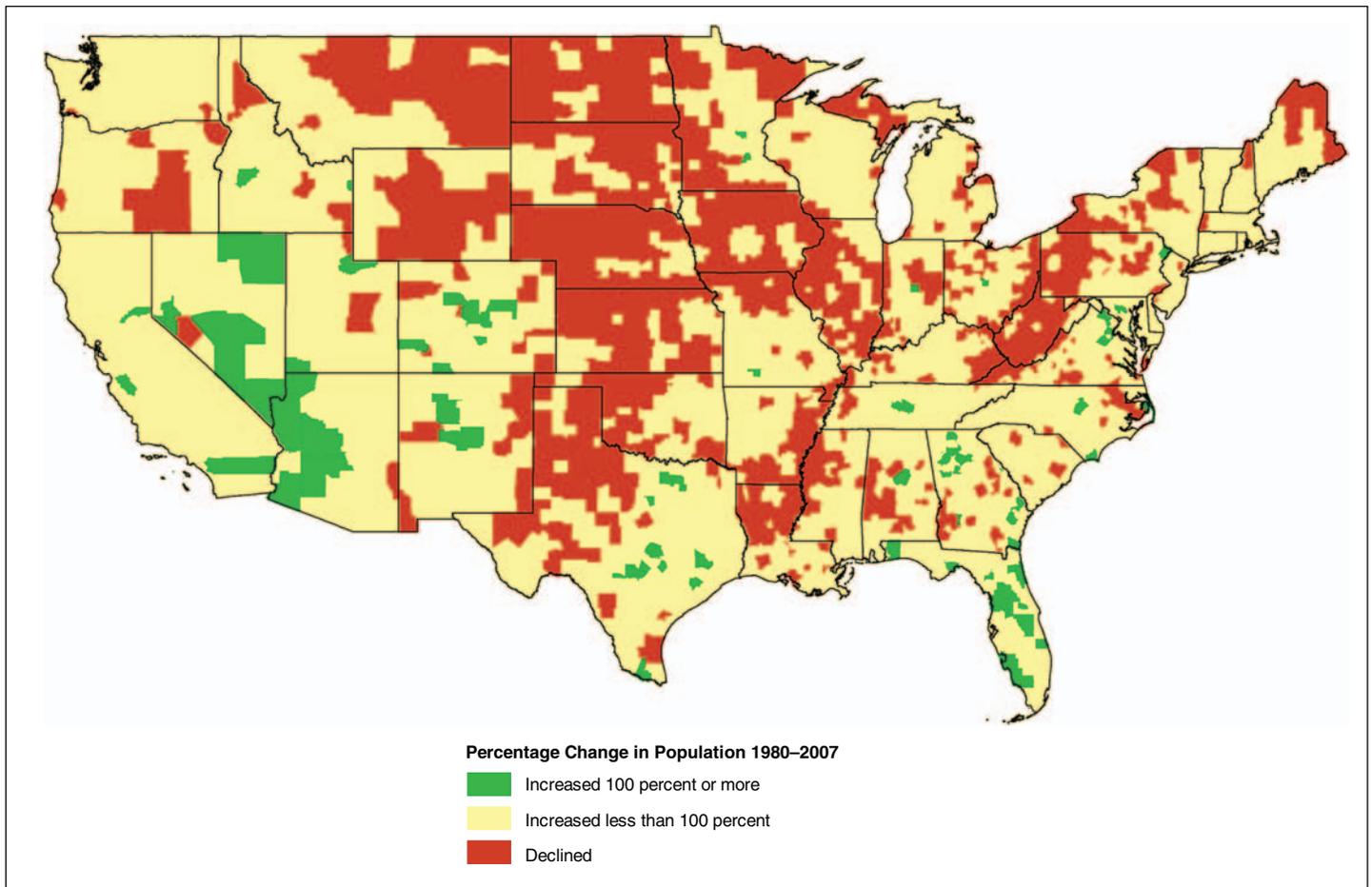
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Continued Urbanization of the United States May Lead to Reduced Passenger Ridership in Some EAS Markets

limiting the potential passenger base for the local airport. Second, the EAS program loses potential passengers and fare revenue when low fares or more convenient air service schedules at nearby larger airports encourage passengers to bypass EAS service at their local airport in favor of driving or taking other transportation to the nearby airport.

A significant degree of urbanization occurred throughout the 20th century as people moved out of rural areas and into cities and suburbs. Although much of this migration happened early and in the middle of the century, the trend has continued. Geographic areas, especially in the Midwest and Great Plains states, lost population between 1980 and 2007, as illustrated in figure 6. As a result, certain areas of the country are less densely populated than they were 30 years ago when Congress initiated the EAS program. Accordingly, some EAS communities' reduction in ridership may be attributable, in part, to a smaller population base.

Figure 6: Changes in Population Distribution, 1980–2007



Source: GAO's analysis of Census data.

Relatively High EAS Fares, Low-Cost Alternatives, and Inconveniences Associated with EAS Flights Contribute to Low EAS Ridership

Airports generally attract passengers from the surrounding population. However, people who live near smaller airports often choose to either drive to their destination or use larger airports that are farther away than their local airport. This phenomenon is typically referred to as “leakage.” Surveys of passengers as well as travel agents in communities served by small airports suggest that leakage can be widespread. For example, a travel agent survey in Arizona estimated that the small airports in that state often suffer significant leakage, in some cases as much as 90 percent.<sup>33</sup> Another study we conducted found that EAS airports often

<sup>33</sup>Arizona DOT, Aeronautics Division, *Arizona Air Service Study* (August 1999).

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serve less than 10 percent of the local passenger traffic,<sup>34</sup> and that leakage is a significant factor.<sup>35</sup> Moreover, it appears that some people may be willing to drive considerable distances—more than 150 miles—to get to a larger airport. The loss of passengers from an EAS route reduces the carrier’s fare revenues, while increasing the average per-passenger subsidy for that EAS service. Therefore, significant passenger leakage can lead to (1) the carrier seeking a larger subsidy from DOT, (2) the community losing service if the per-passenger subsidy rises above the \$200 cap, or (3) the route becoming so costly for the carrier that it chooses to file a notice of intent to terminate service.

Certain key factors appear to underlie the propensity of travelers to bypass small airports in favor of driving to larger airports.

- **Fares for EAS flights are generally high, relative to fares on comparable unsubsidized flights.** We analyzed calendar year 2007 fares on routes involving EAS airports and compared these fares to the fares for routes of similar distances involving only non-EAS airports. We found that fares for EAS routes tend to be considerably higher—on average about 50 percent higher—than fares for similarly distanced non-EAS routes. Our analysis did not attempt to identify reasons for the difference in fares between EAS and unsubsidized flights, but likely factors that could include the number of airlines serving the route, the number of passengers, and the portion of passengers paying the generally higher business fares on that route. Whatever the cause, relatively high fares for EAS flights can make those flights less attractive, compared to the alternative of driving to another airport. Studies of the use of airports in small communities have generally found that passengers may drive to nearby larger airports to obtain lower fares rather than use EAS service.<sup>36</sup>

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<sup>34</sup>GAO, *Commercial Aviation: Issues Regarding Federal Assistance for Enhancing Air Service to Small Communities*, [GAO-03-540T](#) (Washington, D.C.: Mar. 11, 2003).

<sup>35</sup>Specifically, over half of 207 small community airport officials we surveyed believed that passenger leakage occurred to a great or very great extent. GAO, *Commercial Aviation: Air Service Trends at Small Communities Since October 2000*, [GAO-02-432](#) (Washington, D.C.: Mar. 29, 2002).

<sup>36</sup>Arizona DOT, cited previously. Also, Pennsylvania DOT, *Strengthening the Essential Air Service Program—A Pennsylvania Perspective*, February, 2007. Also, Zhang, Yunlong; and Xie, Yuanchang, *Small Community Airport Choice Behavior Analysis: A Case Study of GTR*, *Journal of Air Transportation Management*, 11, 2006.

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- **The growth of low-cost carriers has created alternatives to EAS service.** Fifteen of 18 experts on our panel cited the expansion of low-cost carriers as one of the biggest challenges facing EAS providers, and 9 of these panelists cited low-cost carrier expansion as the most important challenge to EAS providers. In the past decade, low-cost carriers have considerably expanded their networks; these carriers' share of domestic airline capacity increased from 20 percent in 2000 to 29 percent in 2007. By 2007, low-cost carriers were serving virtually every large and medium-hub airport in the country as well as half of the small hubs. As low-cost carriers have extended service to more airports around the country, they provide more alternatives for community residents who can drive or take other transportation to other airports to get lower air fares offered by these carriers. Many industry stakeholders have said, and a previous GAO study<sup>37</sup> has found, that community residents who reside near an EAS airport drive to other airports to obtain lower airfares, such as those that low-cost carriers offer.
  - **Larger airports tend to offer better service than that available at EAS airports.** Larger airports are generally more attractive to travelers than small airports served by EAS flights because they offer more frequent flights and more nonstop destinations. EAS communities receive at least the required two daily round-trip flights, 6 days per week—although some communities receive more. Still, most EAS routes connect a community to a single airport. Such limited service may be too inconvenient to meet the needs of time-sensitive business travelers. Studies have found that a key reason passengers avoid small airports is the more frequent flight offerings at larger airports, which can be more convenient for travelers.<sup>38</sup> So, if driving to a larger airport is feasible, a traveler from a community may choose that option to get a nonstop flight to his or her destination, instead of taking an EAS flight from the local community airport.
  - **Difficulties in making useful connections at the hub airports EAS carriers serve also discourage potential EAS passengers.** For most EAS passengers, the hub airport where their EAS flight lands is not the end of their trip. Typically, EAS passengers need to transfer to a connecting flight to take them to their final destination. If the EAS flight

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<sup>37</sup>GAO, *Commercial Aviation: Factors Affecting Efforts to Improve Air Service at Small Community Airports*, GAO-03-330 (Washington, D.C.: Jan. 17, 2003).

<sup>38</sup>Pennsylvania DOT, cited previously. Also, Hewings, Geoffrey; Wiedemann, Randal; and Reynolds-Feighan, Aisling; *Economic Evaluation of the Impact of Air Service on Small Metropolitan and Rural Communities*, conducted for the U.S. DOT June 20, 2000.

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takes passengers out of their way and increases their trip time, they may seek alternative travel options. Even if the EAS flight takes them in the direction of their final destination, limited EAS flight schedules may provide poor connection options. A representative of an airport in Iowa served by EAS-subsidized flights to Kansas City said it is hard to get business people to use the EAS flights because the flights often don't match up well with the timing of connecting flights at Kansas City, resulting in long waiting times there. These problems promote passenger leakage away from EAS flights, when potential EAS passengers decide that traveling directly to larger airports is more practical. The problem is exacerbated as major carriers cut back their flights at the hub airports that are EAS destinations. For example, according to an official of one EAS carrier, connecting seats on flights out of two of their destination airports have decreased, reducing options for connecting flights, making the carrier's EAS service to these airports less practical for passengers. As a result, the official said the carrier's revenue on the routes serving these airports has declined significantly because potential passengers have decided to use other transportation to travel to a larger airport.

- **Problems with EAS service reliability are another deterrent to using EAS service.** Five of the seven representatives of EAS-served small airports who responded to our questions noted that the reliability of EAS service was a significant concern. According to one of these airport representatives, delays, cancellations, and route and schedule changes are commonplace in most EAS communities. Another airport representative noted that reliability of air service may be even more important at small airports than at larger airports, because a cancelled or delayed EAS flight leaves passengers with no other options. Some experts we spoke with indicated that this is a particular disincentive to business travelers, who may choose to drive to a larger airport.

### Current Economic Conditions Are Also Decreasing Demand for Air Travel

As we noted in our recent report on the financial health of the airline industry,<sup>39</sup> the current economic recession is contributing to decreased industry-wide air travel. Beginning in the second quarter of 2008, passenger traffic began to decline, when compared with the same quarter in the prior year. By the third and fourth quarter of 2008, traffic fell off more significantly, and airlines reduced capacity to maintain their load factors—which would not be an option for EAS carriers, because these carriers cannot reduce service below the minimum level required by the

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<sup>39</sup>GAO, *Commercial Aviation: Airline Industry Contraction Due to Volatile Fuel Prices and Falling Demand Affects Airports, Passengers, and Federal Government Revenues*, [GAO-09-393](#) (Washington, D.C.: Apr. 21, 2009).

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program. The downward trend appears to be continuing, as industry demand for the first two quarters of 2009 was less than was expected as of the beginning of the year. Indications are that the economy also affects carriers providing EAS service. Reported passenger enplanements for the first quarter of 2009 for one EAS carrier are down about 26 percent from the same period 1 year ago, and the carrier's load factors declined from 46 percent to 32 percent for that same period.<sup>40</sup>

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## Options for Modifying the EAS Program and Instituting a Multi-modal Approach to Community Transportation

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### Changes to Certain EAS Program Requirements Could Help Carriers Operate More Effectively and Potentially Reduce Program Costs

Congress and others have been aware of the increasing difficulty EAS carriers face in providing service to communities. Congress, previous administrations, and GAO have proposed options to change the EAS program that might help address some of the program requirements that limit the flexibility of carriers providing EAS service or potentially increase costs of providing service—leading to carriers requiring higher subsidies from DOT. For example, DOT has proposed a number of options, but they have not been included in authorization or appropriations legislation. In addition, the House of Representatives' proposal for reauthorizing FAA (H.R. 915) includes several options that could alter DOT's management of the EAS program and possibly make program participation more attractive to carriers. This proposal is not yet through the legislative process. We also have described a number of similar options that could promote efficiencies in the EAS program. Again, none of these options have been adopted. Table 1 summarizes some of the key options that have been proposed.

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<sup>40</sup>Statistics cited represent the carrier's total operations, not only EAS flights.

**Table 1: Potential Options to Revise the Essential Air Service Program**

Option (source)	Description
<b>Allow carriers more flexibility for type of aircraft and service frequency</b>	
Better matching air service capacity with community needs. (Previously proposed in DOT FY 2009 budget request, and in prior GAO reports)	Better matching air service capacity with community needs, by allowing the use of smaller aircraft, or allowing less frequent flights.
<b>Award long-term EAS agreements, incorporate financial incentives, or allow agreements to be renegotiated</b>	
Award long-term EAS agreements. (Section 404 – H.R. 915, FAA Reauthorization)	DOT may execute long-term EAS agreements, to encourage an air carrier to provide air service to an eligible place, if in the public interest.
Incorporate financial incentives into EAS agreements. (Section 404 – H.R. 915, FAA Reauthorization)	DOT may encourage carriers to improve EAS service by including financial incentives for meeting specified performance goals for factors such as on-time performance, reducing cancellations, establishing reasonable fares and convenient connections; and increasing marketing efforts.
Renegotiation of EAS agreements. (Section 417 – H.R. 915, FAA Reauthorization)	Subject to the availability of funds, the Secretary may renegotiate agreements to increase compensation to carriers for increased aviation fuel costs.
Increase subsidy cap. (Section 413 – H.R. 915, FAA Reauthorization)	The \$200 subsidy cap to be increased by an amount necessary to account for the increase, if any, in the cost of aviation fuel in the 24 months preceding enactment.
<b>Consolidate EAS flights at a single regional airport</b>	
Consolidate EAS service at regional airports. (Previously proposed in DOT FY 2009 budget request, and in prior GAO reports)	Consolidating EAS service at multiple nearby airports into one regional airport, where practical, to provide a larger passenger base for more effective service.
<b>Focus EAS assistance on most remote communities</b>	
Targeting EAS service to the most remote communities. (GAO report)	Increasing the highway distance criteria between EAS-eligible communities and the nearest qualifying hub airport, and expanding the definition of qualifying nearby airports to include small hubs.
Targeting EAS service to the most remote communities (Previously proposed in DOT FY 2009 budget request)	Ranking EAS-subsidized communities in order of decreasing driving distance to their nearest large- or medium-hub airport, and funding communities starting with the most isolated, and continuing in that order, until funding is exhausted.
<b>Capping EAS program eligibility as of a specified date</b>	
Limit program size to communities currently receiving EAS subsidies. (Previously proposed by DOT officials in 2007 testimony)	The communities eligible for subsidy would be limited to those receiving subsidy as of a given date.

Sources: Indicated in Option column above.

Each of the proposed options has potential advantages and disadvantages. Some options would be beneficial in certain circumstances, but not for all communities or all parts of the country. Further, not all stakeholders will likely agree on which options should be implemented, especially when different options produce different beneficiaries. Finally, different options will have different impact on federal program costs—some likely

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## Allow Carriers More Flexibility on Type of Aircraft

increasing total program costs, while others might decrease or limit program costs.

The EAS program's current statutory minimum service requirements—such as providing service with aircraft of at least 15-seats—may add to the cost of providing EAS service as discussed previously. Fifteen of the 17 members of our expert panel who addressed the issue of aircraft size indicated that giving carriers more flexibility to use smaller aircraft would make the EAS program more effective. Currently, communities entitled to 15-seat or larger aircraft can have EAS service with smaller aircraft only when they waive their rights to the larger aircraft. According to industry stakeholders, some communities are interested in having service from larger, at least 15-seat, planes because it is what the law provides for as well as for reasons including prestige and perceived concerns about comfort.

### Advantages

Without this requirement for minimum aircraft size, a carrier would be allowed to “right size” or better match the services it provides with the communities' demand, potentially reducing carrier operating costs as well as the subsidy needed from DOT and total federal program costs. Also, we previously reported that allowing carriers to provide EAS service with smaller aircraft could, on certain routes, be cost effective and better suit community needs.<sup>41</sup> For example, officials of one EAS carrier which flies 9-seat Cessna 402 aircraft told us that their lower operating costs allow them to provide more frequent flights and charge lower fares than the previous carriers which flew 19-seat aircraft on those same EAS routes. (See fig. 7 for an example of a 9-seat twin-engine aircraft.)

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<sup>41</sup>GAO, *Options to Enhance the Long-term Viability of the Essential Air Service Program*, GAO-02-997R (Washington, D.C.: Aug. 30, 2002).

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**Figure 7: Example of a 9-seat Cessna 402 Aircraft**



Source: Cape Air.

This change has yielded significantly increased passenger ridership. According to the officials, in the first 10 months of service on one of their EAS routes, passenger ridership has gone up 143 percent compared to the previous EAS carrier's ridership for a comparable period. In addition, the EAS program manager stated that if he could make one recommendation to Congress, he would suggest that Congress eliminate the 15-seat requirement because a few EAS carriers are providing good service with smaller aircraft.

### **Disadvantages**

A disadvantage of this option is that smaller aircraft might not be suitable for all parts of the country. So, while this could be an option for certain routes, it would not fully replace the use of larger aircraft. For example, officials of the carrier that operates the 9-seat Cessna aircraft told us that the aircraft are not pressurized and may not be practical in mountainous areas in the west. Also, one airport representative believed that people would be more reluctant to fly on such smaller aircraft. In addition, these smaller aircraft operate under a different set of safety standards than the larger 19-seat turboprop aircraft most frequently used on EAS routes. According to industry representatives, this could negatively affect airlines that spent money to upgrade their aircraft to meet the safety standards now required for the 19-seat aircraft. An official of one EAS carrier that primarily flies 19-seat aircraft indicated that acquiring the infrastructure

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and personnel to support an additional type of aircraft would be a costly venture and not an option for their company.

### Allow Carriers More Flexibility on Service Frequency

The EAS program's current statutory minimum service requirements—such as providing at least twice-daily service, 6 days per week at EAS communities—potentially add to the cost of providing EAS service. Six of the 17 members of our expert panel who addressed this issue of service frequency believed such a change would make the program more effective.

#### **Advantages**

If a community is unable to generate enough passenger traffic to make twice daily, 6-day-per-week service viable for a carrier, even with an EAS subsidy, less frequent service might be more economically viable for the carrier. This change could also reduce the subsidy the carrier requires from DOT, assuming that passengers would adjust to the reduced schedule, and that overall passenger volume would not significantly decline due to increased passenger leakage.

#### **Disadvantages**

Some industry experts we spoke to believed that the current minimum level of service frequency is already so low that it is inconvenient for time-sensitive business travelers, and encourages them to drive to other airports. One airport representative commented that service to one destination, twice a day, does not really fit the definition of "service." Reducing service frequency might only further reduce a community's support for EAS service by making that service less available and less useful.

### Award Long-term EAS Agreements and Incorporate Financial Incentives

Some industry representatives have stated that the 2-year EAS agreements are too short, considering that carriers must lease aircraft for longer periods of time, such as five years. Five of 17 of our panel members identified extending the length of agreements as a way to make the program more effective. In addition, representatives of two airports served by EAS flights noted that carriers are not penalized for poor service—carriers are still compensated when performance is poor or unreliable.

#### **Advantages**

Some industry representatives we contacted believed that authorizing DOT to award EAS agreements for longer than 2 years could better assure carriers that they will be able to stay in the program long enough to justify

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the commitments of financing and equipment that they need to effectively manage EAS service. This change may also attract more carriers willing to participate in the program. Financial incentives could also encourage better service by EAS carriers. In the view of one airport representative, carriers have spread themselves thin as they try to serve many subsidized communities, leading to undependable service, including late arrivals and departures. Incentives, or other means of linking subsidies to performance, can strengthen carriers' commitment to providing reliable service.

### **Disadvantages**

DOT and some communities have expressed concerns about lengthening the agreements because DOT would then have less frequent opportunity to remove carriers that are providing poor service—such as a large number of canceled or delayed flights. Instituting longer agreements would also reduce how often a route would be opened to competition, potentially reducing DOT's ability to manage program costs. DOT officials also pointed out that they could award longer agreements under current legislation, but the program is still subject to annual appropriations.

### **Allow Agreements to Be Renegotiated**

Carrier and industry officials also said they would like EAS agreements to allow DOT to adjust subsidy amounts in response to certain cost increases that occur during these agreements. For example, fuel costs increases in early 2008 affected EAS carriers' operations. Program reauthorization legislation passed in 2003 allows DOT to adjust carrier compensation in response to increased costs, but DOT has chosen to not use this authority.<sup>42</sup> Among our expert panel, 6 of the 17 individuals who addressed this issue believed allowing renegotiation of EAS agreements in response to rising costs would make the program more effective. Some industry representatives also believe the \$200 per-passenger subsidy limit has been in effect for a long time and should be increased, even if only to reflect cost inflation.

### **Advantages**

Allowing renegotiation of EAS agreements in response to rising costs would enable carriers to continue service when they are faced with rising costs rather than file a Notice of Termination which starts the process of

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<sup>42</sup>Vision 100—Century of Aviation Reauthorization Act, Pub. L. No. 108-176 (Dec. 12, 2003).

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reawarding the agreement to serve the community. Industry representatives have said that having to file a termination notice when cost increases make it uneconomic to continue service harms their relationship with the community and adds to the perception that service is unreliable. The proposal to allow an increase in the subsidy per passenger in response to fuel cost increases could allow some communities to retain EAS service—in times of rising fuel prices—which might otherwise lose it if carriers needed higher subsidies to continue that service. However, it could increase program costs faster than they would otherwise increase.

### **Disadvantages**

Although authorized to do so, DOT generally has not adjusted carrier subsidies for current EAS agreements, because, according to DOT officials, they have limited program funds and reopening agreements could jeopardize funding to continue EAS service for all eligible communities that might qualify for it. A DOT official we spoke with also stated his belief that the \$200 per-passenger subsidy cap has been effective as a primary tool to control costs. In addition, almost none of the experts on our panel believed that increasing the \$200 per-passenger subsidy cap would make the EAS program more effective.

### **Consolidate EAS Flights at Regional Airports**

We have also described an option of regionalization—essentially consolidating EAS service to and from a number of closely located EAS communities at a single airport.<sup>43</sup> For example, there are currently 12 pairs of EAS communities that are within 60 miles of each other, and in 5 of these pairs the communities are within 50 miles of each other. The previous administration’s fiscal year 2009 budget request included language that would have supported regionalized air service. However this language was not incorporated in DOT’s appropriation, and was not included in the administration’s fiscal year 2010 budget request for DOT.

### **Advantages**

In more sparsely populated areas, or areas where population has declined, this approach would focus EAS program support on one airport, and could increase the number of passengers using that airport, potentially making the service more viable. With more passengers using the airport,

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<sup>43</sup>GAO, *Commercial Aviation: Programs and Options for the Federal Approach to Providing and Improving Air Service to Small Communities*, [GAO-06-398T](#) (Washington, D.C.: Sept. 14, 2006).

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expanding service to include more flights, larger aircraft, or additional destinations, could be another potential benefit.

### **Disadvantages**

Consolidating service at multiple airports into a single airport may not be initially popular with the communities that would lose EAS service at their local airport; passengers who did use the service provided at those airports would be inconvenienced. Also, some airport representatives and other experts said this option would depend on local circumstances, such as distance between the communities and driving conditions. However, if air service for several communities was consolidated at a single airport, in connection with support for ground transportation between those communities and the airport, it could increase the likelihood that communities would accept the consolidation. If this option is pursued, a nonpartisan commission may need to be established to make the difficult decisions—on an impartial basis—about where to provide EAS service.

### **Focus EAS Service on the Most Remote Communities**

The existence of leakage demonstrates passengers' willingness to bypass their local EAS service in favor of traveling to a larger airport that offers more flight options, more direct flights, and lower fares. Currently, to qualify for EAS service, a community must be at least 70 highway miles from the nearest medium- or large-hub airport. In previous reports we discussed the options of both increasing the 70-mile minimum qualifying distance, and including small hubs in this criterion.<sup>44</sup> For instance, DOT information shows three communities with EAS service are within 50 miles of a small-hub airport.<sup>45</sup> As another approach to the same issue, DOT's fiscal year 2009 budget request proposed ranking EAS-subsidized communities in order of decreasing driving distance to their nearest large- or medium-hub airport, and funding communities starting with the most isolated, and continuing in that order, until funding is exhausted, although this language was not incorporated in the fiscal year 2009 appropriation and not included in the fiscal year 2010 budget request. In addition, 13 of the 17 members of our expert panel who addressed this issue believed extending the qualifying distance from a hub airport above the current 70-mile minimum would make the EAS program more effective.

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<sup>44</sup>GAO-06-398T; GAO-02-997R.

<sup>45</sup>According to DOT officials, at each of these small hubs at least six carriers provide nonstop service to a minimum of 10 destinations, with between 38 and 46 weekday departures, primarily with jet aircraft.

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### **Advantages**

Proposals to extend the minimum qualifying distance from an EAS community to the nearest hub airport, or to otherwise focus EAS program funding on the more remote communities, would allow the EAS program to serve communities with relatively poor transportation access, while accommodating increasing costs and subsidies in an environment of limited program funding.

### **Disadvantages**

Implementing one of these options would mean some communities that currently have EAS service would lose it, just as past changes in community eligibility requirements have led to some communities being dropped from the program. Also, some officials of community airports caution that basing eligibility on distance from a hub airport should consider local terrain and conditions—even the current 70 miles may not be a practical driving distance in mountain terrain, or where there is hazardous driving in winter.

### **Capping Eligibility of Program as of a Specified Date**

The cost of the EAS program and the number of communities served has grown substantially in recent years, with the potential for more communities seeking service in the near future. Essentially the communities eligible for subsidy would be limited to those receiving subsidy as of a given date.

### **Advantages**

Capping the program at the currently subsidized communities would help contain the program's total costs. The stable size of the program would make it easier for DOT to manage the program and make funding the program more predictable, while not expelling any community currently receiving benefits under the program.

### **Disadvantages**

If a community that is currently receiving unsubsidized commercial air service should lose that service, that community would not be able to get EAS subsidized service if this change was implemented. Since communities historically have come into and gone out of the program, the decisions about who would be eligible for subsidies would be based on the effective date selected for this change.

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## A Multimodal Approach to Connecting Communities to the National Transportation Network Is Another Option

Several of the proposed changes to the EAS program may help to address current concerns and enable the program to continue providing air service to communities. However, even with changes to the EAS program, some EAS communities would still have limited demand for the service, due to proximity to other airports or limited population. For such communities, other transportation modes might be more cost effective and practical than EAS service for connecting communities to the transportation network. Our expert panel, in addition to considering changes to the EAS program that would make it more effective, also considered the potential offered by more fundamental changes to the federal government's approach to supporting intercity transportation for small communities. The 17 members on our panel who addressed this issue all believed that the EAS program needed substantive change to make it more effective in supporting small communities' access to the national transportation network, and that a multimodal approach to provide financial assistance to small community transportation could potentially be more responsive to communities' needs.

GAO and others have also made proposals that would broaden the government's approach to small community transportation to include other transportation modes. Proposals include support for other types of transportation besides scheduled air service and other approaches to financial assistance besides subsidies to carriers. For example, as part of the Vision 100-Century of Aviation Reauthorization Act in 2003, Congress authorized a number of changes to the EAS program, including the Community and Regional Choice programs, which allowed DOT to provide financial assistance directly to communities to obtain air taxi service,<sup>46</sup> or pursue other transportation options. According to a DOT official, this program generated almost no interest from communities, perhaps because communities may believe that air service they have under current law is better than the alternatives. We have also proposed similar options that might enable the EAS program to provide less costly and more sustainable service, including better matching air service capacity with community needs by allowing the use of "on demand" service such as air taxis and changing the carrier subsidies into local grants, thus allowing communities more flexibility to determine how to use the funds to best meet their needs. The previous administration's fiscal year 2009 budget request also

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<sup>46</sup> Air taxi services provide on-demand regional air service, using small aircraft, and generally fly to and from small airports. For example, SATSAir, an air taxi service based in South Carolina, flies single engine, single pilot, three-passenger aircraft, and serves nine states in the Southeast.

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proposed modifying EAS program service requirements to allow program funds to be used for air taxi or charter service, or ground transportation. Congress did not enact any changes in response to this proposal.

Most of the panel members thought that allowing the EAS program to fund other types of air service, such as air taxis, would make the program more effective. For communities with low passenger volume, this may be a more practical option than underutilized scheduled service. On-demand service could be more useful to some communities because flight departures would not be constrained by a limited schedule. Also, current EAS routes typically connect a community to just a single destination. On-demand service could still take community passengers to the hub, but it could also go to any airport within the range of the service's aircraft. These features could make air service more useful to the community, increase demand, and make the operation more commercially viable. However, current EAS statutes require scheduled service by carriers and would have to be revised by Congress to accommodate air-taxi-type services. Additionally, current commercial air taxi services are relatively expensive. It may be hard to predict what such a service would cost under EAS, or the level of subsidy it would require, until it is tried.

Alternatively, a community that cannot support EAS service within the subsidy limit might be better served through ground transportation. In many parts of the country, motorcoach companies and passenger rail already deliver passengers to large hub airports. For example, according to an American Bus Association official, motorcoach companies transport more than 2.5 million passengers annually from Maine, Vermont, and New Hampshire to Boston's Logan Airport. The official said that about half of the communities currently in the EAS program are also served by motorcoach companies, which in some cases even provide community-to-hub airport service that competes with EAS service. If a community cannot support air service even with an EAS subsidy, it may be able to support subsidized motorcoach or other ground transportation.

Experts on our panel, as well as others with whom we spoke recognized that there will be difficulties if a multimodal approach to small community transportation is adopted. They noted that a multimodal approach to providing transportation assistance to small communities would likely face opposition from communities if they were to lose air service. In addition, it would create concerns about the potential source of funding because current DOT funding is largely "stove-piped" through funds that support—and are financed by—specific transportation modes. For example, federal funding for airports and aviation primarily comes from

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the Airport and Airway Trust Fund, which is funded by several aviation-related excise taxes. Federal funding for highways is provided through the Highway Trust Fund which is supported by motor fuel and other vehicle-related taxes. Experts on our panel and others said a multimodal approach can also result in different transportation modes “competing” for funds, as advocates for the various transportation modes may oppose any change that is seen as diverting funds dedicated to one transportation mode to support another. Taking a multimodal approach to small community transportation will require creative approaches to address these concerns. Finally, some of the experts in our panel expected that a true multimodal approach to support small community transportation would require more federal funding than the EAS program alone provides.

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## Selecting Options for the EAS Program Is Difficult, but Tools Exist for Assessing the Options and Improving Program Evaluation

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### Selecting Options to Implement Is Difficult and Depends on How Program Objectives Are Defined

Over the years, Congress has made incremental changes to the program such as changing the eligibility criteria or funding; however the program’s approach remains little changed since it was implemented 30 years ago. Although Congress, the administration, GAO, and others have proposed potential changes to the EAS program, it is difficult for policymakers to determine which options to select, since different options for modifying the program might affect stakeholders such as airlines and community residents differently. For example, supporting increased use of smaller planes may increase the cost effectiveness of certain routes, but one industry association commented that this would penalize carriers who have made the investment in larger aircraft to satisfy current program requirements. In addition, as some of the panel experts and others recognize, these transportation decisions could become politicized. For example, a regional airport may make sense in certain geographic areas; however, no community would want to lose its local service, along with the assumed prestige and economic benefits to another community.

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Further, it is difficult to determine which option or suite of options to select, since stakeholders have different opinions on what the program is to achieve. When the program was established in 1978, it provided subsidized air service to communities that were receiving air service at the time and would have lost air service under deregulation, so in one sense, the program supports scheduled air service.<sup>47</sup> However, the legislative history accompanying the Airline Deregulation Act also describes the program as supporting both connectivity to the national air transportation system and the growth and economic development of the communities served.<sup>48</sup> These multiple program objectives make it difficult to assess which options to use. For example, if the objective is to continue providing air service to communities that were receiving air service at the time of deregulation, providing additional funding to cover expected cost increases and renegotiating contracts in response to cost increases like fuel prices could meet that objective. If the objective is to provide cost-effective air service, options such as allowing more flexibility for type of aircraft and service frequency or establishing regional airports might be appropriate. Or if the objective is to provide access to the national transportation system, perhaps a multimodal approach or focusing on the most remote communities might be better options.

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### Using GAO's Re-examination Approach to Revisit the EAS Program's Objectives Could Help Clarify the Extent to which Different Options Meet those Objectives

Changes in the aviation industry and the nation's financial situation over the past 30 years may make this an opportune time to revisit program objectives and evaluate design options for the program. In 2005, we reported that federal deficits portended an economically unsustainable situation in the long term, making it incumbent upon the federal government to periodically re-examine programs to assure they are able to meet current and future challenges.<sup>49</sup> Certainly, the deficit picture has only grown more critical since then, as has the need for reviewing and updating federal programs to assure their continued effectiveness. In our report 4

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<sup>47</sup>DOT officials note that prior to deregulation, there was no guarantee of air service, and many communities lost air service under regulation.

<sup>48</sup>See *Legislative History of the Airline Deregulation Act of 1978*, Committee Print 96-5, Committee on Public Works and Transportation, U.S. House of Representatives, May 1979. *Review of Airline Deregulation and Sunset of the Civil Aeronautics Board (Essential Air Service Program and Small Community Air Service)*, Hearings before the Subcommittee on Aviation of the Committee on Public Works and Transportation, U.S. House of Representatives, August 16, 1983, and January 31 to February 1, 1984.

<sup>49</sup>GAO, *21st Century Challenges: Reexamining the Base of the Federal Government*, [GAO-05-325SP](#) (Washington, D.C.: February 2005)

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years ago, we developed several criteria designed to address whether existing programs are relevant to the challenges of the 21st century, and to support making tough choices in setting priorities. These criteria relate to (1) having well-defined goals with direct links to an identified federal interest and role, (2) defining and measuring program success, (3) targeting benefits, and (4) affordability and cost effectiveness. These criteria, which could be used to re-examine the EAS program, are summarized below and discussed in more detail in appendix III.

### EAS Program Goals and the Federal Government's Role in Supporting These Goals and Objectives

The EAS program has multiple objectives, which are in some ways conflicting, contributing to a lack of clarity in the federal role. Revisiting the goals and objectives of the EAS program would help define the federal government's role in the program, that is, what the federal government should be doing and how it should be doing it. For example, defining the EAS program's objective as subsidizing scheduled commercial air service at communities that would not otherwise have air service, as the program has operated since it began, could lead to one program design and related performance measures addressing such factors as the number of communities with subsidized air service, the cost effectiveness of that service, and various measures for the quality of that service. However, identifying the objective of the program as providing rural and small communities with connectivity, including air service, to the national transportation network—which was also identified as an objective of the EAS program at the time it was enacted—could lead to defining a different set of options not limited to providing subsidized air service, but also considering multiple transportation modes. Supporting the broader objective of connectivity would also be consistent with DOT's Strategic Plan, which identifies global connectivity as one of the agency's strategic goals.

### Defining and Measuring Program Success in Supporting DOT's Strategic Goals

The performance measures that DOT has established for EAS relate to maintaining uninterrupted service at EAS-subsidized communities and the timeliness of processing agreements and making payments to carriers. Setting additional measurable targets for what the program is intended to accomplish would allow DOT to (1) assess the relative success of the program and (2) more effectively manage program resources toward achieving program goals or determine what level of resources are needed when the program is not achieving its objective.

### Targeting Program Benefits to Improve Program Results

Congress has modified eligibility criteria for the EAS program in the past. In 1978, the list of communities potentially eligible for EAS subsidized service was established. In 1994, Congress added the requirement that a community must be at least 70 miles from the nearest medium- or large-

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hub airport to qualify for EAS service. Examining the criteria again, given changes in population and the air service industry, may help target the benefits of the program to those communities that have the least access to the national transportation system.

### Analyzing Cost Effectiveness of Existing Program Options

Analysis of the cost and affordability of EAS program can support decisions that may need to be made to address how and where to use existing program resources or if options to revise the program are warranted. Given the trend of increasing carrier subsidies and the potential for more communities seeking EAS subsidies if they lose their unsubsidized service, it is important for policymakers to assess whether the EAS program is affordable and financially sustainable over the long term, given known trends and risks. Consolidating service from two or more closely located EAS communities at a single airport is one option that could make service more cost effective. Another option that has the potential to improve cost effectiveness of EAS service for some communities would be to allow more latitude in determining the type of aircraft and flight schedules that would provide the level of service the community needs and can support. Finally, establishing a multimodal approach could provide cost-effective options for connecting people to the national transportation network.

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### Analytical Tools Could Help Assess Program Demand and Transportation Options

#### Geographic Information Systems Analysis

Since the EAS program's basic design is 30 years old, policymakers may want to reconsider the characteristics of communities that are provided with federal transportation assistance. Reconsidering the design of federal programs—such as the EAS program—requires a variety of information, and methods exist that can help develop such critical data. For example, Geographic Information Systems (GIS) analysis can be used to evaluate community access to transportation—both to air service and to other modes. In general, GIS applications are tools in which varied geographic information is compiled to enable analyses based on the relationship of one element, such as communities, to another element, in this case, modes of transportation. These tools have become critical in the field of transportation planning and management over the past 30 years. Such analyses can be used to evaluate transportation options, and help develop cost-of-service estimates. We analyzed the access that different groups of communities have to the various transportation modes by mapping those

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communities along with the availability of the transportation modes. The goal was to take a fresh look at community access to transportation networks in the geographic context that exists today—a less rural society and potentially different transportation options than existed 30 years ago when the EAS program was conceived.

The goal of our analysis is to use information on community demographics, access to transportation modes, and other relevant factors to illustrate how these key factors could be considered in developing an approach to ensuring access to air service or other modes of transportation. We examined the proximity of the selected communities—community selection depended on community size and distance from medium- or large-hub airports—to transportation modes. We selected communities that had a population of between 10,000 and 500,000 people and that were at least 90 miles from the nearest medium- or large-hub airport. It would have been possible to select different sized communities or those that were either closer or farther from a medium or large hub. For selected communities, proximity to various types of airports, passenger rail stations, and entry ramps onto major highways were considered. This enabled comparisons across the communities as to their relative access to varied transportation modes. In appendix IV we provide outcomes of the analyses we performed to illustrate how GIS analysis can be used to re-evaluate small community transportation options. This type of analysis might help determine the impact of the option to focus EAS assistance on communities that are most distant from alternative hub airports.

Also, DOT's Bureau of Transportation Statistics has taken steps to identify the intermodal connectivity of the population of the United States. In 2005, it published work showing that in 2003 about 93 percent of the rural residents lived within what DOT determined to be a reasonable coverage area of at least one of the four (air, bus, rail, and ferry) intercity public transportation modes.<sup>50</sup> They acknowledge that this access may have diminished because of a recent reduction of Greyhound bus terminals and a portion of an Amtrak line. To get an even better idea of how connected the country is, DOT is continuing to work on an intermodal passenger connectivity project that involves cataloging and geographically plotting all transportation facilities in the United States and indicating what modes serve these facilities to develop a database of this information. While this

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<sup>50</sup>DOT, "Scheduled Intercity Transportation: Rural Service Areas in the United States," June 2005.

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is an ongoing project, data DOT has available could provide an additional source of information with which to evaluate the extent to which certain communities are connected to the national transportation network.

## Benefit-Cost Analyses

In addition to GIS analysis, the tools and methods of benefit-cost analyses can be used to provide information on economic factors that may be useful in evaluating options. The cost of providing subsidized service to communities may vary considerably depending on the communities' location or the type of service provided. Developing data to better understand these tradeoffs would help policymakers design the most appropriate program for the current circumstances. For example, estimates of program costs across various alternative modes and the value provided to communities for these services could help to ensure that programs are designed to use funds in the most beneficial way. Specifically, generating information on the expected demand for transportation services from communities could help stakeholders better understand the value gained by citizens from having access to service across various modes.

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## Expanded Performance Measures Would Enhance DOT's Ability to Evaluate Program Effectiveness

The Government Performance and Results Act of 1993 requires executive agencies to develop a long-term strategic plan, prepare annual performance plans, and measure progress toward the achievement of the goals described in the plans. The annual performance plans should establish the connections between the long-term goals outlined in the agency's strategic plan and the day-to-day activities of managers and staff. In addition, the goals and measures in the plan should address program results and how programs help the agency progress toward their strategic goals.

EAS program performance is difficult to assess beyond providing air service to eligible communities because DOT does not have performance measures that demonstrate the extent to which the program is contributing toward DOT's strategic goals of connectivity or congestion reduction—the strategic goal where the EAS program is located. Further, the Office of Management and Budget most recently evaluated the EAS program under its Program Assessment Rating Tool in 2006 and found the program does not have enough long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program. The EAS program's current annual performance measures include one long-term measure that addresses program performance in a specific way—maintaining continuous air service at 98 percent of eligible communities. Other measures relate to administrative activities, including:

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(1) the percentage of renewal agreements that are established before the existing agreement expires, (2) the percentage of new agreements processed within 160 days of carriers' notices to suspend services, and (3) the percentage of payments to carriers that are processed within 15 business days. In 2007, the most recent year DOT published information on its performance in these areas, DOT exceeded its goals for the percentage of new agreements processed within 160 days and renewal agreements established before the existing agreement expires. DOT nearly met its goal for processing payments within 15 business days, and did not meet its goal for maintaining continuous air service at 98 percent of eligible, subsidized communities. DOT's single long-term performance measure—maintaining continuous air service at 98 percent of eligible communities—reflects an important aspect of program operations. But additional performance measures, addressing other aspects of program performance, could provide a broader perspective on how the EAS program contributes to DOT's strategic goals.

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## Conclusions

For many communities, the EAS program provides a valuable connection to the national transportation network. Many EAS routes carry 10,000 or more passengers per year. However, low passenger volume and high subsidies remain the norm for many EAS communities. Changes in the air service industry, including the growth of air travel alternatives provided by low-cost carriers, have changed the environment in which the EAS program operates. However, some legislative EAS program requirements, and the growing cost to operate aircraft for EAS service, contribute to the program's inability to maintain service to EAS communities. Further, rural population shifts since deregulation, and continuing passenger leakage away from small airports with EAS service combine to limit passenger ridership on EAS flights. These factors contribute to the continuing financial strain on the EAS program which brings its long-term viability into question.

A re-examination of the EAS program, assessing options to make the program more sustainable and effective, and the development of performance measures to monitor program performance, may be warranted. Many options to help address the problems and limitations the current program faces exist. However, making these decisions is difficult; and Congress has yet to implement any of these options. These decisions are difficult because no one option may work for all communities. Options to change the program requirements might be necessary to sustain EAS. Further, in some locations it might be beneficial to study air taxi and

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multi-modal approaches to ensuring small and rural communities are connected to the national transportation network.

Finally, if decisions are reached to revise the program design, steps should be taken to implement and monitor the program. For example, if the program design is to be revised the legislation governing the program would need to be revised accordingly. In addition, additional performance measures to evaluate the program may need to be developed.

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## Matters for Congressional Consideration

In light of developments related to population shifts, the aviation industry, and the national transportation infrastructure, Congress should consider re-examining the program's objectives and related statutory requirements and seek information from DOT as needed to support this effort. Such a re-examination could include (1) consideration of the rationale behind existing statutory requirements, such as those for 15-seat, 2-engine, 2-pilot aircraft in EAS service; (2) the possibility of providing greater flexibility as to plane size, frequency of service, eligible communities, or regionalization of service; and (3) the possibility of assessing multimodal solutions for communities.

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## Recommendations for Executive Action

We are recommending that the Secretary of Transportation

1. Evaluate the reasonableness of
  - providing transportation service, whether through unscheduled air service or surface modes of transportation, when these alternatives might better serve communities than current scheduled EAS service, and
  - DOT's current practices for carrier agreements, including the 2-year duration of agreements, and not renegotiating subsidy amounts in response to quantifiable cost increases.
2. Once decisions are made about any changes to the EAS program, DOT should determine whether additional performance measures are needed to evaluate program outcomes.

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## Agency Comments

We provided a draft of this report to DOT for its review and comment. DOT provided technical comments in an e-mail message on July 6, 2009, which we incorporated into this report as appropriate. In reviewing our original recommendation calling for additional performance measures for

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the EAS program, DOT officials indicated that some performance measures were already in use, and said that they also monitor other performance data, such as passengers served. They acknowledged that additional performance measures would support operational improvement, and stated that they would determine those measures as needed. We believe the implementation of any changes to the EAS program—or how the EAS program is used to provide communities with access—which result from Congressional or DOT action would warrant consideration of additional performance measures. As a result of DOT’s comments and the possibility of changes to the program, we modified our original recommendation. DOT concurred with our revised recommendations.

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As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 7 days from the report date. At that time, we will send copies to appropriate congressional committees, to the Secretary of Transportation, and to appropriate officials within the Office of the Secretary. We will also make copies available to others upon request, and the report will be available at no charge on the GAO Web site at [www.gao.gov](http://www.gao.gov).

If you have any questions about this report, please contact me at (202) 512-2834 or at [dillinghamg@gao.gov](mailto:dillinghamg@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix V.



Gerald L. Dillingham, Ph.D.  
Director, Physical Infrastructure Team

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# Appendix I: Objectives, Scope and Methodology

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To describe the status of the Essential Air Service (EAS) program, we reviewed Department of Transportation (DOT) data on the EAS program, DOT's agreements with airlines to provide service, and financial data for the program and selected airlines. We also reviewed relevant studies and interviewed industry experts. Our review focused on communities within the 48 states of the continental United States that have received EAS subsidized service. This is because the requirements for communities in Alaska are different than for communities in other states. In addition, EAS subsidized service outside of the contiguous states are not representative of the program in the rest of the United States.

We obtained DOT data that represented the characteristics and current status of the program at specific points in time in order to describe trends in EAS service. We obtained DOT data from 2003 through early 2009 on the number of communities served by the EAS program, the subsidies awarded airlines to serve these communities, and the passengers enplaned on EAS flights. We selected 2003 as our base year because that was the first full year DOT required carriers to file air traffic activity in a uniform reporting system.<sup>1</sup> DOT provided the information about EAS communities, associated subsidies, and carrier enplanements in a series of excel schedules. The schedules document EAS service only as of a specific dates and therefore do not represent a continuous picture of service provided under the EAS program. To assess the reliability of the community and subsidy information in the schedules, we selected a random sample of the subsidy award information in the schedules and traced the information back to the DOT order where DOT officially announced its agreement with a carrier to serve an EAS route. DOT issues its orders via its docket, accessible at [www.regulations.gov](http://www.regulations.gov). However, we could not assess the reliability of the carrier's enplanement data in the schedules. To do so would have required a comprehensive review of DOT orders to identify the carrier serving each route, the destination hub, when the carrier initiated service on each route, and when the carrier either suspended or terminated service. Because the schedules do not represent a continuous picture of service provided under the EAS program, our review of DOT orders would also be incomplete. In addition, during the course of our review, we also found we could not develop trend information on passengers that board (enplane) subsidized EAS flights as well as the

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<sup>1</sup>Effective October 1, 2002, DOT required all carriers to report their air traffic activity under the T100 reporting system. Prior to that date, small certificated and commuter carriers had reported their air traffic activity using the Form 298C.

agreed-upon subsidies for those flights from available DOT data other than the information DOT provided in the schedules.

We also obtained relevant financial data for the EAS program including appropriations and expenditures data. We reviewed relevant legislation to verify the appropriations information but did not have sufficient information to validate the expenditures data. We also obtained data documenting fuel use and cost in 2007 and 2008 for selected airlines from OAG BACK Aviation Solutions, a private contractor that provides online access to U.S. financial, operational, and passenger data with a query-based user interface. FAA does not require smaller airlines to file information on fuel use and cost, so we could only extract fuel data on certain larger airlines providing EAS service. We also compared fare data for routes involving EAS flights with fares on comparable unsubsidized routes, to assess how EAS fares compared to unsubsidized fares.

We conducted a literature search to obtain research studies that examine the role of air service in the economic development of small communities and their connections to the national transportation network. Where applicable, the research and studies were reviewed by a GAO economist to determine that the studies were sufficiently reliable for our purposes. We also reviewed previous reports and studies of the EAS program including previous GAO, DOT, and other federal agency reports. We reviewed studies about the national transportation network and how rural communities connect to this network, reports on the rationale for the EAS program, and legislation that established and extended the program. We reviewed relevant regulations and legislation to obtain information on EAS program criteria and requirements for communities to be eligible for subsidized service under the EAS program.

Finally, we conducted interviews with DOT officials, industry associations and consultants, airlines and community airports, local governments, and other relevant officials.

To identify the factors affecting DOT's ability to provide service to communities, we reviewed relevant literature, including previous GAO reports as well as other studies of the EAS program and air service to small communities. We identified the factors that limit the capacity of the EAS program to provide subsidized service to communities. We also examined the literature to identify the limitations inherent to small communities, aviation industry trends as well as the EAS program itself. We also analyzed data on fares charged for EAS flights.

We held a panel discussion attended by 19 experts on small community air service including airline officials, current and former EAS program administrators, economists, other transportation providers, and state and local officials. We discussed and surveyed these experts on the factors affecting the EAS program and options for providing connectivity to small communities across the country, including (1) the challenges facing air service to communities, (2) the role of the federal government in supporting communities' access to the national transportation network, and (3) the federal government's options for supporting small community transportation. We composed this panel of experts representing different types of stakeholders in the EAS program, including program officials. Thus, although individual panel members were not independent, the panel as a whole was balanced for our purposes. See appendix II for a summary of panel responses to questions we submitted to them, as well as a list of the panel participants.

We reviewed Geographic Information Systems (GIS) and Bureau of the Census information as well as data from other sources to examine the extent to which the rural and small community population has shifted in the 30 years since the EAS program began. We identified areas where the population has grown as well as areas where the population has decreased. Further, we examined the extent to which selected rural areas are connected to the national transportation network. See appendix IV for further information.

We identified options for improving the EAS program through a review of previous GAO reports, and discussions with officials from DOT and industry associations as well as industry consultants. We also identified options in proposed legislation that would affect the EAS program. We discussed these options with our expert panel, industry and program representatives, community officials, and other experts to obtain their views on the viability and feasibility of the options for providing assistance to remote communities and increasing their connectivity to the national transportation network. For example, a national association of airports sent questions we developed to seven of their member airports<sup>2</sup> about their experiences and views of the EAS program and forwarded their responses to us.

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<sup>2</sup>Airports contacted were: Bradford (PA) Regional Airport, Cortez (CO) Municipal Airport, DuBois (PA) Regional Airport, Huron (SD) Regional Airport, Kirksville (MO) Regional Airport, Southern Vermont Regional Airport (Rutland, VT), and Shenandoah Valley Regional Airport (Staunton, VA).

To identify tools that may help DOT to re-examine and assess the performance of the EAS program, we reviewed literature that discussed options for improving the EAS program as well as GAO reports that discuss methods for re-examining federal programs in light of budget limitations. We reviewed previous GAO reports that discuss our re-examination framework to determine how such a framework could aid DOT in clarifying the strategic goals and options for the EAS program. We further examined DOT's EAS program data and current performance measures in light of their usefulness for monitoring and managing the program.

We conducted this performance audit from March 2008 through July 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

# Appendix II: Panelist Responses to GAO Questionnaire

Table 2 summarizes responses provided by the members of our expert panel to the questionnaire we administered during the panel sessions. A listing of the panel members follows the summary of questionnaire responses.

**Table 2: Responses to GAO’s Questionnaire**

**Part 1: Challenges facing air service to small communities—today and in the foreseeable future**

For each question, rank the three most significant factors, from 1 to 3.

Question	Number of panelists who ranked factor			Total that Ranked as 1, 2, or 3
	1	2	3	
1) Which category of challenges is the most significant, in terms of its impact on carriers’ ability to provide air service under the EAS program? (19 panel members addressed this question)				
Challenges in serving the small community market.	3	8	0	11
Challenges in the air service industry environment.	6	4	2	12
Challenges in the EAS program.	4	1	7	12
All of the above are equally important				6
None of the above are important				0
2) Which of the following aspects of providing and sustaining air service to small community markets present the biggest challenges? (19 panelists responded to this question) <sup>a</sup>				
Small populations limit the market of potential passengers.	6	5	3	14 of 19
Limited community business activity limits the market of potential business passengers.	4	3	2	9 of 19
Rural and small community populations have shifted in the 30 years since deregulation—the EAS program may not be serving communities that have the greatest need for subsidized air service, in terms of other transportation options they may have.	6	3	3	12 of 19
EAS carriers may do insufficient marketing so that local residents are unaware of service.	0	3	2	5 of 19
“Leakage,” as small community residents bypass their local airports, and use other options for travel.	8	4	0	12 of 19
“Prop avoidance,” or travelers’ reluctance to fly in smaller turboprop aircraft that serve small airports.	0	3	2	5 of 19
Inadequate financial support, or other commitment, for EAS service from local government or the business community.	1	1	2	4 of 19
Inadequate federal funding for the EAS program.	1	2	1	4 of 19

**Appendix II: Panelist Responses to GAO  
Questionnaire**

Question	Number of panelists who ranked factor			Total that Ranked as 1, 2, or 3
	1	2	3	
3) What changes in the air service industry environment since deregulation have been the biggest challenges to small community air service, including EAS service? (18 panel members addressed this question)				
Major carriers shifting to a hub-and-spoke route structure.	1	2	2	5 of 18
The expansion of low-cost carriers, creating more opportunities for small community residents to bypass their local airport in favor of lower fares at another airport.	9	4	2	15 of 18
Recent increases in fuel costs.	2	3	1	6 of 18
Decreasing availability of 19-seat turboprop aircraft used most often by EAS carriers.	2	1	3	6 of 18
EAS carriers' difficulty in obtaining code share agreements with larger carriers that would allow passengers to book connecting flights on those carriers as part of the same trip.	1	2	1	4 of 18
Lack of interline arrangements with larger carriers that would allow passengers to check bags to their final destination.	1	2	1	4 of 18
Congestion at hub airports, with fewer slots available for small carriers.	2	2	3	7 of 18
The growth in business owned or leased aircraft, reducing the need for commercial business travel.	1	3	3	7 of 18
Increased post-9/11 security requirements at small airports.	0	3	1	4 of 18
4) What EAS program requirements represent the biggest challenges to providing and sustaining air service to small communities under the EAS program? (16 panel members addressed this question)				
The \$200 per passenger subsidy cap (for communities less than 210 miles from a medium or large airport).	0	1	1	2 of 16
The EAS program mandates using 15-seat or larger aircraft.	9	2	3	14 of 16
Minimum service requirements of two daily round trips, six days a week.	0	5	3	8 of 16
Two-year EAS agreements are too short.	3	2	2	7 of 16
No built-in agreement provisions for renegotiating subsidies to reflect rising costs (other than carriers filing a notice to terminate service, in order to negotiate a higher subsidy).	1	5	2	8 of 16
Insufficient profit margins (5 percent of operating expenses) allowed by the program.	1	1	2	4 of 16
Eligibility criteria—that a community must have had service at the time of deregulation—has not changed since 1978.	2	3	3	8 of 16

\*Column totals exceed then number of panelists responding, because some respondents may have ranked more than one factor as "1" or "2," etc.

**Appendix II: Panelist Responses to GAO  
Questionnaire**

**Part 2: The role of the federal government in supporting small communities' access to the national transportation network**

<b>Question</b>	<b>Number of Responses</b>
1.) Should it be the federal government's role to provide financial assistance to support small communities' connection to the national transportation network? Check One. (17 panel members responded to this question)	
Yes	13
No	3
Uncertain	1
2) If the federal government should support small community transportation, what is the primary reason for doing so? Check one. (17 panel members responded to this question.)	
Supporting economic sustainability or growth in those communities.	5
Supporting those communities' connection to the national transportation network.	4
Both of the above are equally important.	7
Neither of the above is important.	0
Other comment	1
3) Should there be performance goals, or measures of success, established for DOT to meet in carrying out transportation assistance programs, such as the EAS program? Check one. (17 panel members responded to this question.)	
Yes	15
No	2
4) What performance standards and measurable goals could be established for the EAS program? Check as many that apply. (16 panel members responded to this question.)	
Standards for access to the national transportation system.	13
Standards for community economic development.	9
Other	5
5) In general, do you believe the federal government should prioritize the relative transportation needs for communities, for the purpose of deciding which communities get federal funding? Check One. (16 panel members responded to this question.)	
Yes	10
No	5
Other	1
6) Do you believe a system for assessing communities' relative need for transportation, such as the methodology described by GAO, would be useful for targeting federal transportation assistance to small communities? Check One. (17 panel members responded to this question)	
Yes	14
No	2
Other	1

**Appendix II: Panelist Responses to GAO  
Questionnaire**

**Part 3: What are the federal government's options for supporting small communities' access to the national transportation network?**

Question	Number of panelists who ranked factor			Number of Responses
	1	2	3	Total that Ranked as 1, 2, or 3
1) Are there any EAS program criteria or requirements that should be revised to make the program more effective in supporting economic development and connectivity in the communities served? Check One. (17 panel members responded to this question)				
Yes				17
No				0
2) If so, what changes might make the program more effective? Rank the three most significant, from 1 to 3. (17 panel members responded to this question)				
Increase the passenger subsidy cap from \$200.	0	1	1	2 of 17
Award EAS agreements for longer time periods (e.g., 5 years).	2	1	2	5 of 17
Allow agreements to be renegotiated in response to rising costs.	1	2	3	6 of 17
Change criteria to focus program resources on more remote communities (i.e., increase the minimum 70-mile distance from a medium or large hub for a community to qualify).	6	6	1	13 of 17
Give carriers more flexibility to use smaller aircraft.	8	3	4	15 of 17
Give carriers more flexibility to provide less frequent service.	0	2	4	6 of 17
Require carriers to commit funding to local marketing for EAS service.	0	0	3	3 of 17
Require carriers to have code share agreements with large carriers at destination hubs, to obtain an EAS agreement.	1	0	2	3 of 17
Require carriers to have interline agreements with larger carriers, to obtain an EAS agreement.	1	0	1	2 of 17
3) Does the EAS program need more substantive change or restructuring to make it more effective in supporting small communities' access to the national transportation network? Check one. (17 panel members responded to this question)				
Yes				17
No				0
4) If so, what changes would make the program more effective? Rank the three most significant, from 1 to 3. (17 panel members responded to this question)				
Open the program to more communities by dropping the requirement that a community must have had air service at the time of deregulation in order to qualify for subsidized service.	3	1	3	7 of 17
Allow the program to subsidize other types of air service, such as air taxi service, as an alternative to regularly scheduled air service.	6	7	1	14 of 17
Give eligible communities the option of getting a grant, in lieu of EAS service, which can be used to obtain other transportation (e.g., subsidizing air taxi, or ground transportation).	5	3	2	10 of 17

**Appendix II: Panelist Responses to GAO  
Questionnaire**

Question	Number of panelists who ranked factor			Number of Responses
	1	2	3	Total that Ranked as 1, 2, or 3
Require local or state matching funding equal to some percentage of the federal funding.	1	2	3	6 of 17
Base continued financial assistance upon meeting minimum performance standards, or other measures of success.	2	0	2	4 of 17
Limit the number of years that a community can receive subsidized service under the program.	1	3	2	6 of 17
5) What would be the benefits, if any, of the federal government taking a multi-modal approach to providing financial assistance to small community transportation? Check as many that apply. (17 panel members responded to this question)				
Potentially more responsive to individual community needs.				17
Potentially a better return in terms of useful services provided for the level of federal investment.				14
May promote local and regional transportation planning.				14
Other				1
There would be no benefits.				0
6) What would be the costs or trade-offs, if any, of the federal government taking a multi-modal approach to providing financial assistance to small community transportation? Check as many that apply. (15 panel members responded to this question)				
Would require increased federal funding to be effective.				5
Funding may be diverted away from the EAS program.				6
Transportation modes will be competing against each other for funding; decisions on how funding is used will become increasingly politicized.				7
Other				3
There would be no added costs or trade-offs.				4

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Mr. Doug Voss  
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Mr. Charlie Walsh  
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# Appendix III: 21st Century Questions for Program Re-examination

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In 2005, we reported that federal deficits portended an economically unsustainable situation in the long term, making it incumbent upon the federal government to periodically re-examine programs to assure that they are able to meet current and future challenges.<sup>1</sup> Many current federal programs and policies were designed decades ago to respond to trends and challenges that existed at the time of their creation. Much has changed since then. Therefore, we developed criteria for policymakers to consider as they address emerging needs by weeding out programs and policies that are outdated and ineffective and updating existing programs that are still relevant. We framed the criteria as questions designed to address the legislative basis for the program, its purpose and continued relevance, its effectiveness in achieving goals and outcomes, its efficiency and targeting, its affordability, its sustainability, and its management. We used these criteria to generate specific 21st century questions about those programs and priorities already identified. The resultant 21st century questions illustrate the kinds of issues that a re-examination and review initiative needs to address.

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## Relevance and Purpose of the Federal Role

- Does it relate to an issue of nationwide interest? If so, is a federal role warranted based on the likely failure of private markets or state and local governments to address the underlying problem or concern? Does it encourage or discourage these other sectors from investing their own resources to address the problem?
- Have there been significant changes in the country or the world that relate to the reason for initiating it?
- If the answer to the last question is ‘yes,’ should the activity be changed or terminated, and if so, how? If the answer is unclear as to whether changes make it no longer necessary, then ask, when, if ever, will there no longer be a need for a federal role? In addition, ask, “Would we enact it the same way if we were starting over today?” Has it been subject to comprehensive review, reassessment, and re-prioritization by a qualified and independent entity? If so, when? Have there been significant changes since then? If so, is another review called for?

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<sup>1</sup>GAO, *21st Century Challenges: Reexamining the Base of the Federal Government*, [GAO-05-325SP](#) (February 2005).

- Is the current mission fully consistent with the initial or updated statutory mission (e.g., no significant mission creep or morphing)? Is the program, policy, function, or activity a direct result of specific legislation?

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### Measuring Success

- How does it measure success? Are the measures reasonable and consistent with the applicable statutory purpose? Are the measures outcome based, and are all applicable costs and benefits being considered? If not, what is being done to do so?
- If there are outcome-based measures, how successful is it based on these measures?

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### Targeting Benefits

- Is it well targeted to those with the greatest needs and the least capacity to meet those needs?

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### Affordability and Cost of Effectiveness

- Is it affordable and financially sustainable over the longer term, given known cost trends, risks, and future fiscal imbalances?
- Is it using the most cost-effective or net beneficial approaches when compared to other tools and program designs?
- What would be the likely consequences of eliminating the program, policy, function, or activity? What would be the likely implications if its total funding was cut by 25 percent?

When taken together, these questions can usefully illustrate the breadth of issues that can be addressed through a systematic re-examination process.

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# Appendix IV: Geographic Information Systems Analysis of Small Community Transportation Access

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This appendix provides an overview of the GIS analyses we conducted of community access to the transportation network. In this appendix we discuss (1) the motivation for the analysis, (2) some key societal and industry factors that have changed since deregulation, (3) how we generated the set of communities for examination, (4) how an index measuring of “access” was defined, and results for communities’ access to airports, Amtrak, and major roads.

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## GIS Analysis Could Aid a Re-examination of Community Access to Transportation Network

It has been approximately 30 years since the EAS program was developed as part of the deregulation of the airline industry in 1978. The program had the particular goal of ensuring that communities that had commercial airline service in the regulated era retained that service even if the newly deregulated airlines chose not to provide service to some of those locations. Given that goal, the communities that were eligible for the program were essentially those that had had airline service at in 1978.

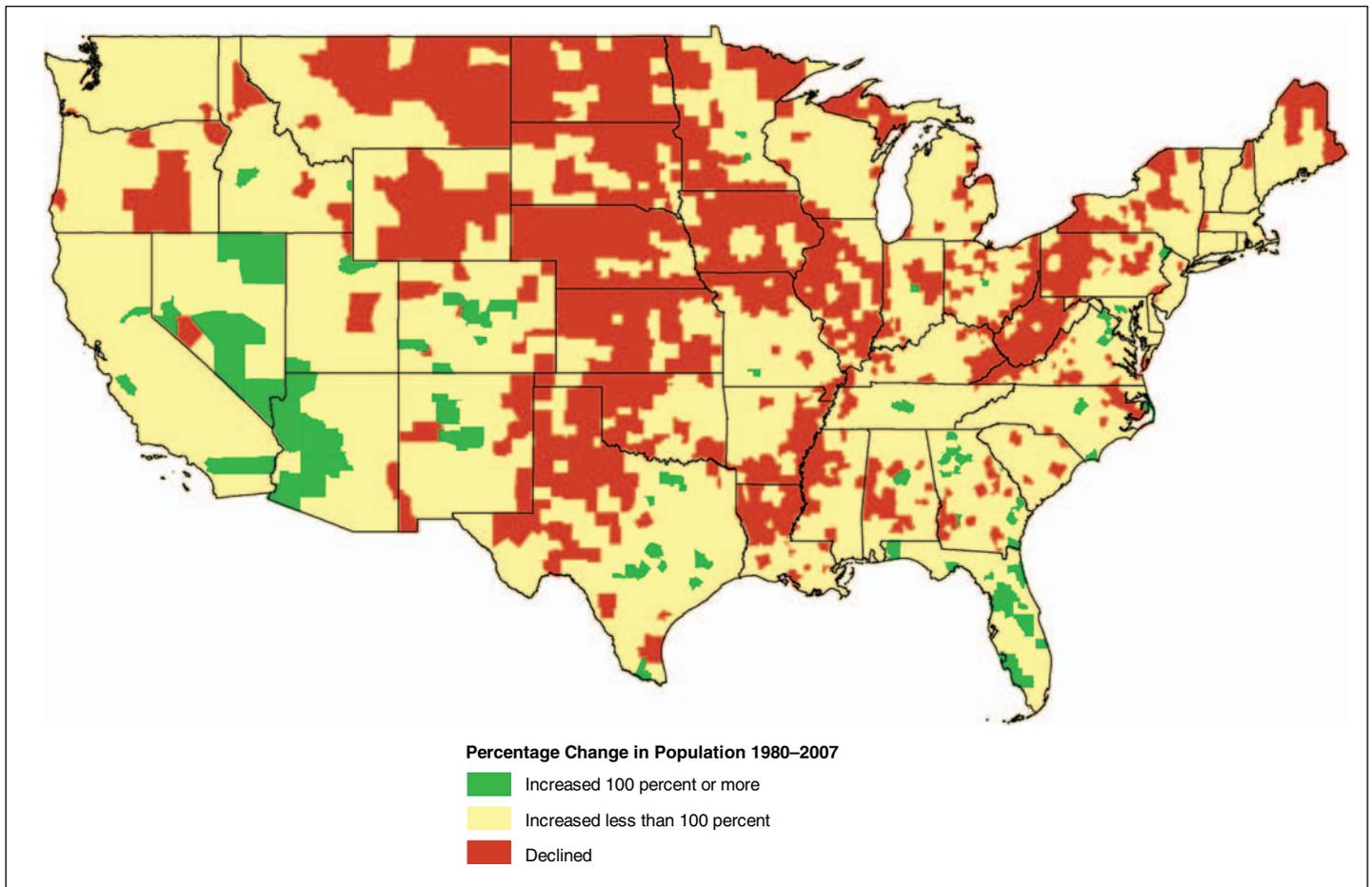
Thirty years later much has changed in the industry and in the country. The country has experienced demographic shifts, automobiles are of better quality, and the airline industry has continually restructured itself. If the EAS program—or any program that promotes access to the national transportation network—is to be re-examined, consideration of these developments is warranted. The goal of our analysis is to use information on community demographics, access to transportation modes, and other relevant factors to provide illustrations of how these key factors could be considered in developing an approach to ensuring access to air service or other modes of transportation. Our intent is not to point to any particular program structure, but rather to illuminate the type of information that can be brought forth to help policymakers answer those questions.

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## U.S. Settlement Patterns and Key Industry Factors Could be Considered in Re-examination of Subsidy Program

Throughout the 20th century, a significant degree of urbanization occurred as people moved out of rural areas and into cities and their suburbs. Although much of this migration occurred during the early and middle parts of the 20th century, the trend has continued. Figure 8 illustrates how rural areas, especially in the Midwest and Great Plains states, lost population between 1980 and 2007. This migration left areas of the country less densely populated than they were 30 years ago when the EAS program was initiated. To the extent that the provision of unsubsidized commercial air service is a function of the size of the local market, information on the shifting settlement patterns might be a useful input into a re-examination of a transportation access program.

Figure 8: Changes in Distribution of Population, 1980 to 2007



Source: GAO's analysis of Census data.

Along with demographic shifts, the airline industry has changed since deregulation. Airlines have continually restructured their route networks, fleet mix, and pricing structures. New airlines with varied business plans have entered the industry, some airlines have exited the industry (sometimes through bankruptcy), airlines have formed alliances, and the manner in which airlines meet in the marketplace and compete has been dynamic. One of the most significant elements of the industry's development has been the entry and growth of low-cost carriers over the past decade. These carriers developed different route networks than the so-called "legacy" carriers, used different pricing structures, and generally charged lower fares. Evidence suggests that, to obtain lower fares, passengers are often willing to drive to a distant airport where a low-cost

carrier offers service. This availability may thus have created new travel options for residents of remote communities.

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### Characterization of Community Access to Transportation Could Be Based on Demographic and Geographic Information

As noted above, our goal was to evaluate current community access to air and other transportation modes. Here, we define access as the point at which the traveler begins her journey on an airplane, on an interstate highway, or on an intercity passenger train. Because travelers from any given community could be going anywhere in the world, we do not assess access relative to reaching any particular destination. That could be done, say with respect to travel to a major medical facility, and could be appropriate depending on how the transportation needs of a community are framed. Our intent here is to show, in the most general way, how geospatial analysis is a useful analytical tool for analyzing EAS or any other program that aims to provide access to the national transportation network.

To allow comparison of communities' access to transportation modes, we made a number of informed but ultimately arbitrary assumptions about what size communities to include and how to define access to commercial air service in terms of distance to an air embarkation point. An advantage of geospatial analysis is that these thresholds may be easily varied to determine the sensitivity of the results to different assumptions. The analysis we describe illustrates the potential for this approach to understanding access.

Specifically, because we know that settlement patterns have shifted since the inception of the EAS program, we examine communities in a contemporary setting. In particular, we considered all urbanized areas—based on the most recent Census information—in the lower 48 states; there are 3,569 urbanized areas. At deregulation in 1978, Congress was specific about which communities would be eligible for subsidies to ensure continuation of scheduled air service—the communities were those that had or were eligible for scheduled air service under the Civil Aeronautics Board's regulatory regime when the industry was deregulated and airlines were given the ability to choose what routes they would fly. In today's setting, the underlying concept of which communities should be ensured service might translate as a concern about the vulnerability of communities to loss of commercial air service or an inability of communities to attract commercial air service.

So, for our analysis, we asked "Which communities are most likely to encounter difficulty attracting, retaining, or expanding air service?" We did

not consider those with fewer than 10,000 people based on the assumption that it would not be feasible, in terms of the federal budget or airline operating capacity, to extend service to many relatively small places. The remaining 1,284 communities, those with populations between 10,000 and less than 500,000, include 36 percent of all urbanized areas and account for about 25 percent of the U.S. population.

Within this group of 1,284 communities, there are those that can be considered relatively close to an airport of considerable size, defined as a medium or large hub. While the EAS program uses a 70-mile criterion for that element of eligibility, we ran an analysis using 90 highway miles. This increase in distance was motivated by the general improvement of automobiles over the past 30 years. With this threshold in place the number of urbanized areas in our base-case analysis dropped to 727.

Across the 727 communities in the group of interest (with population between 10,000 and less than 500,000 and more than 90 miles from a medium or large hub), there is variation in access to scheduled commercial air service. Some of these communities may be close to small air hubs or have some less frequent commercial service. Others may not have an airfield at all. However, because communities in this set are all distant from the busiest air hubs, their access to air transport is vulnerable to reductions or elimination of nearby commercial service or is precluded by their inability to retain or to attract service at all. Relative to other communities, then, their access to medium- and large-hub airports may be compromised by their remoteness.

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### Community Access to Transportation Modes Can be Expressed by Means of an Index of Relative Access

While the community group of interest has been defined with respect to access to air service, we want to describe the range of travel options available to travelers. So, we consider community access to the interstate highway system and to passenger rail service as well as airline travel. As with air service, access is defined in terms of the driving distance, distance to an on-ramp for interstate access and, for passenger rail, distance to an Amtrak passenger station or to a bus link to a passenger station. Interstate access may mean travel by car or by bus, but that distinction is not made in our analysis because we did not have ready access to bus schedules for the 727 communities. In addition, we did not make any distinctions regarding level of service, including time of day or frequency. For example, if Amtrak stops at a community at 3:00 am, this clearly impacts access, but we did not consider that limitation. Similarly, service at some medium hubs may not be considered very extensive in terms of the number of places one can travel to on a nonstop flight.

Geospatial analysis allows us to compute distances to access points for each community, and we can use those distances to measure and compare communities' access to one or multiple modes. We constructed a set of simple indices that allow characterization of each community's access to air, rail, and/or train service relative to the other communities. In our analysis, the denominator is the average distance to the transportation mode for the 727 communities.

- For the highway index, the index value would be:

$$\frac{\text{the distance for community } i \text{ to an interstate highway}}{\text{average distance across communities to an interstate highway}} \times 100$$

- For the passenger rail index, the index value would be:

$$\frac{\text{the distance for community } i \text{ to an Amtrak station}}{\text{average distance across communities to an Amtrak station}} \times 100$$

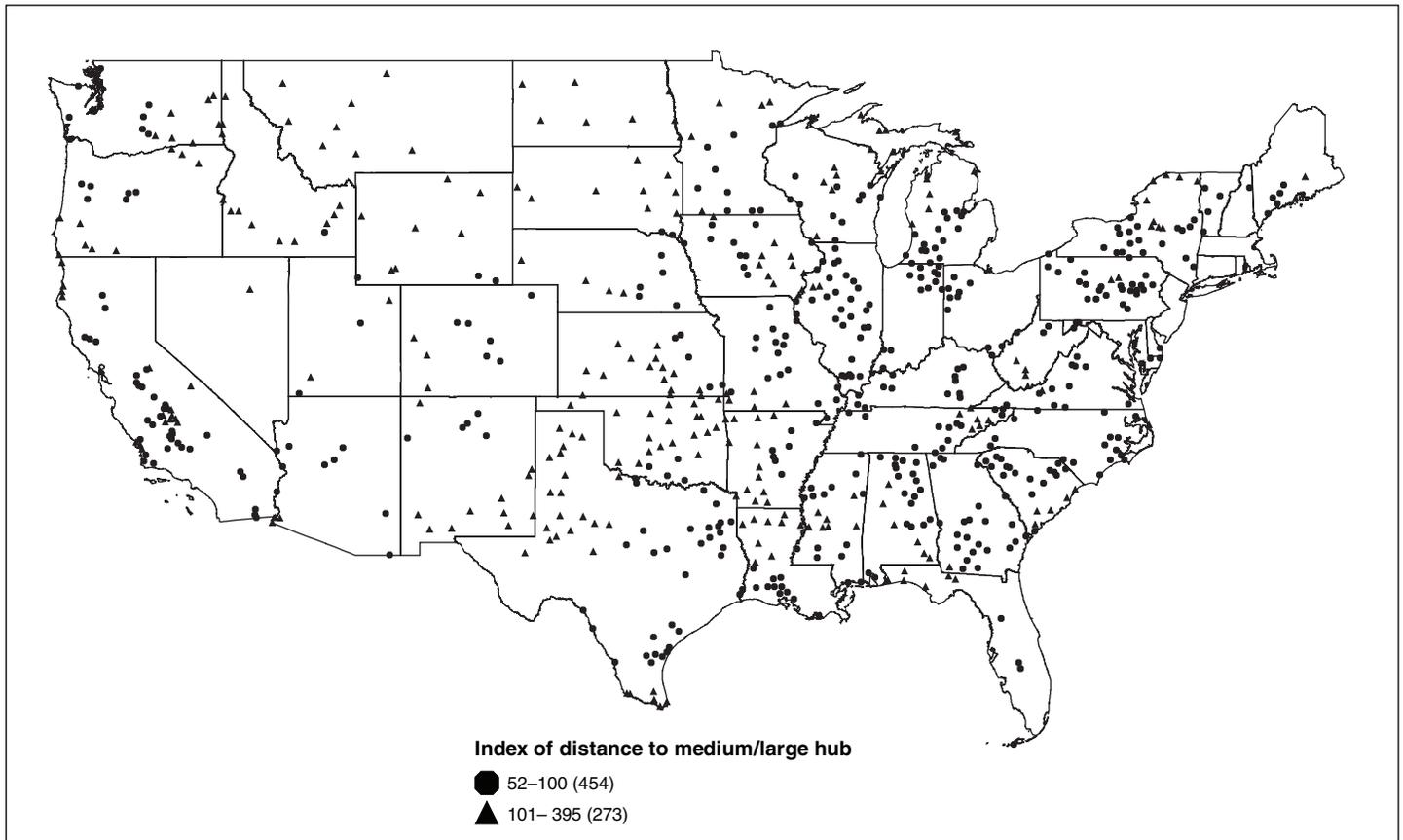
- For the aviation index, the index value would be:

$$\frac{\text{the distance for community } i \text{ to a medium or large hub airport}}{\text{average distance across communities to a medium or large hub airport}} \times 100$$

If a community has an index value of 100 for its access to air transportation, it means that its distance from a medium- or large-hub airport, among the communities evaluated, is average. A higher index value signifies a more remote community than average, and a lower index value signifies a community is nearer to that mode than average. Figure 9 shows the 727 communities' access to medium- or large-hub airports as measured by this index. Communities denoted with triangles are further from a medium- or large-hub airport than is average for the set of communities, and communities denoted with circles are closer to such an airport than is average for the set of communities. We found that the average distance from a medium- or large-hub airport was 173 miles. Of these 727 communities, 454 were within 173 miles and 273 were farther than 173 miles, some as much as 682 miles away. As can be seen, communities that are more remote than the average of 170 miles from air transportation are found mainly in the Intermountain West, the Plain states, the Mississippi Delta, and in Appalachia. Comparing this result with the map documenting shifts in population shows that these areas are also

the ones that generally experienced population declines between 1980 and 2007.

Figure 9: Access to Transportation: Air Transport Only



Source: GAO's analysis of DOT data.

Figures 10 and 11 show the same communities' relative access to highways and passenger rail, as represented by index values.

Figure 10: Access to Transportation: Major Highway Access

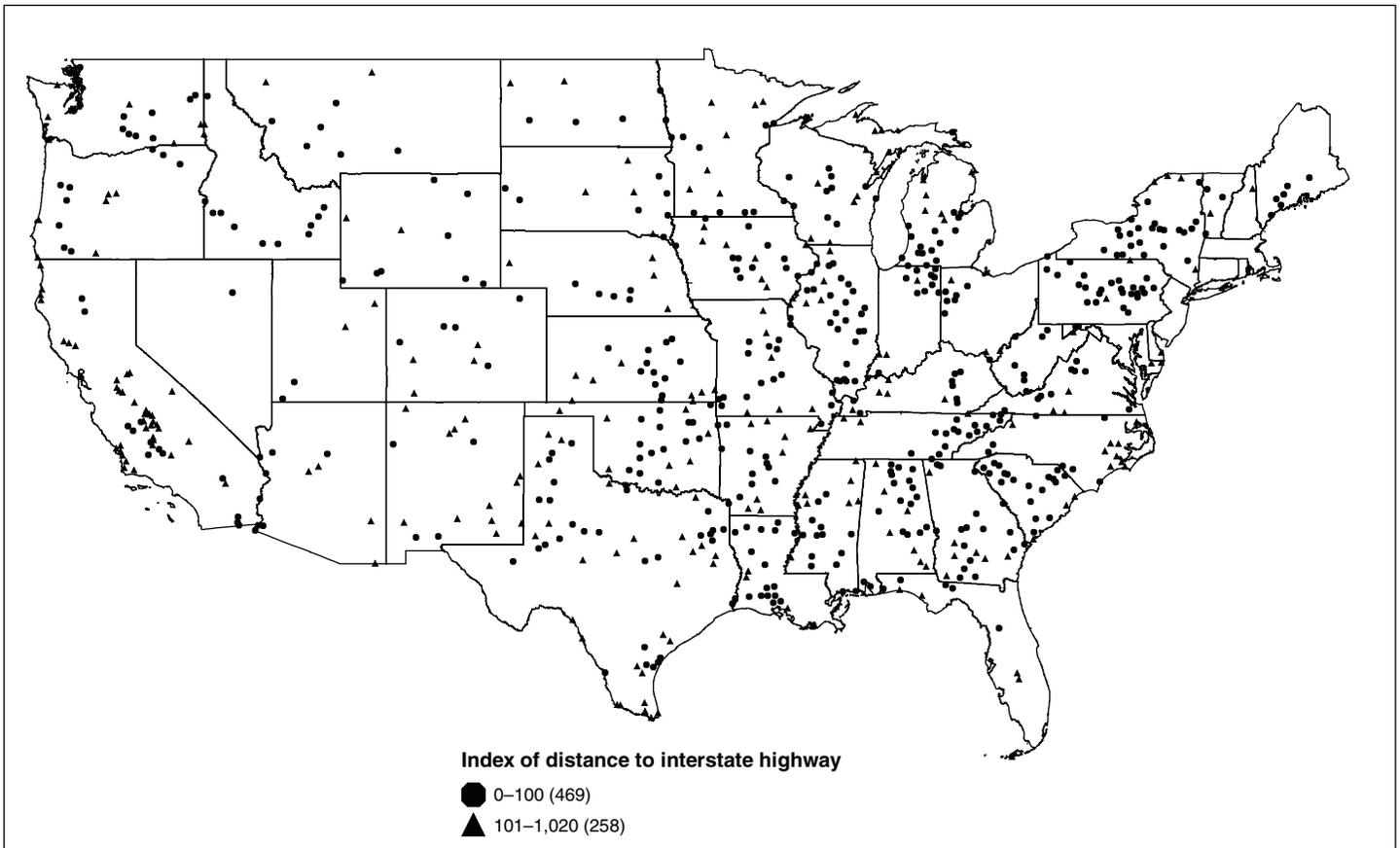


Figure 11: Access to Transportation: Passenger Rail



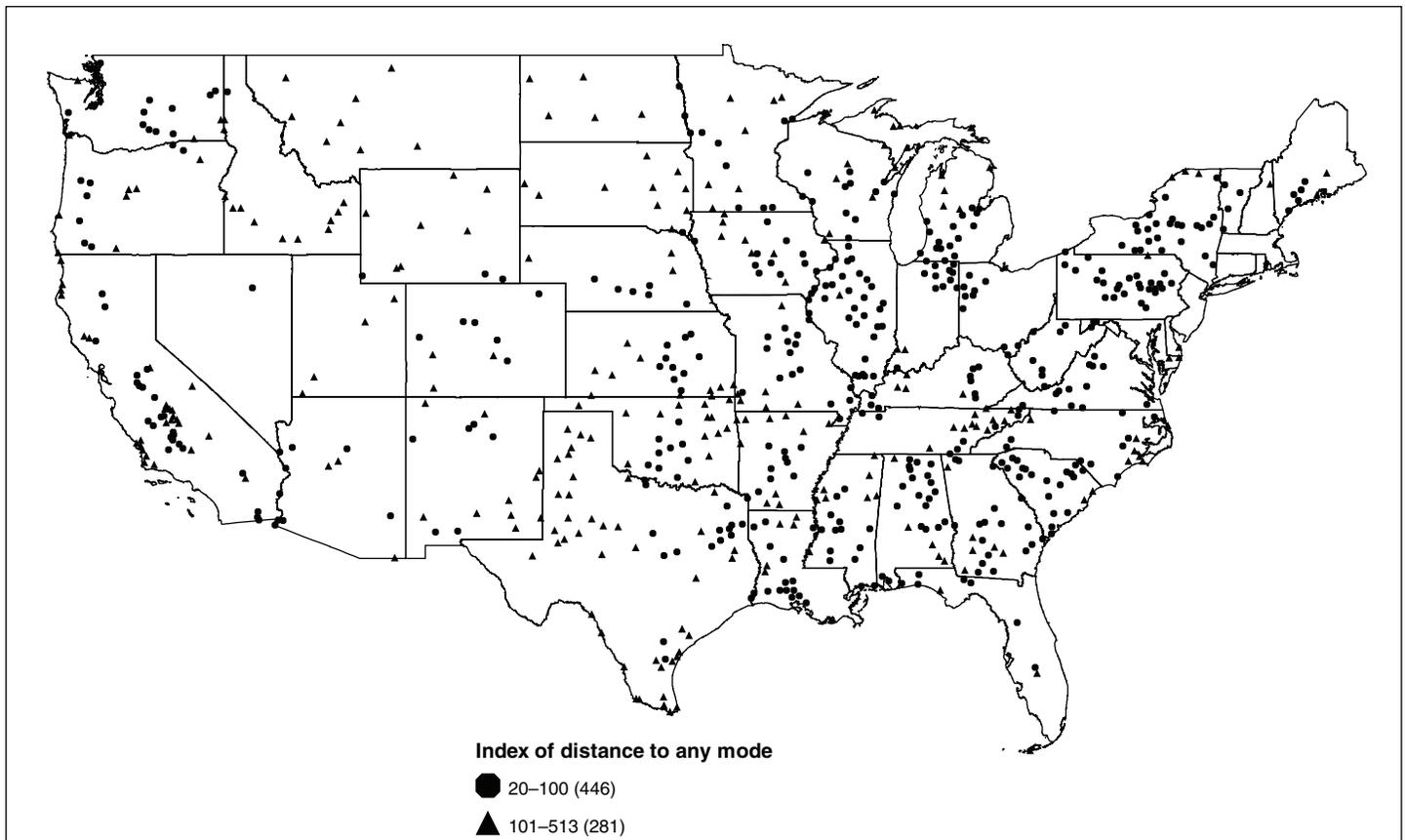
Source: GAO's analysis of DOT data.

Considering access to the interstate highway system (figure 10), for these 727 communities, the average distance to an on-ramp is 33 miles. Sixty-five percent are within 33 miles (circles), with the other 35 percent (triangles) more than 33 miles away, and some as many as 335 miles away. Again, those farthest away from the interstates, in the Plains especially, are also areas that have experienced population loss. For access to passenger rail (figure 11), the patterns are similar to those for access to the interstate.

To obtain a perspective on communities that are the most remote, for figure 12 the index is calculated to characterize access across modes. Equal weight is given to access across modes, but it is clearly possible to apply different weights to the separate modes' index values, reflecting greater emphasis on access to one mode (say, air) versus another. Here

again, 60 percent of the 727 communities have better-than-average access to the transportation network (via any mode), while 40 percent are relatively remote. The fact that some communities' index values are very large demonstrates the heterogeneity in access across the 727, suggesting very different degrees of remoteness even among communities that are distant from medium- or large-hub airports. Because both distance and population density matter in the provision of transportation services, this heterogeneity will figure importantly in weighing the costs and benefits of supporting or subsidizing access to the transportation network.

Figure 12: Access to Transportation: All modes, Weighted Equally



Source: GAO's analysis of DOT data.

Our analysis identified 727 communities within a range of population of 10,000 to less than 500,000 that are alike in that they do not have ready access to the nation's busiest medium- and large-air hubs. We then

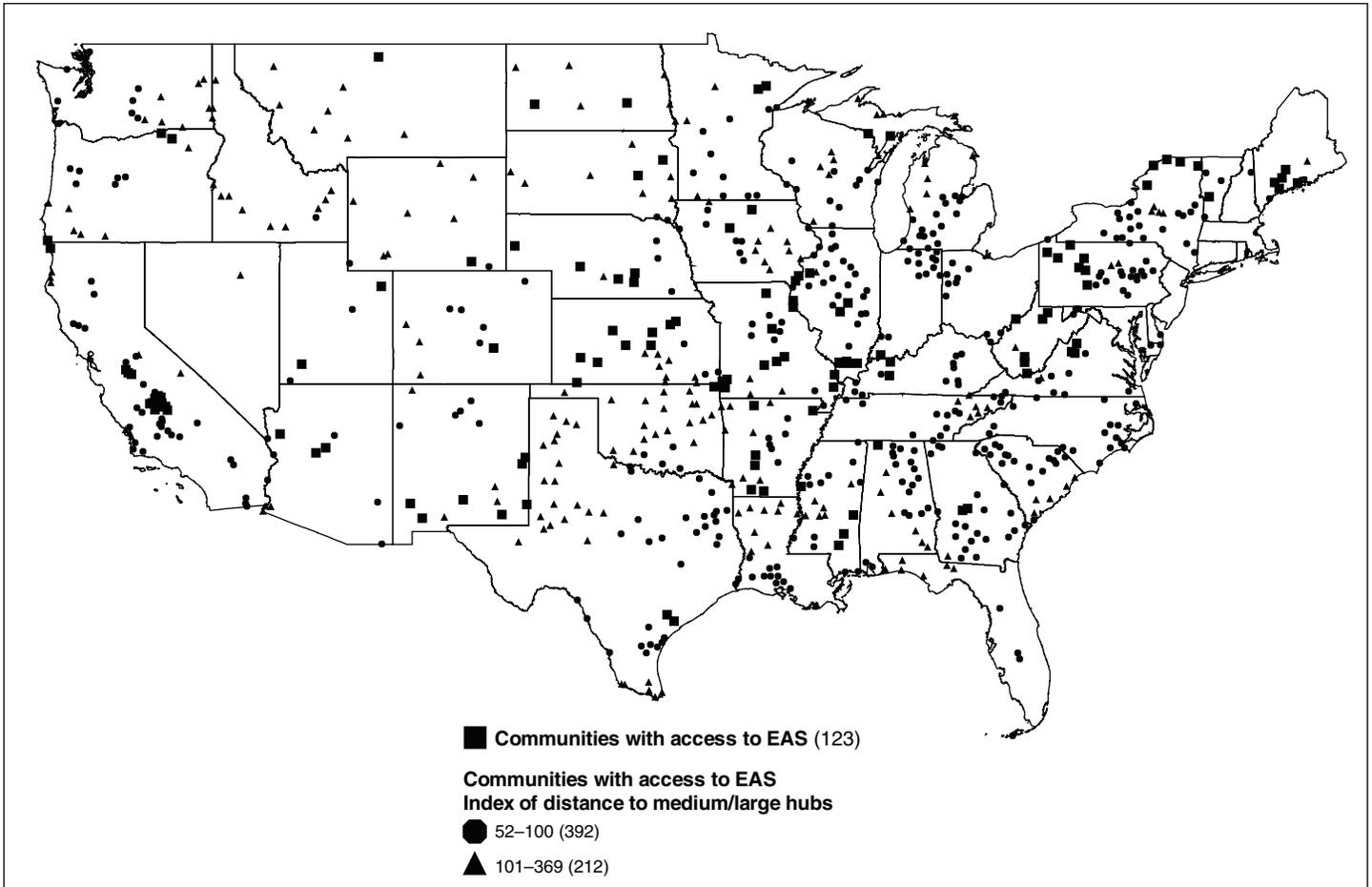
calculated index values that allowed us to characterize the extent of remoteness from interstate highways and passenger rail stops. Different criteria will produce different groupings of communities in terms of how connected they are to the national transportation system. Supplementing the information provided by the index values with knowledge about actual levels of air service (at small hubs or airfields) and about bus and rail service would provide a frame for considering transportation policy goals.

One way this analysis can be useful in considering the EAS program specifically is to ask which of these 727 currently are served by EAS (defined as being located within 40 miles of an EAS airport). And, which EAS communities are not included among the 727, that is, how many EAS communities are in proximity to the nation's busiest air hubs, or have fewer than 10,000 residents? Figure 13 shows that about 17 percent (123) of these communities have EAS service.<sup>1</sup>

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<sup>1</sup>These communities are within 40 miles of an airport that has EAS service, so the number differs slightly from communities that are provided service under EAS.

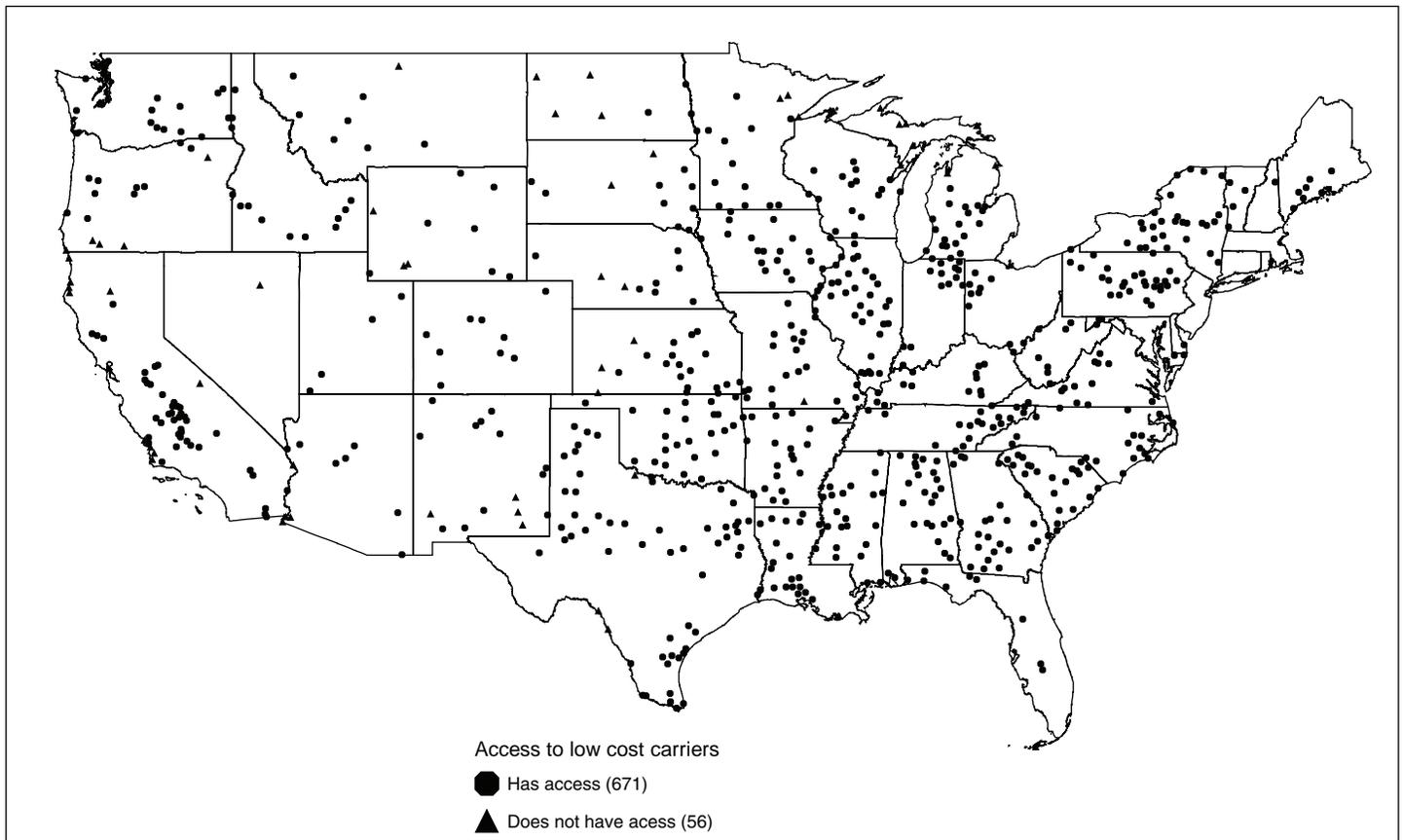
Figure 13: Access to Transportation: Current EAS Communities and Other Selected Communities' Access to Medium- and Large-Hub Airports



Source: GAO's analysis of DOT data.

Recognizing the changes in the structure of the airline industry, a community's proximity to an airport served by a low-cost carrier might be another way of characterizing access to the air transport network. In Figure 14, we identify which of the 727 communities are within 150 driving miles of such an airport. Here, we find that 92 percent have access to low-cost carrier at airports outside their communities.

Figure 14: Access to Transportation: Communities with Access to Airports Served by Low-Cost Carriers



Source: GAO's analysis of DOT data.

With respect to the EAS program as it exists today, our analysis suggests that there is heterogeneity across those communities that currently have EAS service in terms of size and distance to the nation's busiest airports or airports served by low-cost carriers. And, it suggests that there are other communities whose relatively limited access to the air transport network might warrant consideration of alternatives for connection to the nation's transportation network, whether air or road or rail.

This type of analysis does not and cannot answer the policy question about what kind of access to a transportation network a remote community ought to have. Rather, it serves as a point of departure for tackling that question by characterizing the nature of access as it exists today. Geospatial findings can be supplemented by information on other

costs of travel (besides time) and also their benefits to evaluate tradeoffs of different levels of access. Here, access is measured in terms of driving distance to a point of entry for a mode, which is a proxy for a traveler's time. That time could be valued, and other costs, such as air or train or bus fares to different destinations as well as gasoline prices could be calculated and compared. Beyond the perspective of the individual traveler, public and/or private sector costs of provision of service could be taken into account, as can preferences for the frequency and quality of transport services. However, because location figures as a key factor in both costs and benefits of travel, geospatial analysis provides a useful frame for policy and program analysis.

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# Appendix V: GAO Contact and Staff Acknowledgments

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## GAO Contact

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## Staff Acknowledgments

In addition to the person named above, Cathy Colwell, Assistant Director; Amy Abramowitz; Richard Brown; Colin Fallon; David Hooper; Don Kittler; Hannah Laufe; John Mingus; Susan Offutt; and Bonnie Pignatiello Leer made key contributions to this report.

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