NEXT GENERATION AIR TRANSPORTATION SYSTEM FINANCING OPTIONS

(109–100)

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION

OF THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED NINTH CONGRESS

SECOND SESSION

SEPTEMBER 27, 2006

Printed for the use of the
Committee on Transportation and Infrastructure

U.S. GOVERNMENT PRINTING OFFICE

30–670 PDF WASHINGTON : 2007

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2250 Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

DON YOUNG, Alaska, *Chairman*

THOMAS E. PETRI, Wisconsin, *Vice-Chair*
SHERWOOD L. BOEHLERT, New York
HOWARD COBLE, North Carolina
JOHN J. DUNCAN, JR., Tennessee
WAYNE T. GILCHREST, Maryland
JOHN L. MICA, Florida
PETER HOEKSTRA, Michigan
VERNON J. EHLERS, Michigan
SPENCER BACHUS, Alabama
STEVEN C. LATOURETTE, Ohio
SUE W. KELLY, New York
RICHARD H. BAKER, Louisiana
ROBERT W. NEY, Ohio
FRANK A. LOBIONDO, New Jersey
JERRY MORAN, Kansas
GARY G. MILLER, California
ROBIN HAYES, North Carolina
ROB SIMMONS, Connecticut
HENRY E. BROWN, JR., South Carolina
TIMOTHY V. JOHNSON, Illinois
TODD RUSSELL PLATTS, Pennsylvania
SAM GRAVES, Missouri
MARK R. KENNEDY, Minnesota
BILL SHUSTER, Pennsylvania
JOHN BOOZMAN, Arkansas
JIM GERLACH, Pennsylvania
MARIO DIAZ-BALART, Florida
JON C. PORTER, Nevada
TOM OSBORNE, Nebraska
KENNY MARCHANT, Texas
MICHAEL E. SODREL, Indiana
CHARLES W. DENT, Pennsylvania
TED POE, Texas
DAVID G. REICHERT, Washington
CONNIE MACK, Florida
JOHN R. 'RANDY' KUHL, JR., New York
LUIS G. FORTUÑO, Puerto Rico
LYNN A. WESTMORELAND, Georgia
CHARLES W. BOUSTANY, JR., Louisiana
JEAN SCHMIDT, Ohio

JAMES L. OBERSTAR, Minnesota
NICK J. RAHALL, II, West Virginia
PETER A. DEFAZIO, Oregon
JERRY F. COSTELLO, Illinois
ELEANOR HOLMES NORTON, District of Columbia
JERROLD NADLER, New York
CORRINE BROWN, Florida
BOB FILNER, California
EDDIE BERNICE JOHNSON, Texas
GENE TAYLOR, Mississippi
JUANITA MILLENDER-MCDONALD, California
ELIJAH E. CUMMINGS, Maryland
EARL BLUMENAUER, Oregon
ELLEN O. TAUSCHER, California
BILL PASCRELL, JR., New Jersey
LEONARD L. BOSWELL, Iowa
TIM HOLDEN, Pennsylvania
BRIAN BAIRD, Washington
SHELLEY BERKLEY, Nevada
JIM MATHESON, Utah
MICHAEL M. HONDA, California
RICK LARSEN, Washington
MICHAEL E. CAPUANO, Massachusetts
ANTHONY D. WEINER, New York
JULIA CARSON, Indiana
TIMOTHY H. BISHOP, New York
MICHAEL H. MICHAUD, Maine
LINCOLN DAVIS, Tennessee
BEN CHANDLER, Kentucky
BRIAN HIGGINS, New York
RUSS CARNAHAN, Missouri
ALLYSON Y. SCHWARTZ, Pennsylvania
JOHN T. SALAZAR, Colorado
JOHN BARROW, Georgia

SUBCOMMITTEE ON AVIATION

JOHN L. MICA, Florida, *Chairman*

THOMAS E. PETRI, Wisconsin
HOWARD COBLE, North Carolina
JOHN J. DUNCAN, JR., Tennessee
VERNON J. EHLERS, Michigan
SPENCER BACHUS, Alabama
SUE W. KELLY, New York
RICHARD H. BAKER, Louisiana
ROBERT W. NEY, Ohio
FRANK A. LOBIONDO, New Jersey
JERRY MORAN, Kansas
ROBIN HAYES, North Carolina
HENRY E. BROWN, JR., South Carolina
TIMOTHY V. JOHNSON, Illinois
SAM GRAVES, Missouri
MARK R. KENNEDY, Minnesota
JOHN BOOZMAN, Arkansas
JIM GERLACH, Pennsylvania
MARIO DIAZ-BALART, Florida
JON C. PORTER, Nevada
KENNY MARCHANT, Texas
CHARLES W. DENT, Pennsylvania
TED POE, Texas
JOHN R. 'RANDY' KUHL, JR., New York, Vice-Chair
LYNN A. WESTMORELAND, Georgia
DON YOUNG, Alaska
(Ex Officio)

JERRY F. COSTELLO, Illinois
LEONARD L. BOSWELL, Iowa
PETER A. DEFAZIO, Oregon
ELEANOR HOLMES NORTON, District of Columbia
CORRINE BROWN, Florida
EDDIE BERNICE JOHNSON, Texas
JUANITA MILLENDER-MCDONALD, California
ELLEN O. TAUSCHER, California
BILL PASCRELL, JR., New Jersey
TIM HOLDEN, Pennsylvania
SHELLEY BERKLEY, Nevada
JIM MATHESON, Utah
MICHAEL M. HONDA, California
RICK LARSEN, Washington
MICHAEL E. CAPUANO, Massachusetts
ANTHONY D. WEINER, New York
BEN CHANDLER, Kentucky
RUSS CARNAHAN, Missouri
JOHN T. SALAZAR, Colorado
NICK J. RAHALL II, West Virginia
BOB FILNER, California
JAMES L. OBERSTAR, Minnesota
(Ex Officio)

CONTENTS

TESTIMONY

	Page
Dillingham, Gerald, Director, Physical Infrastructure Issues, U.S. Government Accountability Office, accompanied by Susan Irving, Director, Federal Budget Issues, U.S. Government Accountability Office	6
Hansman, R. John, Jr., Director, MIT International Center for Air Transportation, Massachusetts Institute of Technology, and Chairman, FAA'S Research and Development Advisory Committee (REDAC)	6
Jewett, Ellen, Vice President and Manager, Transportation Group, Infrastructure Investment Banking, Goldman, Sachs & Co.	6
Marron, Donald B., Acting Director, Congressional Budget Office	6

PREPARED STATEMENTS SUBMITTED BY MEMBERS OF CONGRESS

Carnahan, Hon. Russ, of Missouri	28
Costello, Hon. Jerry F., of Illinois	29
Oberstar, Hon. James L., of Minnesota	88

PREPARED STATEMENTS SUBMITTED BY WITNESSES

Dillingham, Gerald	32
Hansman, R. John, Jr	62
Irving, Susan	32
Jewett, Ellen	70
Marron, Donald B	73

SUBMISSIONS FOR THE RECORD

Dillingham, Gerald, Director, Physical Infrastructure Issues, U.S. Government Accountability Office, reponses to questions from Rep. Costello	51
Hansman, R. John, Jr., Director, MIT International Center for Air Transportation, Massachusetts Institute of Technology, and Chairman, FAA's Research and Development Advisory Committee (REDAC), response to a question from Rep. Costello	69
Irving, Susan, Director, Federal Budget Issues, U.S. Government Accountability Office, responses to questions from Rep. Costello	56
Marron, Donald B., Acting Director, Congressional Budget Office, responses to questions from Rep. Costello	85

NEXT GENERATION AIR TRANSPORTATION SYSTEM FINANCING OPTIONS

Wednesday, September 27, 2006,

HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION ANDINFRASTRUCTURE,SUBCOMMITTEE ON AVIATION,WASHINGTON, D.C.

The subcommittee met, pursuant to call, at 2:00 p.m., in room 2167, Rayburn House Office Building, the Honorable John L. Mica [Chairman of the subcommittee] presiding.

Mr. MICA. I would like to call this hearing of the House Aviation Subcommittee to order and welcome everyone today.

The subject of today's hearing is the Next Generation Air Transportation System Financing Options.

The order of business will be as follows: we will have opening statements by members and, after that, we have one panel of witnesses, and I understand one of our witnesses is not able to be with us because he is ill, and that is Gerald L. Thompson of Jerry Thompson & Associates. So that is the only change in the order of business.

With that, welcome, everyone, again, and I will start with an opening statement, and then I will yield to other members.

As I said, today's hearing is going to focus on our options for financing our Federal Aviation Administration and, more specifically, the next Generation Air Transportation System, which is commonly referred to as NGATS. This topic, of course, will be the major issue in next year's reauthorization of our Federal aviation programs.

As discussed at the Subcommittee's hearing on air traffic control modernization in June, NGATS involves a major redesign of our air transportation system. It will move much of the existing air traffic control infrastructure from earth to sky by replacing antiquated, costly ground infrastructure with a system of orbiting satellites, onboard automation, and digital data link communications.

While we do not yet have an official cost estimate for NGATS, preliminary information indicates that FAA may need, on average, an additional $1 billion a year, probably for the next 20 years, to implement NGATS, and, at the same time, keep our existing air traffic control system running.

One issue that I hope to address today is whether or not the Aviation Trust Fund can in fact afford to provide this increased level of investment.

And that is in light of the Trust Fund revenues being down significantly from the levels that were projected prior to the terrorist attacks of September 11th, 2001. The 9/11 attacks, combined with weak economic condition and also the element of, on average, lower

airfares, have resulted in three consecutive years of declining Trust Fund revenues. They have gone from $10.5 billion in fiscal year 2000 to $9.3 billion in just the time to 2003.

Although revenues have since been on an upward trend, they are still below what was once expected, and the uncommitted cash balance in the Trust Fund has been dramatically reduced, from $7.3 billion at the end of fiscal year 2001 to $1.9 billion at the end of 2005.

Even if the Aviation Trust Fund revenues are sufficient to pay for NGATS, achieving a $1 billion annual increase in FAA's budget would still be difficult under our current set of budget rules.

This is because the aviation user charges are currently subject to a split budget treatment whereby the revenues from aviation system users come in on the mandatory side of the budget, but they must be spent, unfortunately, on the discretionary side of the budget, where they are also subject to some of the discretionary spending limits. Therefore, under current budget rules, spending from the Trust Fund must compete with all other discretionary spending in the Federal budget. That makes it very difficult to achieve the substantial budget increases that we are going to need for a huge program like NGATS.

Rather than focusing solely on the cost of implementing NGATS, it is also important to recognize the cost of not doing so. According to the JPDO, the Joint Planning Development Office, by the year 2020, the cost to our economy of not implementing NGATS could reach as much as $40 billion a year.

In addition to this enormous economic loss, a failure to implement NGATS would also have a huge price tag in terms of foregone productivity savings. According to some estimates, a failure to implement NGATS would result in FAA operating losses that are $29 billion to $49 billion higher over the period from 2006 to 2025.

Viewed in these terms, the cost of not implementing NGATS clearly far exceeds the cost of implementing NGATS by possibly more than $400 billion through 2025, a pretty dramatic amount.

Unfortunately, in today's constrained budget environment, the immediate need to finance everyday operations often takes precedent over longer term capital investments.

We have the same problem if you look at inline explosive detection systems. Despite the fact that these systems more than pay for themselves in productivity savings in just a few years, we have been unable to adopt a common sense solution that would provide up-front capital investment that is required to deploy these systems in a timely manner, realize the savings by eliminating personnel and antiquated systems. So this is sometimes a penny wise and pound foolish approach.

In the face of budget constraints, Federal agencies have used a variety of methods to finance big capital asset projects. Two such methods that have been mentioned in the context of NGATS are leasing and also bonding. In addition, cost-based user fees that could be spent outside the discretionary spending limits have also been discussed.

In preparation for next year's FAA reauthorization bill, when our current aviation excise taxes must either be extended or replaced, the FAA has called for a dialog on alternative ways to finance the

aviation system in the future. And that dialog, as you know, has gone on for some months now, and at some point we are going to have to conclude that and take some action, hopefully as we begin the next session of Congress.

The FAA believes that certain industry trends, such as lower airfares and the use of smaller aircraft, will also exacerbate the mismatch between its workload and its revenues in the future.

Cost-based user fees are often mentioned as one way to link aviation revenues more closely to FAA's cost and potentially also to deal with funding. To the extent such fees can be linked to FAA's funding, they could provide a way to fund needed investments in our aviation system.

Of course, today we will hear from a panel of witnesses that I believe is uniquely qualified to help us look at some of the pros and cons of each of these approaches to financing both the FAA and NGATS, its expensive capital requirements, so I look forward to hearing the testimony of our witnesses. I have made no commitments to any plan, and now I am pleased to yield to the Ranking Member, Mr. Costello.

Mr. COSTELLO. Mr. Chairman, thank you. And I thank you for calling this hearing today. I think all of us understand that the information that we are reviewing is very preliminary.

While we have some idea of what capabilities will likely comprise the Next Generation Air Transportation System, such as precision satellite-based navigation, we do not yet have an enterprise architecture that fully explains the Next Generation System. And while we have an unofficial Administration NGATS capital cost estimate of approximately $15 billion, between $1 billion and $2 billion a year for the next 10 to 15 years, we do not have an Administration witness here today to explain how they arrived at their cost estimates.

As the Subcommittee prepares to take up the FAA reauthorization bill, we will need to find out whether or not the Aviation Trust Fund can support the Next Generation System. The information before us today suggests that it can. For fiscal year 2006, CBO estimates that receipts plus interest into the Trust Fund will total about $11.2 billion. The CBO also projects that the Trust Fund revenue will increase almost 32 percent, to $14.8 billion in 2011, and over 71 percent, to $19.2 billion in 2016.

Based on these projections, it appears that the preliminary $15 billion capital cost estimate for NGATS could be absorbed by the existing FAA financing structure, with a General Fund contribution that is consistent with, or even smaller than, recent General Fund contributions.

This new information raises questions about the Administration's claims that there is a revenue crisis at the FAA. The Administrator, Administrator Blakey, has said that there is a gap between revenue going into the Trust Fund and FAA's cost, and that this so-called gap caused a $5.4 billion decline in the Trust Fund's uncommitted balance since fiscal year 2002. I disagree.

First, what the Administrator calls a gap between Trust Fund revenues and FAA cost is actually the General Fund contribution. Historically, the General Fund contribution has been relatively low in recent years. Over the past 20 years, the General Fund contribu-

tion has averaged 27 percent of FAA's total budget. However, over the past 10 years, it has averaged only 20 percent.

The American people clearly receive a tremendous benefit from a safe and efficient air transportation system. Therefore, any discussion of financing the Next Generation system must include a contribution from the General Fund.

Second, the shrinking uncommitted balance is not the result of inadequate revenue, but inadequate revenue forecasting by the FAA. Under the current statutory formula, the amount drawn from the Trust Fund must equal FAA's forecasted receipts and interest into the Trust Fund for that year. For the last few years, FAA's forecasts have been overly optimistic and the discrepancy between what is drawn from the Trust Fund's uncommitted balance. Congress could fix this problem by changing the formula to link the amount appropriated from the Trust Fund to actual, rather than forecasted, revenue. The GAO has suggested this approach, and I look forward to hearing from the GAO witness on this issue.

That said, I believe Congress should also review the FAA's tax and financing structure in the FAA's upcoming reauthorization bill. However, I have serious reservations with imposing a direct user fee. If we accept that the policy goal of the Congress should be to better align FAA's revenue with user activity, there are ways that this can be accomplished within the existing tax structure. By working within the existing tax structure, we will avoid the costly administrative burdens of implementing a user fee based system. Some have suggested that Congress should consider alternative financing mechanisms such as leasing or bonding. I agree that all options should be examined and be on the table.

With that, Mr. Chairman, I will submit my full statement for the record, and I look forward to hearing from our witnesses today.

Mr. MICA. Without objection, the entire statement of the Ranking Member will be made part of the record.

Next we will hear from Mr. Coble.

Mr. COBLE. Mr. Chairman, I will not take the full five minutes.

You indicated financing options is the order of the day. Every issue discussed—well, strike that. Practically every issue discussed on this Hill, sooner or later, involves financing options, today being no exception. And I appreciate the interest that you and the distinguished gentleman from Illinois have directed to the issue of Next General Air Transportation System's financing, and I share that interest, and I appreciate your all having called the hearing.

I have two other meetings, Mr. Chairman, so I may be circuitously coming and going, but I think it will be a good hearing, and I thank you for it.

Mr. MICA. I thank the gentleman, and thank you for the brevity of your statement. In fact, high above the future NGAT System, somewhere in the heavens there will be a special place for you.

Mr. COBLE. I thank you for that.

Mr. MICA. Thank you.

Ms. Berkley.

Ms. BERKLEY. Thank you, Mr. Mica.

Mr. Chairman, Ranking Member Costello, I thank you for holding this hearing on what I consider a very important topic. The FAA's plan for the Next General Air Transportation System is very

ambitious. I am anxious to hear both how we could pay for it and how it would be integrated into our current system.

The district that I represent is uniquely dependent on a safe and efficient air transportation system. McCarran International Airport in Las Vegas handled almost 44 million passengers last year, and I have no doubt that we will exceed that number in 2006. I am concerned about the ability of the FAA to handle the current volume of air traffic, which continues to increase yearly.

I look forward to hearing the views of our witnesses about whether the FAA's plan to keep up with growth in the system is affordable and feasible, and I am anxious to hear your funding suggestions. And I thank you very much for being here.

Thank you very much, Mr. Chairman.

Mr. MICA. I thank the gentlelady also for her brevity.

Mr. LoBiondo.

Mr. LOBIONDO. Thank you, Mr. Chairman, for calling the hearing. I think we can all agree it is critical for us to get started developing and testing and fielding the NGAT System as soon as possible. The system will improve safety and reduce operating costs for the FAA and industry. But, as you pointed out, it is extremely expensive and it will be very difficult and put a strain on our current system with an already overextended Trust Fund. I hope we can find a creative way to reauthorize the Trust Fund that will ensure sufficient resources to keep the current system running while we develop and deploy NGATS.

And I am looking forward to hearing what our witnesses have to say.

And thank you again, Mr. Chairman.

Mr. MICA. Thank the gentleman.

Mr. DeFazio?

Mr. DEFAZIO. Thank you, Mr. Chairman.

Mr. Chairman, if we look over time, we find that basically the General Fund contribution, that is, the support to aviation, the issue before us, has gone from about 48 percent down to 18 in 2006. I guess, one question I hope the panel would address is, what is an appropriate level for general public investment versus whatever new ideas or iteration of user fees or targeted taxes you are going to propose.

Because I think there are some strong arguments to be made regarding the national interest here on the national airspace, the efficiency of the Air Transportation System and the safety in this Country, and particularly some new issues in that area post–9/11. So I would question whether 18 percent is adequate. And, of course, that somewhat sets the stage for what other and how many other revenues we are looking for, given the needs.

Thank you, Mr. Chairman.

Mr. MICA. I thank the gentleman.

Mr. Graves?

Mr. GRAVES. Thank you, Mr. Chairman. I too will be brief.

I do look forward to this hearing, and all the hearings we are going to have, obviously, when it comes to reauthorization, and how we are going to fund the Next Generation System and modernization in general. I know there are still a lot of different options out there, but I do think we ought to proceed with some caution and

figure out what it is we are going to do before we figure out how to fund it. I think it is a little bit at least getting the cart ahead of the horse, when we don't know exactly how much money it is that we are going to need, or exactly what it is that we are going to use it on.

I think we just need to be careful as we move forward, and I look forward to hearing what the panelists have to say. Thank you.

Mr. MICA. Thank you.

Mr. Kuhl? Any other members with opening statements or remarks?

[No response.]

Mr. MICA. If there are no other members with opening statements, we will turn to our panel of witnesses and welcome back Dr. Gerald Dillingham, Director of Civil Aviation Issues with the U.S. Government Accountability Office. He is accompanied by Dr. Susan Irving, Director of Federal Budget Issues of the same office.

We have also Dr. Donald Marron, Acting Director of the Congressional Budget Office; Professor John Hansman, Director of MIT International Center for Air Transportation and Co-Chairman of FAA's Research, Engineering & Development Advisory Committee; and then Ms. Ellen Jewett, Vice President and Manager of the Transportation Group of Infrastructure Investment Banking with Goldman, Sachs.

I would like to welcome all of our witnesses. If you have any additional information other than your statement, or lengthy information that you would like added to the record, just a request of the Chair would be appropriate.

So, with that, we will welcome back Dr. Dillingham with GAO. Welcome, and you are recognized, sir.

TESTIMONY OF GERALD DILLINGHAM, DIRECTOR, CIVIL AVIATION ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE; ACCOMPANIED BY SUSAN IRVING, DIRECTOR, FEDERAL BUDGET ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE; DONALD B. MARRON, ACTING DIRECTOR, CONGRESSIONAL BUDGET OFFICE; R. JOHN HANSMAN, JR., DIRECTOR, MIT INTERNATIONAL CENTER FOR AIR TRANSPORTATION, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, AND CHAIRMAN, FAA'S RESEARCH, ENGINEERING & DEVELOPMENT ADVISORY COMMITTEE (REDAC); ELLEN JEWETT, VICE PRESIDENT AND MANAGER, TRANSPORTATION GROUP, INFRASTRUCTURE INVESTMENT BANKING, GOLDMAN, SACHS & CO.

Mr. DILLINGHAM. Thank you, Chairman Mica, Mr. Costello, members of the Subcommittee.

As you know, GAO has been reviewing FAA's ATC modernization program for this Committee for many years. Because of its size, complexity, and the history of schedule delays and cost overruns, it has been on our high-risk list since 1995. Over the last two years we have reported considerable improvement in the modernization program's ability to acquire major systems on time and on budget. We have also seen the effects of a cyclical nature of the aviation industry on the ATC system, from the major delays experienced throughout the system through the downturns just prior to and

after 9/11. Today, we see a return of significant delays and a system under increasing stress.

Through all of this, aviation continues to be an important part of the U.S. economy. Recent aviation forecasts predict up to a billion passengers in the system by 2015. These forecasts also predict that not only will there be more traditional aircraft entering the system, there will also be hundreds of very light jets, greater civil use of unmanned aerial vehicles, and mega aircraft such as the Airbus A380.

The consensus of opinion is that the Nation's current ATC system cannot handle this predicted growth and cannot be scaled up to meet a possible tripling of traffic by 2025. As Chairman Mica stated, the JPDO has estimated that as soon as two years from now the difference the total flights that people want to fly and those that can be delivered with no new investment in the system would be worth about $12 billion to the economy. By 2020, these economic losses will increase to about $40 billion a year.

These are the kinds of predictions that contributed to the Congress establishing the JPDO to plan for the transformation of the ATC system to the Next Generation System. The NGATS transformation will be one of the Federal Government's most comprehensive and technically complex undertakings, and a preliminary estimate indicates it will also be an expensive undertaking.

Regarding the cost of NGATS, Mr. Chairman, the bottom line here is that, at present, there is no comprehensive estimate of the cost of NGATS. Instead, what we have is a limited preliminary cost estimate developed by FAA's Research, Engineering & Development Advisory Committee, an estimate that has not been endorsed by FAA and only provides a point of reference.

As the Chairman indicated in his opening remarks, the REDAC estimate suggests that FAA will need an average of at least $1 billion more annually over the next 20 years than FAA's 2006 appropriation.

Mr. Chairman, Mr. Costello, and members of the Subcommittee, this estimate must be viewed within the context of a number of limiting factors. First, JPDO has yet to complete the system's enterprise architecture, which is critical to the development of a reliable cost estimate. Second, many costs, such as the cost of early technology development, training, and the cost that other JPDO partner agencies might incur, are not included. And, finally, the estimate is in today's dollars and does not take into account the effect of inflation.

Regardless of what the final costs turn out to be, any discussion of how to pay for NGATS must also take into account the funding of near term sustainment of the current air traffic control system. These discussions should also consider the Federal Government's long-term fiscal imbalance.

My written statement discusses the details of funding the current system and the transition to NGATS through the existing system of excise taxes and the contributions of the General Fund. The statement also discusses alternative funding options to collect revenues from the users of the system and implications for allowing FAA to use debt financing for capital projects.

Regarding alternative options, our work indicates that the degree to which alternative funding options could address concerns about the existing system ultimately depends on the extent to which the contributions required from the users actually reflect the costs they impose on the system. Given the diverse nature of FAA's activities, and if Congress decides that an alternative is needed, we think that a combination of options may offer the most promise for linking revenues and costs. It is also true that switching to any alternative funding option would raise the administrative and transition issues, such as developing the administrative capacity to implement the new system.

Regarding debt financing, although some have suggested that debt financing offers some advantages, there are also some serious implications that should be recognized. For example, debt financing encumbers future resources and may raise questions about congressional oversight. In addition, debt financing raises issues regarding barring costs that are particularly important in light of the Federal Government's long-term structural physical imbalance.

Mr. Chairman, we think that all options, with their advantages and disadvantages, should be on the table for consideration. We also think that the cost side of the ledger should continue to be a major consideration in the discussion of funding ATC modernization. FAA's recent contracting out of flight service stations and its exploration of sharing the risks and costs of the development of ADSB system with the private sector are positive developments. GAO has also previously recommended that FAA needs to complete and institutionalize those business processes that allow it to meet its acquisition goals for the last two years.

Additionally, we recommended that FAA work with Congress and other stakeholders to develop and implement a comprehensive modernization and consolidation plan for its facilities. GAO continues to think that actions such as these must be part of the funding discussion in the transformation of the FAA for the 21st century.

Mr. Chairman, Dr. Irving and I will be pleased to answer any questions that you and members of the Subcommittee may have.

Mr. MICA. Thank you. We will hold questions until we have heard from all of the witnesses.

I guess Susan Irving is not making a statement, but she is available for questions.

Our next witness will be Donald Marron, Acting Director of the Congressional Budget Office.

Welcome, and you are recognized.

Mr. MARRON. Thank you, Mr. Chairman, Congressman Costello, members of the Subcommittee. It is a pleasure to be here today to discuss the financing of new investments in the air traffic control system and the way spending on such investments would be recorded in the budget.

Developing and deploying a new air traffic control system would likely require significant investments by the Federal Government or by entities acting on its behalf. The potential for such investments raises a number of important questions. First, to what extent might such spending fit within the potential resources of the airport and airway trust fund? To address that question, my writ-

ten testimony describes one scenario that reflects CBO's most recent baseline budget estimates.

Following rules that are established in budget law, those estimates assume that existing Trust Fund revenue sources are extended over the next 10 years, that appropriations for the FAA grow with inflation from the level appropriated for 2006, and that the share of funding from general revenues remains at roughly 19 percent, approximately the same level as in 2006.

Under those assumptions, CBO estimates that uncommitted balances in the Trust Fund would increase from slightly less than $2 billion at the end of 2006 to about $19 billion at the end of 2016, with most of that increase occurring after 2010. By themselves, those projections suggest that the Trust Fund may have room for an additional $19 billion in spending over the next 10 years. Of course, whether those balances actually materialize will depend on the accuracy of the revenue estimates and the levels of funding that Congress actually chooses to provide.

A second question is how investment in a new system would be recorded in the budget in the congressional budget process. Under the accounting principles that govern the Federal budget, budget authority and outlays should generally be recorded up front, when the asset is acquired and investments are made, regardless of how the new investments are financed. That is how funding for the Air Traffic Control System is currently handled; budget authority is recorded when appropriation laws are enacted and outlays are recorded when the Government makes actual cash payments. Outlays for capital goods, for example, computer systems and radar, thus occur when they are paid for, not over their useful life.

Most of the Government's capital investments are recorded in the budget in that way because that approach provides the Congress with the most direct ongoing control over spending. Of course, that approach also requires that the full cost of investment projects must compete against other budgetary priorities.

An issue sometimes arises as to whether that budgetary treatment would be different if agencies could procure capital assets using special financing approaches such as capital leases, lease purchases, or public-private partnerships in which non-Federal entities provide finance on behalf of the government. The short answer is no.

Under such arrangements, an agency might make annual payments over a period of years rather than disbursing the full cost of the investment when it is required. Nevertheless, established budgetary principles require that the full cost be recorded up front if the Federal Government is the sole or dominant user of the asset. In such cases, the arrangements are actually a form of purchase by the Government. To ensure that all such purchases are treated the same way, budgetary principles require that all be recorded in the same manner, regardless of the method of financing. The only exception is for routine operating leases, for example, for commercial office space that is not constructed specifically for the Government.

In considering alternative financing methods, it should also be noted that the least expensive form of financing is through the U.S. Treasury. Conventional Treasury securities are the goal standard

of bonds because they are free from the risk of default and are highly liquid. Other means of borrowing funds, whether by creating new types of Federal bonds or working through private entities, all involve greater costs, since investors will demand higher returns and intermediaries will require fees.

A third question is how Congress should allocate cost among taxpayers and various users of the system. From an economic perspective, it is generally desirable to require users of a system to pay for it. That way, the choices they make will take into account the cost of providing the service. Users of air traffic control services currently pay a substantial portion of the cost of providing those services, mostly through the ticket and other taxes, reflecting the fact that a large portion of the benefits of the system accrue to them.

Allocating those costs or the costs of a new system efficiently and fairly among different types of users presents challenges, however. Quantifying how individual aircraft impose cost on air traffic control system may be difficult. Also, the provision of air traffic control services may entail substantial costs that cannot readily be allocated to a particular user, but that must be incurred to provide the services at all. The resolution of those and related issues will determine how efficiently air traffic control systems and the national airspace are used.

Thank you. I look forward to any questions.

Mr. MICA. Thank you.

We will hear now from Professor John Hansman, who is Director of MIT International Center for Air Transportation.

Welcome, and you are recognized.

Mr. HANSMAN. Thank you, Chairman Mica and Mr. Costello and the rest of the members. I am a Professor of Aeronautics and Astronautics at MIT and also co-chair of the FAA Research & Development Advisory Committee.

There is a general consensus, as has already been discussed, that the current air traffic control paradigm and the air transportation paradigm will not scale to meet future demands, and the next Generation Air Transportation System offers a coordinated national response to that. Recognizing the importance of NGATS, the REDAC established a working group on financing the Next Generation Air Transportation System, chaired by Mr. Jerry Thompson, who, unfortunately, is ill and couldn't be here today.

The approach the working group took was to compare a referenced status quo scenario, basically, if we kept with the existing paradigm, to an NGATS scenario and considered best, worst, and baseline cases in a parametric analysis.

The analysis of the NGATS scenario required the working group to create a model of the rollout of NGATS capabilities based on the best available knowledge of that system as it existed at the time of the analysis. The details of the report are in my written comments and in the working group report, but the bottom line can be seen in Figure 6 of my written report, which has already been referred to earlier today.

In both the status quo and NGATS scenarios, the annual average cost over the 20 year period are in the order of $15.5 billion for the median case. However, as an investment in the future, the NGATS

scenario requires an up-front investment higher cost in the early and is expected to have cost savings in the out years.

In order to estimate the FAA NGATS funding requirements, the working group also compared the cost estimates with the model of the FAA Aviation Trust Fund revenue. Assuming recent levels of General Fund contributions on the order of 20 percent, as has already been mentioned by others, the model for the mid case has an expected shortfall of approximately $1 billion over the next several years, until the NGATS operational improvements yield cost savings.

The working group explored a number of alternatives for closing the near-term funding gap, including increasing the General Fund contribution, reduction of FAA costs. The working group identified approximately $500 million of potential costs, but they would not be realized immediately. There is an increase in user taxes and fees, and then financing options that bridge the near-term gap.

The working group also made preliminary assessment of user taxes and fee approaches. No one approach was identified as optimal; a hybrid approach is likely. And more details are included in the working group report.

Thank you.

Mr. MICA. Thank you.

Our last witness is Ellen Jewett. She is Vice President and Manager of the Transportation Group of Goldman, Sachs.

Welcome, and you are recognized.

Ms. JEWETT. Good afternoon, Chairman Mica, Congressman Costello, and members of the Subcommittee. I appreciate the opportunity to testify before the Subcommittee today on the Next Generation Air Transportation System financing options. The NGATS initiative is a worthwhile and necessary step towards securing our Nation's future development in aviation, and I am pleased to be part of the discussion on how to properly fund it.

Historically, the FAA has relied on approximately 80 percent of its funding from the Aviation Trust Fund, which is set to expire by this time next year. As the FAA embarks on its ambitious NGATS program, as well as restructuring the Trust Fund, this is an optimal time to explore alternative funding sources.

There are three primary capital markets options that the FAA could evaluate to fund NGATS. On the traditional end of the spectrum, the FAA could borrow from the U.S. Treasury, which would provide the lowest cost of capital. However, from a capital markets perspective, borrowing Treasuries is expensive in its lack of flexibility, particularly as they cannot be called or refinanced.

The debt capital markets offer another solution for the program's funding gap. In 2005, more than $450 billion of municipal bonds were issued, to the total market size of $2.3 trillion. Of the total issued last year, more than 60 percent were revenue bonds, or bonds that are backed by the revenues of a project or asset, as opposed to the taxing power of the Government. This robust market provides an opportunity for issuers to borrow against any type of revenue, including any user fee, without recourse, back to the governmental entities.

A particular approach that is widely used and ensures the highest security to a bondholder is a securitized revenue structure.

Under this structure, the FAA or a conduit issuer levies a charge which is then passed through a special purpose entity and is irrevocably pledged to the bondholders.

How might this revenue securitization model be applicable to the NGATS program? One example is through a securitization of FAA revenue or user fees. How the fee is levied—ticket tax, passenger levy, airline charge—is less important to the capital markets than whether it is a stable revenue stream. A portion of this charge would be irrevocably pledged to a special purpose vehicle that would issue bonds backed by the expected regular collections of those fees. These collections would be to pay principal, interest, and other related cost. The special purpose vehicle would remain legally remote from the FAA.

In order to ensure the involvement of all users of the system, a capital policy board could be set up to determine the scope of the capital financing plan and to enact it on behalf of the FAA. It is envisioned that members from all interested parties—airlines, airports, labor—would be represented, along with members of the FAA. This board would ultimately determine the size and strategies governing the financing and set rules to ensure accountability.

There are a number of benefits to this financing structure. The most important to note is neither the FAA nor the U.S. Government is obligated to pay anything. Should the revenue collections fall short of necessary debt payments, there is no recourse back to the FAA or the Government. Additionally, there is no FAA operational risk. Thus, the FAA is able to transfer its risk and collect money up front to fund a significant investment in aviation infrastructure.

The public policy implications are important. Under the proposed securitization structure, the FAA could separate the public policy determination of financing needs and capital plan from the execution of the financing by granting a legally separate oversight board the authority to control the amount and timing of the issuance of securities. The board would have the right to review and/or reject the proposed financing plan. Thus, users of the system who would be impacted by the financing decisions would have a direct role in determining if such a financing is necessary.

The third and more radical alternative to solve the funding gap would be to explore the burgeoning public-private partnership market which result in effectively transferring assets to private operators. With a large demand for projects that produce long-term, steady revenue streams and, thus, long-term, steady revenue returns from a wide variety of pension funds, insurance companies, and private equity funds, this market could provide an additional or alternative source of funds for the FAA.

It is not unusual for governments to tap private investors for funding assistance. In fact, there are numerous examples of the Army or Navy leasing all of the housing on its bases to private developers. In the United Kingdom and Canada, private partnerships form the basis for management of the air traffic control system

The FAA has already enacted such a program under the Pilot Privatization Act whereby a private entity can own and operate airports in the U.S. through a long-term performance based concession. Currently, there is one small airport in New York that has

been privatized under this approach and, additionally, Chicago Midway Airport has just submitted an application to seek privatization under the act. This recent surge in interest in privatizing airports could signal that the public-private partnership market may be a very real and viable alternative to a debt financing.

That concludes my statement, Chairman Mica. Thank you. I appreciate the opportunity to speak here today. I would be pleased to address questions you may have.

Mr. MICA. Well, thank you all.

We will turn to some questions, and I will start out with the first question for the GAO. How confident are you that either the FAA or the FAA's Research, Engineering & Development Advisory Committee has come up with NGATS costs that are realistic?

Mr. DILLINGHAM. Chairman Mica, we are not very confident for a number of reasons, particularly the fact that that critical document, that enterprise architecture, is missing. Additionally, there are many, many costs that are not accounted for——

Mr. MICA. That enterprise architecture that you spoke about, it is my understanding that won't be available until the middle of next year. Is that your understanding?

Mr. DILLINGHAM. Yes, sir, that is our understanding. And in addition to that architecture, even though I would say that it is necessary, it is certainly not going to be sufficient. There are going to be costs associated with technology development which it hasn't been determined who is going to pay for it, how much is it going to be. There are going to be costs associated with training air traffic controllers and pilots for the transformation. There will be all kinds of costs for other partner agencies that have not been accounted for. So it is necessary, but certainly not sufficient. More work will certainly have to be done even when that architecture is available.

Mr. MICA. One of the problems, too, that we have had is the estimated revenues versus the actual revenues, which the Ranking Member spoke about, have been sort of off base seriously, I guess, since 2001. They have gotten a little bit better this past year. What do we do about that and what do you attribute that to, Dillingham and then Hansman?

Mr. DILLINGHAM. Chairman Mica, we reported to you about that problem of the underestimation of forecasted resources, and since that time—well, a couple of things. One is part of that was attributed to some unforeseen external circumstances—post–9/11, SARS—those kinds of things, but also because, as it turns out, their forecasting model had some problems that contributed to it being off to that degree. We know that they have attempted to address those problems. The more recent forecasts have been closer.

Mr. MICA. Mr. Marron or Mr. Hansman?

Mr. HANSMAN. Yes. After the forecasts went low or the projections went high starting really in 2001, after the attacks. This was partly the attacks, partly due to underlying changes in the air transportation industry: lower yields, use of small aircraft, higher frequency of service. And as Mr. Dillingham pointed out, the forecasts have been better in the past year.

Mr. MICA. Mr. Marron?

Mr. MARRON. And just to round it out, we observed the same thing, that the FAA revenue misses were due to 9/11, various shocks to the industry, greater penetration of low cost carriers.

I should say, from CBO's point of view, we also make projections of revenues. Until about a year ago, we based our projections—we, in essence, went to the FAA, gave them our own economic assumptions, and asked them what the projection would be, so we relied very heavily on their model. In the last year or so we have ben developing our own separate independent model for forecasting these revenues. At the moment, the projections we have look relatively similar to what the FAA has; we are a little lower than what they are. Over time, I suspect that process of having two independent cracks at this will shed light for both sides about the best way to estimate these revenues going forward.

Mr. MICA. In May of 2005, Mr. Dillingham, you testified before this Subcommittee that a zero uncommitted cash balance in the Trust Fund would require the FAA to make significant spending cuts to aviation programs currently supported by the Trust Fund unless additional funding were appropriated from the General Fund. Specifically, you stated that FAA officials told GAO that if the uncommitted balance reaches zero, in order to fund the air traffic control service, FAA would have to suspend activities like AIP facilities and equipment and research accounts. Is this still your understanding about what would happen if we reached uncommitted balance of zero?

Mr. DILLINGHAM. Chairman Mica, that is still our understanding. FAA states that the safe movement of traffic would be their primary objective and all other things would have to fall in behind that in terms of available funding.

Mr. MICA. Well, it is my understanding that the Highway Trust Fund has been allowed to operate in the negative uncommitted cash balance area for a number of years now without impacting highway programs. Anyone like to speak to sort of the inequity treatment of the two funds?

Ms. IRVING. Mr. Chairman?

Mr. MICA. Yes.

Ms. IRVING. Part of that is essentially a function of how the Congress has set up the two trust funds. No agency can commit funds without budget authority. And you have set up the Aviation Trust Fund in a certain way, and then it requires appropriations to commit general revenues. The Highway Trust Fund cannot commit funds without budget authority either.

The Highway Trust Fund's budget authority comes in the form of contract authority, which is then subject to obligation limits imposed by the appropriations acts. Under the SAFETEA legislation, that authority is adjusted to reflect actual receipts. You have all lived through the ROBA adjustments. Because of the way the program was set up, the obligations for these projects for which money is outlaid over a number of years, can be met using future tax revenues; it is a function of the way the two funds were set up.

Mr. MICA. Any recommendation towards adopting a similar mechanism?

Ms. IRVING. No. I think there are a number of things you would need to consider. Fundamentally, as you know, the U.S. Govern-

ment handles highways differently than aviation. The Highway Trust Fund collects revenues from users and distributes them to States and to projects, which are then not run or owned by the Federal Government. We have chosen, as a Nation, to have the air traffic control system be a national activity and to have those people be Federal employees and run by the Federal Government. I think that it is essentially a policy decision for the Congress to make.

Mr. MICA. If we want to change that out, yes. Well, there are a number of questions that are raised, too, in the highway finance system and equity in those decisions. We now have a deficit of about—well, I shouldn't say a deficit, but we have a general revenue contribution of about $2 billion a year. And if we add in an average of $1 billion for NGATS, we are looking at substantial additional cost. And also the question is raised as to who should pay for that, should it be those who benefit from the system on some user basis or does the general taxpayer have the responsibility, even though they may never fly, some guy out in the middle of Podunk, U.S.A. be responsible for paying the existing cost and then a little bit more for this new system.

Mr. Dillingham, any thoughts, or any of the other panelists?

Mr. DILLINGHAM. Chairman Mica, the point we are now, of course, the bottom line, of course, is it is a Congressional policy decision. But after having said that, there are probably lots of options, and what we have said is that probably a combination of things should be looked at, the pros and cons of a combination of things, to see how to fund the aviation system.

But we also believe that there is a public interest in the aviation system and that that public interest should be supported by a contribution from the General Fund, because the contributions of the aviation system, it is not only for those who fly, but it is also for those in Podunk that also benefit from the system.

Mr. MICA. One final question. I probably can't answer this. I looked at the chart that shows basically the cost of implementing the NGATS, and I guess without the system architecture and some of those costs we really can't tell if there are any—I mean, we have some estimates that we have been given, but you can't tell if there is considerable spikes at any point or if that billion is going to turn into a $3 billion at one point because of heavy equipment costs or whatever facilities expansion. So we really don't know, do we, the flow of the money that is going to be required?

Mr. DILLINGHAM. I think Professor Hansman probably can add to this, but our understanding, based on the estimates that we see, is that we talk about an average annual expenditure of about $1 billion, meaning—or at least we are interpreting that to mean that there will be probably higher costs early on in terms of capital development and subsequently that leveling out as the equipment is in fact acquired. But a point also is that air traffic control modernization is probably going to be with us for as long as we are around, because as soon as we get to the Next Generation, we are going to be talking about the next generation as well.

Mr. MICA. Mr. Costello, I may have some more questions, but we will yield to other members.

Mr. COSTELLO. Mr. Chairman, thank you.

Dr. Dillingham, thank you for speaking up for Podunk, America, but let me say that in my opening statement I agree with you that there are a number of people in this Country who may never fly, but the fact of the matter is that a safe and efficient aviation system is good for our economy and our Country, and everyone benefits from it. So I appreciate your comments and strongly feel that there has to be a contribution from the General Fund as we proceed to implement NGATS.

Dr. Marron, let me ask a couple of questions, if I can. CBO projected rate of growth for the Aviation Trust Fund. What is the annual rate of growth above inflation, what are you projecting?

Mr. MARRON. Sir, it is roughly—I won't give you a specific number but, in essence, the flows into the Trust Fund are rising a little bit faster than the overall growth rate of the economy, so a little bit faster than inflation plus real GDP growth. That is primarily driven by an observation historically that air travel and related things seem to grow somewhat faster than the economy historically.

Mr. COSTELLO. So it would be between 2 percent and 5 percent?

Mr. MARRON. Yes, it would be inflation plus, I think, somewhere in the 3-ish range.

Mr. COSTELLO. OK. And you attribute that to?

Mr. MARRON. Growing economy, which generates growing air traffic, and then the fact that historically it appears that air travel actually grows a little bit faster than the economy.

Mr. COSTELLO. CBO completed a ten-year Trust Fund projection and you base that—that was in April of 2006, based upon the FAA's F&E cost for the Next Generation System, as well as Vision 100, the statutory formula, as well as looking at the other three major accounts adjusted for inflation. And it is my understanding that, based upon that review, that CBO has estimated that the Trust Fund in fact could absorb the capital cost of NGATS for a general fund with the General Fund contribution of about 21 percent. Is that correct?

Mr. MARRON. That is correct. Let me describe a little bit, sort of qualitatively, how that comes about.

Mr. COSTELLO. Please.

Mr. MARRON. In essence we have a system which, if the various tax components get extended—many of them are scheduled to expire, but if they get extended, you have a revenue stream which is in essence growing with the rate of the economy and a little bit more. Under the conventional assumptions we use in constructing a baseline, the spending is assumed to grow just with inflation, so without real growth in it, and then you, in essence, have over time that the revenues are larger than the spending, there is room to add on some spending for, say, some NGATS investments—obviously, the estimates on that front are extremely preliminary—and there is room then, also, either to do more of that or to reduce what comes in from the General Fund or, as you described, sort of hold the General Fund contribution relatively constant and have that additional investment.

Mr. COSTELLO. So is that a long answer to saying that it is about 21 percent?

Mr. MARRON. Yes, those numbers work, but not forget the additional cost elements that were put in there are obviously very preliminary.

Mr. COSTELLO. Very good.

Dr. Dillingham, actually, for you or Ms. Irving, either one, I understand that CBO has stated that third-party financing, which may include leasing and other types of financing, that there are some negative consequences, and I wonder if you might comment as to your views. Are there negative consequences of financing arrangements which include leasing and privatization?

Mr. DILLINGHAM. Mr. Costello, I think it is always good to know what your limits are. And since I know what my limits are, I am going to ask Dr. Irving to respond to that.

Ms. IRVING. My colleague is much too modest.

Yes, as a number of the witnesses and as a number of you have stated, Treasury securities are the gold standard in the world. The Federal Government borrows more cheaply than any other enterprise. It is the least cost option to have the Federal Government borrow this money than to have the Federal Government pay someone else to borrow at their borrowing rates.

Mr. DILLINGHAM. But on the leasing side, if we are talking about an operating lease versus a capital lease, there are some advantages for the Government to be involved in an operating lease in terms of the budget scoring and the money needed up front and a whole lot of other issues. This is the kind of lease that the Government was involved in when they procured the WAH satellite system. It is the same kind of discussions that are going on now with regard to ADSB, where the Government would purchase a service and not be obligated to, or assume the risk of the development of the infrastructure and so forth. As long as the circumstances are such that they meet CBO, OMB, and congressional guidelines for an operating lease, it is something that we think ought to be on the table to be considered where appropriate.

Mr. COSTELLO. Dr. Dillingham, as I mentioned in my opening remarks, the Trust Fund's uncommitted balance has shrunk significantly, and due largely because of the over-optimistic revenue forecast. You testified before the Senate, I think, in March of this year and suggested a solution as to how that can be corrected. I wonder if you might elaborate just for the record.

Mr. DILLINGHAM. Yes, sir. At that time we suggested since the forecast had been off so much based on forecasting, we suggested that one thing that Congress could consider would be to look at actual revenues, as opposed to forecasted revenues. We also said at that point in time that that could very well mean less immediate available spending for FAA because the actuals are often smaller than the forecast and the statutes at this point in time say you spend what is forecasted as such.

Mr. COSTELLO. Very good. Last question in this round.

Professor Hansman, is it your opinion that NGATS will increase productivity and drive down the FAA's operating cost?

Mr. HANSMAN. I think that NGATS, if it is implemented and well designed—remember, this is a system which is still being designed and prototyped. One of the clear objectives is to increase the productivity. One of the reasons why the system doesn't scale over

time is that we can't continue to cut sectors into smaller and smaller chunks, because we are limited by controller workload capability. So we will find a way to get more productivity out of the system. In all likelihood, it will be shifting some of the operational responsibility to the cockpits and things like that. So I think it will be more efficient. And if it is not more efficient, we shouldn't do it.

Mr. MICA. Thank you.

Mr. Ehlers?

Mr. EHLERS. Thank you, Mr. Chairman.

First of all, I also have to join with Mr. Costello in thanking Dr. Dillingham with his concern about Podunk, since Podunk happens to be in my district. The irony is only a mile and a half away from Podunk is Harvard. So, as you can see, I have quite a diverse district.

A couple of different questions. And I appreciate, incidentally, Dr. Dillingham, your comments about there is a definite public interest in aviation and that substantial part of it has to be financed out of the General Fund. And I am puzzled about the constant talk about user fees and so forth. It seems to me that is the wrong way to go; it makes it very cumbersome, it gets more expensive.

And the best analogy I have is just our ordinary automobile traffic. We don't charge user fees. Everyone goes through an intersection and has the benefit of a traffic signal. Or when you put up a stop sign at the end of the street, you don't charge a user fee to all the people who live on that street. I think that analogy holds for aviation. It is a bit silly to get that specific about the cost. And I think, because of the public interest, we should finance that part of the General Fund or out of the fuel taxes.

A question for Mr. Hansman. In your best case NGATS scenario, REDAC assumes that after 2011 FAA operating costs will be reduced about 2 percent per year, resulting in a 25 percent cost savings by 2025, which sounds wonderful. Just what assumptions go into this and how much confidence can we all place in these estimates of productivity savings?

Mr. HANSMAN. The reason why this was done as a parametric analysis is because it is so preliminary. We are basically scoping the problem. So that is why it is the best case. So what we felt was that 2 percent was reasonable as a best case productivity improvement. We assumed that in the baseline case it would essentially hold operations costs constant, and the worst case was that the operations costs would remain at the current levels per flight or per operation.

Mr. EHLERS. And are you reasonably confident that we can increase the productivity by that amount?

Mr. HANSMAN. I am confident we can increase the productivity. The U.S. actually has one of the highest productivity air traffic control systems in the world, but there are clearly inefficiencies in the system and the way we do it is very labor intensive. So it is clear that there are opportunities for improvement. And if that is an objective of the system, it is clear to me that we can get improvements. Whether they will be at a 1 percent level, 2 percent level, or 10 percent level is tough to say at this point.

Mr. EHLERS. Actually, I agree with you. The difficulty comes when there is an aircraft accident with a number of fatalities. Immediately the outcry will be you have cut the staff too much. And so it is hard to judge what impact that is going to have.

Mr. HANSMAN. But I think we have to recognize that air traffic controllers don't fly the airplanes. That is one of the notions within NGATS, is to move more of the responsibility to the cockpit, where you actually have better information and are quicker. So I think you are right, there is always political pressure after an accident, but we really have to think about a system which is scalable for the future and is efficient.

Mr. EHLERS. Well, that can easily be done with the right electronic equipment and interfacing.

Mr. HANSMAN. Yes.

Mr. EHLERS. A question for Ms. Jewett. You gave a convincing case for using the public bond approach, but can you just tell me why it is better to do that than borrow from the United States Treasury?

Ms. JEWETT. I will give you one reason why it might be better. As we have all talked about U.S. Treasury being the lowest cost, one issue on the Treasury side, though, is the inability to be able to refund the bonds. If the interest costs became lower, in the bond market you could issue variable rate bonds, which are always lower cost than fixed rate, and you could structure a bond financing that would have possibly increasing debt service if there was a sense that the fees were going to increase.

So there is more flexibility in the other options. A securitized model in today's market would really only cost a quarter of a point in the market relative to a U.S. Treasury, so I am not suggesting looking at a model that would be dramatically different or more expensive than what we have today. But Treasuries are great too.

Mr. EHLERS. All right, thank you very much.

I yield back the balance of my time.

Mr. MICA. Thank you.

Mr. DeFazio?

Mr. DEFAZIO. Thank you, Mr. Chairman.

This is an important subject, but just to get back to Podunk for a second, I took the liberty of Googling Podunk, and on Wikipedia Mr. Ehlers may want to edit it, because they don't list one in Michigan. They have New York, Massachusetts, a couple others.

So, Vern, you ought to get in there and edit that.

[Laughter.]

Mr. DEFAZIO. I have a couple of questions that relate to this. I know it is hard to say, and I guess no one wants to put a number on what would be the appropriate level of General Fund contribution. Do any of you have any ideas on how we might go about, if we wanted to reach that conclusion, sort of methodologically looking at that which accrues generally to the society in terms of economic activity?

For instance, in my hometown of Eugene, we have companies who have come there, rather large companies, who say, well in part we are here because we have very good access to San Francisco, you know we have, down in the Silicon Valley, another branch and, therefore, we need to be moving people back and forth. So, obvi-

ously, there are some pretty interesting second and third level sorts of benefits that accrue to a national integrated system that is efficient.

So does anybody have any ideas— I mean, since we are going to have this debate—next year we are going to be having some significant portion of debate on how much we are going to leave on the table for the General Fund or how much are we going to try and fight with the appropriators? Anybody want to give us an idea of how we might get there?

Mr. MARRON. Sir, I will start off so that I can be the first to give the weasely answer, which, of course, in part it is a political——

Mr. DEFAZIO. You did very well with Mr. Costello, too.

Mr. MARRON.—about distribution. But that said, as a starting point, I would start at the other end and just point out that it is clear that a lot of the benefits of the system accrue to the people and cargo that fly. And so the starting point, I think, purely as an economist—leaving aside kind of political judgments and distributional judgments—is that clearly a significant portion should be borne by those direct beneficiaries of the system, just as we do for other types of products that we are able to produce in the economy without government intervention. And then it becomes, as you say, sort of a line drawing exercise of how far do you go.

I haven't seen any good studies, myself, that would try to parse that out and give you ratios, I am afraid, so weasely answer.

Mr. DEFAZIO. OK.

Ms. Irving?

Ms. IRVING. I will give you another version, I guess, of a weasely answer, but also starting at the other end, one of the things that improved cost accounting can do is help you figure out something about the allocation of who imposes costs, which then can be—which is not the same as who benefits, but it will provide input as you begin to think of this balance between the costs imposed and the benefits received.

The other thing you might want, when you all are talking among yourselves, is this is not actually a unique argument in the Government. When we think about funding drug approvals, it is not only drug manufacturers who benefit from a strong FDA, but those of us—I am old—who did not take thalidomide. It is not only meat producers who benefit from meat inspection, but me when I grocery shop. So there is some balancing, I think, between, but if you can learn what costs are imposed by whom and then start from there, you may have a head start in your discussion about how much you believe should be taken from the collective to be used for the safety.

Mr. DEFAZIO. Of course, you have just opened a bit of another issue there, which is how we attribute the benefits received. Mr. Lapinski and I went through an exercise four or five years ago where we invited a whole host of experts in to breakfast meetings from different sectors to talk about that, and you get a different answer from a point-to-point carrier than a hubbed carrier in terms of how one should assess certain costs on passengers and, I mean, what the benefits are, I mean, is it harder for an air traffic controller to deal with a commuter flight at lower elevations and that has

frequent landings or a longer transcontinental flight, those sorts of things.

Ms. IRVING. It is interesting, because I think of that as part of the costs imposed, and that is some of the stuff my colleague talked about. Benefits is that I would suggest that the safety improvements on the airlines, for instance, benefit not only those on the airline, but those into whose homes the airlines do not crash.

Mr. DEFAZIO. Right.

Ms. IRVING. So that is part of the balancing act I think you are dealing with.

Mr. DEFAZIO. Right.

Mr. DILLINGHAM. Mr. DeFazio, maybe not helpful immediately, but certainly an issue that comes up continuously, the last time the Committee had a hearing on small community air service, it comes up constantly in terms of the economic benefit that airline service brings to the communities, and each time we are asked to go out and try and quantify that, we find the studies don't hold up. We find that the information is just not there. So something in the future for almost every district that has a small air service is to really work towards developing that kind of information that will add up to and support the notion of the economic benefits of having an airline come to those small communities, and medium-sized communities.

Mr. DEFAZIO. Yes, sir.

Mr. HANSMAN. These are just a few thoughts. I actually have a doctoral student who is attempting to correlate the economic effect of air transportation sort of in the general sense. We know that there is a correlation. We actually don't know what is cause and what is effect. I think that when you think about this air transportation system, it is important to separate out the air traffic control functions from the infrastructure functions, because the air traffic control benefit is really the traffic cop, OK? It is organizing the traffic; it is an efficiency benefit versus the access issue.

The other thing is if you look at the U.S. in general, we have a society which has clearly become dependent on air transportation, and that is why you touch Podunk, because it is not just the travel, but it is the just-in-time inventory, it is all kinds of things that permeate through the system. And you can actually see diffusion of the U.S. population into regions which have good air service. So I think that there is clearly a benefit to the population at large, and it is important not to overly think about the intermediates or the operators who really think about who is getting the real benefit of having that infrastructure.

Mr. DEFAZIO. And if the Chairman is successful in doing away with Amtrak, then we will be even more dependent upon—no, I didn't mean that, Mr. Chairman.

Mr. Chairman, one more question here.

I am a bit puzzled by the JPDO projections on the costs to the economy, and if anybody here can sort of—because it says here $12 billion in 2008, so on and so on, in terms of foregone opportunity, I guess. I mean, it says difference between demand for air travel and the total flights that could be delivered with no new investment.

I am just puzzled by that number. I mean, if we are looking at $12 billion in 2008, that would imply that we probably are seeing foregone revenues today, or economic activity. I mean, I am not aware that the system is that constrained today. Can anybody speak to how JPDO came up with these numbers, and how they seem so large and go up so quickly?

Mr. HANSMAN. I don't remember the details, so I will just give you my impression. We have an infrastructure which is starting to get to capacity limitations. I believe a lot of that effect are capacity constraints. I think there are also environmental and other costs that are put into it.

And the way I believe they modeled it was to project the unconstrained demand, to look at the impact of the constraints, and then to value, by some measure, the travel that wasn't accomplished or the economic activity that wasn't accomplished.

Mr. DEFAZIO. OK, so it is kind of a blue sky thing, like if everybody could just take off and fly whatever route they wanted to get wherever they wanted to go without any interference by air traffic control——

Mr. HANSMAN. I believe it is a projection. And then if you start looking at the fact that we can't basically fly more airplanes into LaGuardia then we currently enable, that becomes a constraint. And there is an interesting question because does that activity not exist or does it deflect to other regions? And the real issue may not be a loss of overall activity, but a deflection to other places either in the U.S. economy or, more worringly, to other nations. So as our system becomes inefficient, then people will start locating in other locations because they are more efficient.

Mr. DEFAZIO. OK, thank you.

Thank you, Mr. Chairman.

Mr. MICA. Just for the record, the Chairman is a strong advocate of long distance national rail service and an extremely strong advocate of high-speed rail service. He is, however, in opposite of the Soviet style current Amtrak operation.

[Laughter.]

Mr. MICA. Ms. Norton.

Ms. NORTON. No questions.

Mr. MICA. Thank you for your brevity, Ms. Norton.

A second round.

I just want to follow up on the savings issue. Right now I understand the cost is $14 billion to run our FAA system, full system, about $2 billion general revenue. Just project this out and we say it was going to cost us about $20 billion to run it we will just say by 2025. And I have heard that there could be as much as a 20 percent cost savings by 2025. Does that mean that the cost to operate, just taking those ballpark figures, could be as low as $15 billion? Would that be a net savings in dollars or would it just be in operational efficiencies, or what? Mr. Hansman?

Mr. HANSMAN. Yes. It would be net savings in dollars. And, again, I apologize. I took a heat. I didn't do the calculation, but they are in 2005 dollar, so they are not inflated dollars. But the NGATS projection out in 2025 would be—the total NGATS cost to the FAA would be——

Mr. MICA. Would it be your estimate also that we can either be level or reducing the number of personnel? Now, this system is based on the highest technology. We are going to be able to sight planes with unprecedented precision. We will have technology both on the ground, in the plane, and satellite-based that will give us unprecedented ability to track, to locate with redundant systems. So we could end up with net fewer personnel.

Mr. HANSMAN. There would clearly be fewer personnel per operation. Remember, the number of flights goes up too, so you have to look at which dominates.

Mr. MICA. Right. We are going to have more flights, but greater efficiencies in operation, greater accuracy, too, in pinpointing the location of the aircraft, both on the ground, en route, etc.

Mr. HANSMAN. And, hypothetically, because of that, you get some environmental benefits; you can reduce the noise impact around airports, so you get benefits from there——

Mr. MICA. Fuel.

Mr. HANSMAN. You will get fuel benefits. One of the things that is probably under-representative—it is implicit in efficiency—is within NGATS the things that you get in terms of efficiency in environmental efficiency are also a fuel savings. So, hypothetically, you will get some benefit.

Mr. MICA. And what about some ground-based systems now that are necessary to bring planes in in bad weather or inclement conditions? With this new technology, it won't be as necessary to be putting all those bucks into some of those system as opposed to this system, or will it be necessary for redundant system to continue building both those and having this in place?

Mr. HANSMAN. You will need some level of redundancy. You will clearly be able to reduce the level of ground redundancy. One of the problems with a lot of our ground facilities, and one of the reasons why we have high costs is because they are expensive to keep calibrated. If they are miscalibrated—if you have an ILS that is miscalibrated, you have people flying into hills. So you can't allow that.

So we spend a lot of money calibrating that. Some of these systems will be more cost effective from a maintenance standpoint. There will still be costs on the ground, so even if you have a GPS-based approach system, you are still going to have lights on the airport and communications facilities, and things like that.

Mr. MICA. In addition to its ineptness in running passenger rail system in the United States through a quasi-governmental entity, I found, in my short 13.9 years on this Committee, that one thing the Government doesn't do very well is R&D of high tech systems, at least through FAA. It is just a horrendous record of cost overruns, inability to procure next generation anything.

Mr. Dillingham, and maybe Mr. Hansman, how do we avoid that? Now, we are looking at anew high tech system. Again, I sat on this Committee as a freshman somewhere down on that bottom pew, and heard people telling us that this next development project is right around the corner, just give us a few more billion. Then they would come back in two years: just give us a few more billion, it is around the corner.

And the private sector, in the meantime, because they changed the specs, they tweaked the acquisition, the ineptness and the time period it takes to procure anything through the FAA system in the past just ended up having the private sector would develop technologies that would be far and above what we had even come close to achieving. And I have helped stop some of that. I call it the dog chasing its tail.

This is an expensive system, it is a next generation. We will have some technologies we don't have now. How do we avoid repeating those same mistakes? Dillingham, Hansman?

Mr. DILLINGHAM. Chairman Mica, the story that you just told is a story that we have been telling for almost two decades now about procurement and acquisition at FAA. The other part of the story is that Congress did act on this project and established the ATO as a performance-based organization, and as a part of that mandated that it operate in a more business-like fashion, that it in fact address those issues of cost overruns and schedule delays, and at least for the last two years, for the first time in recent history, FAA is in fact meeting its cost and schedule goals for acquisition of major systems. The question becomes now, was this a flash in the pan or do we have a way to institutionalize that this continues?

Secondly, we have testified before you before and suggested that one of the missing elements for FAA is do they have the expertise to acquire and manage such a very complicated undertaking as this. And we have suggested that they consider—and FAA has agreed to consider—employing a lead systems integrator or employing the expertise that is dedicated to FAA, and not dedicated to its own ends, to make sure that what you refer to or what we refer to as requirements creep and things like that are minimized. So we are hopeful.

Mr. MICA. Well, this is a big concern. Also, everybody has been polite, sort of working together. At some point some hard decisions have to be made, and I think somebody has to be in charge with the ability to bring—now you are going to be dealing with DoD, NASA, DHS, and other agencies who all have their turf, who all have their agendas, but somebody has to be in charge of the thing and make decisions with milestones and deadlines and accountability, as we have learned the hard way through our FAA acquisition. Would you agree with that?

Mr. DILLINGHAM. Absolutely. And not only somebody has to be in charge, but whoever is in charge has to transcend the administrations, has to transcend the secretaries that are on the decision-making bodies, because this is a multi-year, many year operation. So, again, that is why we say that cultural shift that is going on plus whatever systems are in place that have made it work well for the last two years needs to be attended to, and the buck has to stop someplace. It is not clear to us that there is an absolute end in JPDO as to who is in charge right now.

Mr. MICA. Exactly. I mean, I think Marian Blakey and Russ Chu have done their part, but, again, we are involved in low-hanging fruit at this stage. But to make this really happen, somebody is going to have some clout, some teeth, and some ability to transcend just a limited period in time and space.

Mr. Hansman, did you have anything?

Mr. HANSMAN. Yes. I agree. I think this is a tremendous challenge. I have concerns about how you actually do it, particularly as a multi-agency involvement, how do you manage through this. One of the reasons why it is hard to do major modernization at the FAA is it is a big system. We have one of the biggest systems in the world. It is perceived as a safety critical system, so that, if someone doesn't like what is going on, they just raise the safety issue. So it is a real challenge. It is going to require leadership and a structure that has the type of forcing function that was discussed.

Mr. MICA. Well, the other thing, too, riding on this that we haven't even talked about today is our standing in sort of dominating or being the premier airspace aviation system in the world. We skip a few beats here——

Mr. HANSMAN. So, interestingly——

Mr. MICA. We will be looking at——

Mr. HANSMAN. The Australians are actually moving pretty quick, because they have a smaller system that they have control over. So it has been an interesting case that they are often leading the technology. They are the guys putting automatic dependant surveillance in already. So I think that that is a challenge.

Mr. MICA. We haven't really gotten into the consequences for the U.S. falling behind, which would be horrible.

Mr. Costello had another question.

Mr. COSTELLO. Final question.

Ms. Jewett, let me ask you. In your testimony you talk about financing options and you talk about the FAA or a conduit. Let me specifically ask you on page 2 you say that: "There are a number of benefits to this financing structure. The most important to note is that neither the FAA nor the US Government is obligated under this structure to pay anything other than the transferring the pledged revenue collections. Should the revenue collections fall short of the necessary debt payments, there is no recourse back to the FAA or the Government." It sounds like a deal that no one could refuse.

Ms. JEWETT. Too good to be true?

Mr. COSTELLO. So there is no obligation on the part of the FAA or the American taxpayers if we set up this conduit and revenue falls short?

Ms. JEWETT. If you have created this capital policy board that directs the special purpose vehicle who is receiving, whether it is the ticket tax, the General Fund money, a user fee, whatever it is, and the obligation in the securitized model is just on whatever revenues come in to this box, if you will, of money, if for some reason the policy board hasn't directed an increase in user fees, say, or if the ticket taxes don't come in at the expected amount, that is the risk that the bondholder bears, the person who bought the bonds.

Mr. COSTELLO. Well, the person who bought the bonds, but, of course, we have a system here that, if in fact is implemented, we have to keep it running. And as I said in my opening comments, I am not opposed to looking at all financing options and putting them on the table, but I have had an experience in dealing with some infrastructure where there were entities who operated and collected fees, bonds were sold, the revenue did not cover the cost of operations, and both the State of Illinois and the State of Mis-

souri had to step in, pay off the bonds, take over both of these structures, maintain it, and they continue to run it to this day.

So I just want to be clear on this. We could have closed the bridges down and said we will shut the bridges between Illinois and Missouri down because they are going into default on the bonds, but that, of course, would not be in the interest of the region or the American taxpayers. And if in fact we set up a system here, if it is a conduit, if it is some other type of a structure, in the end, the taxpayer is responsible for it if we intend to keep the system going.

Ms. JEWETT. I think that you are right in that there may be a moral obligation. But there wouldn't be a legal obligation. And I could sense you were talking about the bridges. I don't remember whether there was a moral or a legal obligation in that particular situation, but——

Mr. COSTELLO. Well, we sure wouldn't shut the system down

Ms. JEWETT. No, you wouldn't shut the system down. And presumably, in this case, one, you would collect enough to have a coverage account on the side, possibly; two, if you found that you were in a position where revenues were falling short, you would restructure the debt. And that is the difference of what you can't do with Treasuries. You can't restructure that debt, but here you can restructure it to meet the revenues. And, third, you would have the policy board presumably having an ability to raise the fees and charges if you were getting to that point.

Mr. COSTELLO. Let me ask that question of the GAO or CBO.

Mr. MARRON. I am happy to jump in. I guess the framework I would say that to the extent that one is successful in setting up a structure that passes some risk on to private parties, they are going to ask you to pay for it in advance somehow in the compensation they get through the arrangement. So that, in essence, the Government will be paying for it through some other form. And then layer on top of that your concern, which is, after the fact, if something goes wrong, to the extent that something is a significant governmental undertaking, as you said, the Government will be on the hook for providing it anyway.

Mr. COSTELLO. Which brings me to another project that was recently privatized where a lot of money was paid up front for this company to take over this structure, and the money that was paid to the governmental entity was not set aside for infrastructure, it was used for other governmental purposes. I wonder if the GAO would want to comment, Dr. Irving or Dr. Dillingham?

Mr. IRVING. I think that Ms. Jewett's answer that there would be a moral obligation at the end answers that this is in effect the Government using another vehicle to borrow more expensively for what the Government could borrow. I actually do not understand the point about rigidity. I mean, the Treasury borrows at all kinds of maturities at the lowest rate possible.

If you wanted to do the two-step version, where Treasury borrows from the Federal Financing Bank, the Federal Financing Bank has the ability to lend to agencies at quite different designs, in very different ways. It has a fair amount of flexibility. But it is still the Treasury going to the market. And there is the additional question of would you really want to hand to some private board

the ability to impose what is called a user fee, but is in effect a tax?

Mr. COSTELLO. Dr. Dillingham?

Mr. DILLINGHAM. Again, that is about as far as I can go with it.

Mr. COSTELLO. Mr. Chairman, thank you. And I want to thank our witnesses.

Mr. MICA. Well, thank you. Thank you also, Mr. Costello.

I want to thank our witnesses.

Now, we haven't answered how this is all going to be paid for or how it is all going to be designed and proposed at this juncture. We have answered a few questions, but we have raised a bunch of questions. I think the important thing is that we look at this as not only a challenge, but a great opportunity to create truly a next generation air traffic control system and aviation system for this Country and be on the cutting edge. And there are a lot of representatives in the audience from different organizations.

Well, who is going to pay for it? Well, we are all going to pay for it. That guy in Podunk, we are going to figure out what his fair share is, and every one of you who is sitting here that has some interest in using and access this system are going to help pay for it.

We are going to figure out a way to do that, stay ahead of the curve, and see how we can have, again, the very best system in the world and set the standard. The benefit will not only be for the United States, but think of the potential of having our system adopted around the world and again having us continue to keep and set the standard. So that is what we are going to do with Mr. Costello's help and all of you out there. If we have to drag you kicking and screaming across the finish line, we are going to do it.

Mr. Costello moves that the record be left open for a period of two weeks for additional comments and pledges of your financial contributions towards this effort, statements, we welcome all of those.

There being no further business to be before the Subcommittee today, I thank again our witnesses and everyone for being with us. This hearing is adjourned.

[Whereupon, at 3:37 p.m., the subcommittee was adjourned.]

OPENING STATEMENT OF
THE HONORABLE RUSS CARNAHAN (MO-03)
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON AVIATION
U.S. HOUSE OF REPRESENTATIVES

Hearing On
NGATS Financing Options

Wednesday, September 27, 2006 at 2:00 PM
2167 Rayburn House Office Building

Chairman Mica and Ranking Member Costello, thank you for holding this subcommittee hearing today.

The Federal Aviation Administration (FAA) is committed to making our airports safer, and it's Next Generation Air Transportation System (NGATS) proposal will further this mission by upgrading air traffic infrastructure and increasing accuracy through satellite technology.

The proposed Capital Project will be a safer and more cost effective answer to the current ground system. Considering the complexity of financing options, I am eager to hear our witnesses' expert opinions. We must take all funding options into consideration. Direct appropriation, leasing, bonding, tax-credit bonding, and increased user fees all have unique advantages and disadvantages. We must consider each possibility and agree on a funding mechanism that is both adequate for the NGATS program and is a fiscally responsible decision.

I would like to thank Dr. Dillingham, Mr. Marron, Professor Hansman, and Ms. Jewett for being here.

###

OPENING STATEMENT OF THE HONORABLE JERRY F. COSTELLO
AVIATION SUBCOMMITTEE
NEXT GENERATION AIR TRANSPORTATION SYSTEM FINANCING OPTIONS
SEPTEMBER 27, 2006

- I want to thank Chairman Mica for calling today's hearing on *Next Generation Air Transportation System Financing Options.*

- Mr. Chairman, I want to make clear that the information we are reviewing today is very preliminary. While we have some idea of what capabilities will likely comprise the Next Generation Air Transportation System, such as precision satellite-based navigation, we do not yet have an Enterprise Architecture that fully explains the Next Generation system.

- And while we have an unofficial Administration Next Generation capital cost estimate of approximately $15 billion, between $1 and $2 billion a year for the next 10 to 15 years, we do not have an Administration witness here today to explain this cost estimate.

- As this Subcommittee prepares to take up a Federal Aviation Administration (FAA) reauthorization bill, we will need to ascertain whether or not the Aviation Trust Fund can support the Next Generation system. The preliminary information before us today suggests that **it can**.

- For fiscal year 2006, the Congressional Budget Office (CBO) estimates that receipts plus interest into the Trust Fund will total $11.2 billion. The CBO also projects that Trust Fund revenue will increase almost 32% to $14.8 billion in 2011, and over 71% to $19.2 billion in 2016.

- Based on these projections, it appears that the preliminary $15 billion capital cost estimate for the Next Generation system could be absorbed by the existing FAA financing structure with a

General Fund contribution that is consistent with, or even smaller than, recent General Fund contributions.

- Mr. Chairman, this new information raises questions about the Administration assertions that there is a revenue crisis at FAA. Administrator Blakey herself claims that there is a "gap" between revenue going into the Trust Fund and FAA's costs, and that this so-called gap caused a $5.4 billion decline in the Trust Fund's uncommitted balance since fiscal year 2002. I disagree.

- First, what the Administrator calls a "gap" between Trust Fund revenues and FAA costs is *actually* the General Fund contribution. Moreover, historically speaking, the General Fund contribution has been relatively low in recent years. Over the past 20 years, the General Fund contribution has averaged 27 percent of FAA's total budget. However, over the past 10 years it has averaged only 20 percent. The general public clearly receives a tremendous benefit from a safe and efficient air transportation system. Therefore, any discussion of financing the Next Generation system must include ensuring a robust General Fund contribution.

- Second, the shrinking uncommitted balance is not the result of inadequate revenue, but inaccurate revenue forecasting by the FAA. Under the current statutory formula, the amount drawn from the Trust Fund must equal FAA's forecasted receipts and interest into the Trust Fund for that year. For the last few years, FAA's forecasts have been overly optimistic, and the discrepancy has been drawn from the Trust Fund's uncommitted balance.

- Going forward, Congress might fix this problem by changing the formula to link the amount appropriated from the Trust Fund to actual rather than forecasted revenue. The Government

Accountability Office (GAO) has suggested this approach and I look forward to hearing from GAO witnesses on this issue.

- That said, I believe Congress should also review the FAA's tax and financing structure in the upcoming FAA reauthorization bill. However, I do have serious reservations with imposing a direct user fee.

- If we accept that Congress' policy goal should be to better align FAA's revenue with user activity, there are ways that this can be accomplished within the existing tax structure. For example, a system more reliant on fuel taxes or a passenger segment fee would have stronger connection to activity than the current system, which is heavily reliant on ticket taxes. By working within the existing tax structure, Congress could forego costly administrative burdens of implementing a user fee based system.

- Some have suggested that Congress should consider alternative financing mechanisms such as leasing or bonding. I agree that all options should be on the table. However, given the healthy state of the Trust Fund, I have reservations about the necessity of alternative financing.

- Thank you again, Mr. Chairman, for holding this hearing. I look forward to hearing from our witnesses.

United States Government Accountability Office

GAO

Testimony
Before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives

For Release on Delivery
Expected at 2:00 p.m. EDT
Wednesday, September 27, 2006

NATIONAL AIRSPACE SYSTEM MODERNIZATION

Observations on Potential Funding Options for FAA and the Next Generation Airspace System

Statement of Gerald L. Dillingham, Ph.D.
Director, Physical
Infrastructure Issues

Susan J. Irving, Ph.D.
Director, Federal Budget Analysis
Strategic Issues

GAO
Accountability * Integrity * Reliability

GAO-06-1114T

September 27, 2006

GAO
Accountability·Integrity·Reliability
Highlights

Highlights of GAO-06-1114T, a testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives

NATIONAL AIRSPACE SYSTEM MODERNIZATION

Observations on Potential Funding Options for FAA and the Next Generation System

Why GAO Did This Study

The transition to the Next Generation Air Transportation System (NGATS)—a system intended to safely accommodate a possible tripling of air traffic by 2025—will become one of the federal government's most comprehensive and technically complex undertakings, and a preliminary estimate indicates it will also be expensive. However, the current approach to managing air transportation is becoming increasingly inefficient and operationally obsolete. In 2003, Congress authorized the creation of the Joint Planning and Development Office (JPDO) to coordinate the efforts of several federal partner agencies—including the Federal Aviation Administration (FAA), in which JPDO is housed—to plan for and develop NGATS.

GAO's testimony addresses (1) the current estimate and uncertainties over NGATS costs, (2) advantages and concerns that stakeholders have raised about the current approach to collecting revenues from national airspace users to fund FAA, (3) the advantages and disadvantages of adopting alternative funding options for FAA, and (4) the advantages and disadvantages of authorizing FAA to use debt financing for capital projects.

This testimony is based in part on GAO's analysis of FAA and JPDO documents and interviews with officials of those two agencies.

www.gao.gov/cgi-bin/getrpt?GAO-06-1114T.

To view the full product,click on the link above.
For more information, contact Gerald L. Dillingham, PhD, (202) 512-2834, dillinghamg@gao.gov.

What GAO Found

No comprehensive estimate of NGATS costs has been developed. However, an advisory committee to FAA has developed a limited, preliminary cost estimate, which has not yet been endorsed by any agency. This estimate suggests that with NGATS, FAA's costs would average about $1 billion more per year (in today's dollars) over the next 20 years than FAA's appropriations for fiscal year 2006. The estimate is preliminary in part because JPDO has not yet completed its enterprise architecture, (a blueprint for NGATS) which will be needed to inform a reliable cost estimate.

Some stakeholders support the current excise tax system because they believe it has been successful in funding FAA, has low administrative costs, and distributes the tax burden in a reasonable manner. Others, including FAA, state that under the current system, there is a disconnect between the revenues contributed by users and the costs those users impose on the national airspace system (NAS) that raises revenue adequacy, equity, and efficiency concerns. Trends over the past 25 years in, and FAA's projections of, both inflation-adjusted fares and average plane size suggest that the revenue collected under the current funding system has fallen and will continue to fall relative to FAA's workload, supporting revenue adequacy concerns.

Adopting alternative funding options to collect revenues from NAS users would have advantages and disadvantages. The degree to which alternative funding options could address concerns about the current excise tax system ultimately depends on the extent to which the contributions required from users actually reflect the costs they impose on the system. Given the diverse nature of FAA's activities, a combination of alternative options may offer the most promise for linking revenues and costs.

Allowing FAA to use debt-financing for capital projects, such as the replacement of facilities and equipment associated with the transition to NGATS, also presents advantages and disadvantages. Some stakeholders see debt financing as attractive because it could provide FAA with a stable source of revenue to fund capital developments, while at the same time spreading the costs out over the life of a capital project as its benefits are realized. Debt-financing raises significant concerns, however, because it encumbers future resources, and expenditures from debt proceeds may not be subject to the same congressional oversight as expenditures from appropriations. Concerns about borrowing costs, oversight, and encumbering future resources are particularly important in light of the federal government's long-term structural fiscal imbalance.

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify at today's hearing on potential options for funding the transition to the Next Generation Air Transportation System (NGATS)—a system intended to safely accommodate a possible tripling of air traffic by 2025. As you know, in 2003, Congress authorized the creation of the Joint Planning and Development Office (JPDO) to coordinate efforts by several federal partner agencies (including the Federal Aviation Administration (FAA), in which JPDO is housed) to plan for and develop NGATS. NGATS is envisioned as a major redesign of the air transportation system that will include precision satellite navigation; digital, networked communications; an integrated weather system; and layered, adaptive security. The NGATS transformation effort will be one of the federal government's more comprehensive and technically complex undertakings, and a preliminary estimate indicates it will also be expensive. However, the current approach to managing air transportation is becoming increasingly inefficient and operationally obsolete. In fact, JPDO has estimated that failing to modernize to meet future demand for air transportation could result in billions of dollars in economic losses to the nation.

Although JPDO is responsible for planning the transformation to NGATS and coordinating the efforts of its partner agencies, FAA will be largely responsible for implementing the policies and systems necessary for NGATS. Considering how to fund the near-term sustainment or modernization of our air transportation system takes on added importance given competing funding demands and the federal government's long term fiscal outlook. Our recent work, contained in a report that will be released to the public soon,[1] analyzed the current funding structure, which relies mainly on revenues collected from national airspace system (NAS) users, and alternative funding options.

We and others have pointed out that the federal budget is on an unsustainable path. Although the drivers in this outlook are federal health and retirement programs, we have also said that a fundamental reexamination of the base of federal programs and activities is important to create a sustainable government appropriate for the 21st century.[2] Given the uncertain fiscal environment in which the air transportation system operates, and will likely continue to operate during the transformation to NGATS, my testimony today is designed to provide this committee with information on a preliminary cost estimate for the NGATS transformation and potential options for funding FAA. Specifically, my statement today will briefly address the (1) current estimate and uncertainties over NGATS costs, (2) advantages and concerns that stakeholders have raised about the current approach to collecting revenues from national airspace users to fund FAA, (3) advantages and disadvantages of adopting alternative funding options for FAA,

---

[1]GAO, *Aviation Finance: Observations on Potential FAA Funding Options*, GAO-06-973 (Washington, D.C.: September 2006).
[2]GAO, *21st Century Challenges: Reexamining the Base of the Federal Government*, GAO-05-325SP (Washington, D.C.: February 2005).

and (4) advantages and disadvantages of authorizing FAA to use debt financing for capital projects.

To answer these questions, we reviewed relevant economic literature, policy analysis, congressional testimony, industry group publications, and stakeholders' responses to questions FAA asked them about its funding and alternative options.[3] We also interviewed key stakeholders, including officials from FAA, JPDO, the Office of Management and Budget (OMB), the Congressional Budget Office (CBO), and the Department of the Treasury (Treasury); representatives of aviation industry groups; and academic and financial experts. In addition, we examined FAA budget data, Airport and Airway Trust Fund (Trust Fund) revenue data, FAA and JPDO forecasts, and aviation activity data. We also obtained information on an estimate of FAA's future costs under NGATS but did not review in detail the methodology or assumptions used to develop this estimate. We conducted our work between May 2005 and August 2006 in accordance with generally accepted government auditing standards.
In summary:

- Understanding the costs involved in the transition to NGATS is critical to its planning and implementation, yet no comprehensive estimate of these costs currently exists. An FAA advisory committee has developed a limited, preliminary cost estimate, which officials have emphasized is not yet endorsed by any agency. This estimate suggests that with NGATS, FAA's costs would average about $1 billion more per year (in today's dollars) over the next 20 years than FAA's appropriations for fiscal year 2006. However, the NGATS enterprise architecture (a blueprint for the systems and integration required under NGATS) has not yet been developed. Consequently, the estimate should be seen as providing only a sense of the order of magnitude of the potential increased costs to FAA. In addition, this estimate does not include the costs that the other partner agencies or the industry might incur in their implementation of NGATS systems and technologies. A more precise estimate of the total NGATS cost should emerge following the development of the NGATS enterprise architecture.

- Some stakeholders support the current excise tax system because they believe it has been successful in funding FAA, has low administrative costs, and distributes the tax burden in a reasonable manner. Others, including FAA, state that under the current system, there is a disconnect between the revenues contributed by users and the costs those users impose on the NAS that raises revenue adequacy, equity, and efficiency concerns.[4] Trends over the past 25 years in, and FAA's projections of, both inflation-adjusted fares and average plane size suggest that the revenue collected under the current

[3]In September 2005, FAA provided stakeholders with information on its operations and costs and asked for responses to questions about how to fund the agency.
[4]Stakeholders that support the current funding system include the Aircraft Owners and Pilots Association and the National Business Aviation Association; stakeholders that have expressed concerns about the current funding system include the Air Transport Association and the FAA.

funding system has fallen and will continue to fall relative to FAA's workload and costs, supporting revenue adequacy concerns. Comparisons of revenue contributed and costs imposed by different flights provide support for equity and efficiency concerns.

- Adopting alternative funding options to collect revenues from NAS users would have advantages and disadvantages. The degree to which alternative funding options could address concerns about the current excise tax system ultimately depends on the extent to which the contributions required from users actually reflect the costs they impose on the system. Given the diverse nature of FAA's activities, a combination of alternative options may offer the most promise for linking revenues and costs. Switching to any alternative funding option would raise administrative and transition issues, such as the need to develop the administrative capacity to implement new charges.

- Allowing FAA to use debt-financing for capital projects, such as the replacement of facilities and equipment associated with the transition to NGATS, also presents advantages and disadvantages.[5] Some stakeholders have suggested that debt-financing—such as bonds—could be a means of funding FAA capital projects. These stakeholders argue that debt-financing is attractive because an agency could obtain capital assets without first having to secure funding through the appropriation process, while at the same time spreading the costs out over the life of a capital project as the project's benefits are realized. Debt-financing raises significant concerns, however, because it encumbers future resources, and expenditures from debt proceeds may not be subject to the same congressional oversight as expenditures from appropriations. In addition, debt-financing raises issues regarding federal borrowing costs that are particularly important in light of the federal government's long-term structural fiscal imbalance.

Background

NGATS is envisioned as a system that will meet the needs of the year 2025 while providing substantial near-term benefits. Planning for NGATS began in 2003, when Congress passed Vision 100,[6] the legislation that authorized JPDO. Vision 100 requires the office to operate in conjunction with multiple government agencies, including the Departments of Commerce, Defense, Homeland Security, and Transportation; FAA; the National Aeronautics and Space Administration; and the White House Office of Science and Technology Policy. JPDO submitted an Integrated Plan for NGATS to Congress in December 2004. In developing the Integrated Plan, the partner agencies agreed on a vision statement for the future

[5]In addition to debt-financing, some stakeholders have identified other methods of funding capital investments, such as leasing or contracting out services (e.g., flight service stations). An analysis of these other methods was beyond the scope of this testimony.
[6]Pub. L. No. 108-176, Vision 100—Century of Aviation Reauthorization Act, December 12, 2003.

system and on eight strategies that broadly address the goals and objectives for NGATS.

Among its efforts, JPDO has begun developing an enterprise architecture—one of the most critical planning documents in the NGATS effort. An enterprise architecture is akin to blueprints for a building. It is meant to provide a common tool for planning and understanding the complex, interrelated systems that will make up NGATS. JPDO intends for the enterprise architecture to describe FAA's operation of the current NAS, JPDO's plans for NGATS, and the sequence of steps needed for the transformation to NGATS. JPDO expects the enterprise architecture to clarify its expectations for NGATS, thereby facilitating coordination among the partner agencies and private sector manufacturers, the alignment of relevant research and development activities, the integration of equipment, and the development of a more reliable cost estimate for NGATS. JPDO officials expect the first complete draft of the enterprise architecture to be issued in 2007.

FAA, which will bear much of the responsibility for implementing NGATS, engages in three primary activities: aviation safety regulation and enforcement, air traffic control (ATC), and airport infrastructure development.[7] The costs associated with each of these activities generally depend on the nature of the specific service FAA provides and how it is used. FAA safety activities include the licensing of pilots and mechanics, and the inspection of various aspects of the aviation system, such as aircraft and parts manufacturing, aircraft operations, aircraft worthiness, and cabin safety. FAA states that the costs associated with these safety activities are primarily driven by the volume of each (e.g., the number of licenses and inspections). ATC includes a variety of complex activities to guide and control the flow of aircraft through the NAS. According to FAA, the costs imposed by each flight are influenced by the amount and nature of the specific services that a flight uses, and whether a flight operates at peak periods. FAA supports airport infrastructure development through the Airport Improvement Program (AIP). Unlike safety and ATC services, AIP expenditures are not the direct result of costs imposed by users of the NAS. FAA distributes AIP funding according to congressional priorities established in authorizing and appropriating legislation.

FAA is funded through appropriations from both the Trust Fund and the General Fund of the U.S. Treasury (General Fund). The Trust Fund was established by the Airport and Airway Revenue Act of 1970[8] to help fund the development of a nationwide airport and airway system. It provides funding for FAA's capital accounts, including the AIP, which provides grants for construction and safety projects at airports; the Facilities and Equipment (F&E) account, which funds technological improvements to the air traffic control system; and the Research,

[7]FAA is also responsible for commercial space licensing and oversight; this line of business is beyond the scope of this testimony.
[8]Pub. L. No. 91-258.

Engineering, and Development (RED) account, which funds continued research on aviation safety, mobility, and environmental issues. In addition, the Trust Fund supports part of FAA's operations.

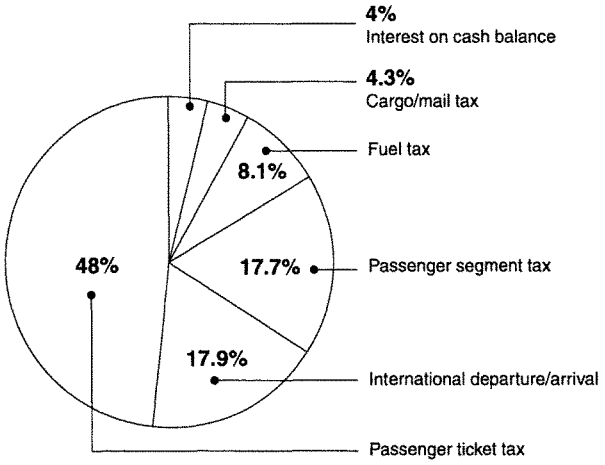
To fund these accounts, the Trust Fund is credited with revenues collected from system users through the following dedicated excise taxes:

- 7.5 percent tax on domestic airline tickets
- $3.30 domestic passenger segment tax (excluding flights to or from rural airports)[9]
- 6.25 percent tax on the price paid for transportation of domestic cargo or mail[10]
- $0.043/gallon tax on domestic commercial aviation jet fuel
- $0.193/gallon tax on domestic general aviation gasoline
- $0.218/gallon tax on domestic general aviation jet fuel
- $14.50/person tax on international arrivals and departures, indexed to inflation[11]
- 7.5 percent tax on mileage awards (frequent flyer awards tax)
- $7.30 per passenger tax on flights between the continental United States and Alaska or Hawaii (or between Alaska and Hawaii), indexed to inflation.

Trust Fund revenues totaled $10.7 billion in fiscal year 2005. The ticket tax was the largest single source of Trust Fund revenue in fiscal year 2005, totaling about $5.2 billion, or about 48 percent of all Trust Fund receipts. The ticket tax was followed by the passenger segment tax and the international departure/arrival taxes, which each totaled about $1.9 billion; fuel taxes, which totaled $870 million; the cargo/mail tax, which totaled $461 million; and interest income, which totaled $430 million. Figure 1 shows the shares received from each source during fiscal year 2005.

[9]The domestic segment tax is levied on each domestic segment a passenger travels on a flight. For example, a passenger traveling on a flight from New York to Seattle, with a connection in Chicago, travels two segments--one from New York to Chicago, and a second from Chicago to Seattle. The segment tax is $3.30 in 2006; this tax rate changes annually because it is indexed to the Consumer Price Index.
[10]This is also known as the waybill tax.
[11]The international arrival and departure taxes are $14.50 in 2006; both rates change annually because they are indexed to the Consumer Price Index.

Figure 1: Trust Fund Revenues by Source, Fiscal Year 2005



Source: GAO analysis of FAA data.

In addition to Trust Fund revenues, in most years General Fund revenues have been used to fund FAA. The General Fund contribution has varied greatly, ranging from 0 percent to 59 percent of FAA's budget. From fiscal year 1997, the year when existing Trust Fund excise taxes were authorized, through fiscal year 2006, the General Fund contribution has averaged 20 percent of FAA's total budget. About $2.6 billion was appropriated for fiscal year 2006 from the General Fund for FAA's operations. This amount represents about 18 percent of FAA's total appropriation.

There is Currently No Comprehensive Estimate of NGATS Costs

Understanding the costs involved in the transition to NGATS is critical to the NGATS planning effort, yet no comprehensive estimate of these costs has been developed. This cost information is particularly important to Congress, which will have the authority to make NGATS funding decisions. To begin estimating NGATS costs, JPDO is holding a series of investment analysis workshops with stakeholders,[12] including representatives from commercial and business aviation; general aviation (GA); equipment manufacturers; ATC systems developers; airports; and regional, state, and local planning bodies. According to JPDO, participants in these workshops are asked to discuss and comment on the appropriateness of JPDO's current assumptions about factors that drive private sector costs.

[12]JPDO held its first workshop in April 2006 and its second workshop in August 2006. No date has been announced at this time for the third workshop.

Although JPDO expects that these workshops will provide information to be used in developing a range of potential costs for NGATS, an enterprise architecture is needed to further define and better understand how a number of factors will drive NGATS costs. One of these drivers is the technologies expected to be included in NGATS. Some of these technologies are more complex and thus more expensive to implement than others. A second driver is the sequence for replacing current technologies with NGATS technologies. A third driver is the length of time required for the transformation to NGATS, since, according to JPDO, a longer period would impose higher costs. JPDO's first draft of its enterprise architecture could reduce some of these variables, thereby allowing improved estimates of NGATS costs.

While JPDO is beginning to explore the issue of cost estimates for NGATS, an advisory committee to FAA—the Research, Engineering and Development Advisory Committee (REDAC)—has developed a limited, preliminary cost estimate, which officials have emphasized is not yet endorsed by any agency.[13] REDAC estimated that FAA's budget under the NGATS scenario would average about $15 billion per year for 20 years, or about $1 billion more annually (in today's dollars) than FAA's fiscal year 2006 appropriation. REDAC estimated that the cost for a status quo (i.e., no NGATS) scenario would also be about $15 billion per year for 20 years.[14] These estimates came out roughly equal, on average, because future FAA spending would be higher under NGATS than under the status quo in the early years but lower than under the status quo toward 2025. This relationship is due primarily to the expectation that, under the NGATS scenario, capital expenditures would be higher than under the status quo scenario in the near term, but operations costs would be lower because of productivity improvements in the longer term. Moreover, the NGATS cost estimate assumes that capital costs decrease sharply toward 2025. Officials who developed this estimate explained that the estimate treats NGATS as an isolated event. In reality, these officials acknowledge that planning for the subsequent "next generation" system will likely be underway as 2025 approaches and the actual modernization costs could therefore be higher in this time frame than the estimate indicates.

In addition, this estimate should be viewed within the context of a number of factors. First, REDAC does not believe that maintaining the status quo is a viable option because it would provide insufficient capacity to meet projected future demand. REDAC stated that it presented the status quo option "for analytical purposes only since the current approach to air traffic control and management in use in the United States cannot be scaled up to handle the projected growth in

[13] In developing their estimate, REDAC used FAA's projected facilities and equipment costs under an NGATS scenario as well as REDAC's own estimates for the costs of operations; airport improvements; and research engineering and development—the remaining three components of FAA's appropriation.

[14] In this testimony, we describe REDAC's "base case" scenarios, which assumed that FAA's operations costs would increase between 2006 and 2010, but then remain constant through 2025 (except for inflation), as productivity increases offset the higher cost of increased demand. The working group also developed estimates for lower-cost "best case" and higher-cost "worst case" scenarios using differing assumptions of productivity gains.

traffic." In fact, JPDO has estimated the annual economic cost of not meeting future demand; by 2020, JPDO estimates this cost at $40 billion per year. Second, the REDAC estimate does not include the costs of the intermediate technology development work—a key step in developing NGATS.

Last, and most important, this estimate was developed before JPDO completed important planning documents and does not include estimates of the other partner agencies' costs of implementing NGATS. For example, the estimate does not include costs that the Department of Homeland Security might incur to develop and implement new security technologies. JPDO's first complete enterprise architecture, which would include security, is not expected until the middle of 2007. Additional partner agency costs, along with other costs such as those for training of personnel in new technologies, must be explored to have a complete picture of NGATS costs.

Some Stakeholders Favor FAA's Current Funding System, but Others Raise Concerns about Revenue Adequacy, Equity, and Efficiency

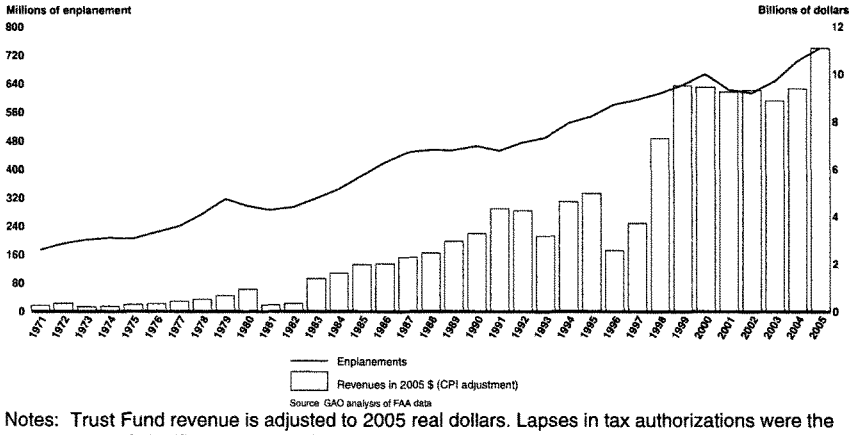
Our report on potential FAA funding options outlines several concerns stakeholders have raised about the current funding structure that supports the Trust Fund.[15] Our observations from that report bear directly on questions about funding NGATS, because the bulk of the NGATS implementation—and, presumably, the costs of that implementation—will fall to FAA. Some stakeholders support the current excise tax system, stating that it has been successful in funding FAA, has low administrative costs, and distributes the tax burden in a reasonable manner. Other stakeholders, including FAA, state that under the current system there is a disconnect between the revenues contributed by users and the costs those users impose on the NAS that raises revenue adequacy, equity, and efficiency concerns. Aviation trend data, FAA projections, and FAA cost estimates support revenue adequacy, equity, and efficiency concerns. However, the extent to which revenue and costs are linked depends critically on how the costs of FAA services are assigned to NAS users. Thus, to assess the extent to which the current approach or any other approach aligns costs with revenues would require completing an analysis of costs, using either a cost accounting system or cost finding techniques to distribute costs to the various NAS users.

Some stakeholders believe that maintaining the current funding structure for FAA is appropriate because it has been successful in funding FAA for many years, suggesting that there is no urgent reason to change it. According to these stakeholders, the revenues collected from users under the current funding system, along with General Fund revenues provided by the Congress, have been sufficient for the United States to develop a safe and efficient aviation system. As the number of air travelers grew, so did revenues going into the Trust Fund. Even though revenues fell during the early years of this decade as the demand for air

[15] GAO-06-973

travel fell, they began to rise again in 2004 (see fig. 2) and FAA estimates they will continue to increase. In addition, according to these stakeholders, the administrative costs are relatively low.

Figure 2: Trust Fund Revenues and Passenger Enplanements, 1971 through 2005



Notes: Trust Fund revenue is adjusted to 2005 real dollars. Lapses in tax authorizations were the cause of significant revenue decreases in 1981-1982 and 1996-1997. Enplanement data are total system scheduled enplanements for the United States.

Another argument for maintaining the current funding structure advanced by some industry stakeholders and analysts is that this structure reasonably allocates the funding burden between commercial aviation and GA. Under the current funding structure, system users who are subject to commercial taxes—including commercial airlines, air taxis, and many fractional ownership operations—contribute about 97 percent of the tax revenue that accrues to the Trust Fund. The remaining GA operators, which include operators of purely private corporate and individual aircraft, contribute about 3 percent. Representatives of the GA segment of the industry contend that collecting the bulk of the user-contributed revenues from the commercial segment is appropriate because the air traffic control system exists at its current size to accommodate the demands of commercial aviation and GA users should not be asked to contribute more than the incremental costs that result from also providing services to GA aircraft. Although the incremental costs are not precisely known, GA representatives have told us that they believe that the revenues currently collected from fuel taxes are a rough approximation of the incremental costs that FAA incurs to provide services to GA aircraft. According to FAA, all of the agency's cost studies to date have concluded that GA users pay less than the costs they impose on the system, while commercial operators pay more than the costs they impose on the system.

The disconnect between sources of Trust Fund revenues and FAA costs under the current funding system raises concerns that it will not produce adequate revenue

in the future to keep pace with FAA's workload increases and, consequently, FAA's costs. The principle of revenue adequacy requires a funding system to produce revenues that keep pace with costs over time. Costs for FAA are largely driven by FAA's workload. However, under the current funding system, increases in FAA's workload will not necessarily be accompanied by revenue increases because users are not directly charged for the costs they impose on FAA from their use of the NAS. Rather, Trust Fund revenues are primarily dependent on the prices of tickets (the domestic ticket tax) and the number of passengers on a plane (the domestic ticket tax, the domestic passenger segment tax, and the international passenger tax); neither is related to workload, which is driven by the costs of controlling flights and safety activities. Long-term industry trends and FAA forecasts of declines in air fares and the growing use of smaller aircraft support revenue adequacy concerns.

To illustrate the disconnect between revenues and costs, table 1 provides an example of the revenues generated by different aircraft making similar flights. The use of multiple flights by smaller aircraft to carry the same number of travelers as one larger aircraft increases FAA's workload, but will not necessarily be accompanied by increased revenues from system users to fund the additional costs associated with the additional workload. Example 1 shows the taxes that would be generated from transporting 105 passengers from Los Angeles to San Francisco by (1) one flight using a common narrow-body jet (Boeing 737), and (2) three flights using a common regional jet (CRJ-200). In this case, the narrow-body jet has the capacity to carry 132 passengers, while each regional jet has the capacity to carry 48 passengers. As the table shows, differences in FAA's workload are not reflected in the revenues. According to FAA, if all other factors are equal (e.g., time of flight), the total ATC costs of the three regional jet flights will be about three times the cost of one narrow-body flight. Revenues from the three regional jet flights, however, total only about $37, or 3 percent, more than the revenue generated by the one narrow-body jet flight. Revenue increases are not linked to cost increases because under the current system, revenues are primarily influenced by the number of passengers, the average price of tickets, and the amount of fuel used—not the costs imposed on FAA through the use of its services.

Table 1: Revenues Collected for Flights from Los Angeles to San Francisco

Approximately 300 Miles

	Example #1		Example #2		
Plane type	1 737 flight	3 CRJ-200 flights	1 767 flight	1 737 flight	Learjet 35
Number of seats	132	144	231	132	[a]
Number of passengers	105	105	180	89	[a]
Average fare ($)	$100	$100	$82	$84	[a]
Fuel consumed (gallons)	937	1,797	1,646	937	190
Ticket tax	$788	$789	$1,100	$565	$0
Passenger segment tax	$348	$348	$544	$270	$0
Waybill tax	$2	$0	$27	$2	$0
Fuel tax	$40	$78	$71	$40	$41
Total Revenue	**$1,178**	**$1,215**	**$1,742**	**$877**	**$41**

Source: GAO analysis of FAA data.

[a]Not applicable.

The disconnect between revenues and workload can work both ways; increases in the number of passengers on planes (e.g., larger planes or higher load factors[16]) or increases in fares can result in higher revenues relative to workload. In fact, load factors have increased over the past several years, and fares have increased over the past year. However, long-term trends and FAA's projections for both domestic fares and plane size suggest that Trust Fund revenues have declined relative to FAA's workload, and will likely continue to do so for at least the next 5 years.

Domestic airfares, adjusted for inflation, have steadily declined over the past 25 years, from an average of $233 in 1981 to $148 in 2005.[17] This reduction represents an average decline of about 1.9 percent per year.[18] Even though there have been increases in fares over the past year, FAA projects that average fares will continue to decline over time. In FAA's most recent forecast, inflation-adjusted domestic yields—a proxy measure for fares—are projected to decline approximately 7.3 percent over the next 10 years.[19] Trends in the average size of airplanes also

[16]A load factor is the percentage of a flight's total available seat miles used to transport passengers.
[17]We have adjusted airfare data to 2005 dollars.
[18]This is the annual compounded rate of decline.
[19]Yield is the amount of money an airline collects for every mile a passenger travels.

suggest the Trust Fund is collecting less revenue relative to workload than in the past, and FAA projections suggest this decline will continue. Since smaller planes carry fewer passengers and burn less fuel, reductions in average plane size mean that lower ticket tax, segment tax, and fuel tax revenue accrues to the Trust Fund relative to FAA's workload.

In addition to revenue adequacy issues, the disconnect between revenues contributed and costs imposed also raises equity issues. Example 2 in table 1 shows FAA's estimates of the revenue contributions made by various flights. Since FAA estimates that similar flights impose similar costs on the agency, the substantial differences in the revenue contributions of these flights raise issues of fairness. One such issue is that similar commercial flights may contribute very different amounts of revenue. In this example, a 767 flight contributes nearly twice as much as the 737 flight. A second equity issue is the fairness of the distribution of the funding burden between commercial airlines and GA operators. Domestic commercial passenger flights[20] are subject to, among other potential excise taxes, the passenger ticket tax, the passenger segment tax, the cargo waybill tax, and the jet fuel tax. GA flights (excluding those that carry commercial passengers) are subject only to a fuel tax. As a result, the revenue contributions of similar commercial and private GA flights may be substantially different. In this example, a private Learjet flight contributes approximately $40, while the commercial flights of a 767 and a 737 contribute $1,742 and $877, respectively.

Although commercial and GA flights might receive the same services from FAA, suggesting that the large difference in revenue contribution raises equity concerns, there is debate over whether commercial and GA flights should be assigned the same costs for similar flights because of disagreements about how to assign the fixed costs associated with the ATC system. Commercial aviation industry representatives favor assigning those costs among all system users in proportion to their use of the system. GA representatives, on the other hand, state that the system exists at its present size to serve the needs of the commercial aviation industry, and that GA should be assigned only the incremental costs that would not exist apart from the need to serve GA. Without a consensus on how to assign ATC costs among users, it is not possible to assess the extent to which the current approach or any other results in a distribution of the funding burden between commercial airlines and GA operators that approximates the distribution of costs attributable to those groups.

Finally, the disconnect between revenues contributed and costs imposed raises efficiency issues. For users to make efficient decisions about their use of the NAS, their price for using the system (the taxes or charges they pay) should accurately reflect the costs their use imposes on the system. Existing price differences suggest that the current funding structure creates incentives for inefficient use of the NAS. Users who pay more in taxes than the costs they impose may use the

[20] This includes some flights typically considered GA flights, such as air taxis and some fractional ownership operations.

system less than is optimal, while those who pay less than the costs they impose may use the system more than is optimal. An airline's decision about how many flights to operate to serve a market illustrates how the current system does not provide incentives for efficient use of the system. In example 1 from table 1 (the same one used for the revenue adequacy discussion), an airline is deciding how many daily flights to operate for the Los Angeles to San Francisco market. It estimates that the market demand at the fare it is charging totals 105 passengers per day, and faces the choice of providing one daily flight with a narrow-body jet (Boeing 737), or three daily flights with a regional jet (CRJ-200)—assuming all flights depart during peak periods. In this scenario, the revenue collected from three regional jet flights—$1,215—is about 3 percent more than the revenue collected from one narrow-body jet flight—$1,178. FAA states however, that each flight would impose similar costs on the agency, so FAA's costs would be roughly 3-times more for the three regional jet flights than for the one medium jet flight. In this example, however, there is little financial incentive ($37) for the airline to avoid imposing additional costs on FAA by using one flight instead of three flights.

Alternative Funding Options for FAA Present Both Advantages and Disadvantages

Alternative options for funding FAA—which includes funding NGATS because the bulk of its implementation (and, presumably, its costs) will fall on FAA—have advantages and disadvantages. The degree to which alternative funding options could address concerns about the current excise system ultimately depends on the extent to which the contributions required from users reflect the costs they actually impose on the system.[21] Our forthcoming report on options for funding FAA will examine six options, including two that would modify the current excise tax structure and four that would adopt more direct charges to users. This testimony briefly summarizes our observations for two of those six options.[22]

One example of a possible modification to the current system would be to increase the current aviation fuel taxes—which levy a specific amount per gallon of fuel—to replace revenue lost by eliminating the remaining excise taxes and charges. Fuel taxes compare favorably with other existing excise taxes from a revenue adequacy perspective because they are more directly linked to workload; all things being equal, increases in workload over time would likely result in fuel tax revenue increases. Over time, however, the incentive a fuel tax creates to

[21] It is important to note that without more detailed information and an understanding of the costs different flights impose on the NAS, any assessment of the current system or alternative funding options is only preliminary. The degree to which alternative funding options could address revenue adequacy, equity, and efficiency concerns, relative to the current system, ultimately depends on the extent to which the contributions required from users actually reflect the costs they impose on the system. More precise assessments of the current or alternative funding options are possible only if cost finding techniques are used throughout FAA.

[22] The other four funding options considered in the forthcoming report are (1) weight/distance fees, (2) flight segment fees, (3) certification fees, and (4) increasing the passenger segment tax to replace revenues lost from the elimination of the passenger ticket tax.

conserve fuel and make technological advances—while beneficial—is likely to erode the fuel tax's ability to generate revenue. Thus, it is likely the fuel tax rate would have to be raised from time to time to ensure adequate revenue in the long run. The extent to which a fuel tax would address equity issues appears to be limited. Although FAA states that there is a correlation between the time a plane spends in the NAS and fuel consumption, the extent to which fuel consumption correlates with the costs imposed on FAA has not been established. First, there may be a relationship between time in the system and en-route control costs, but the relationship between time in the system and the costs of other FAA activities, such as terminal costs, is not obvious. Second, even if the fuel tax were limited to funding en-route costs, the connection between fuel consumption and those costs appears to be incomplete. For example, since heavier planes burn more fuel per mile than lighter planes, they would be required to contribute more for spending the same amount of time in the system. As with equity issues, the potential for a fuel tax to address efficiency issues appears limited because the connection between revenues and costs is incomplete. A fuel tax can create an incentive for operators to minimize their fuel consumption, and therefore their time in the NAS. To the extent that time in the system correlates with costs imposed, this incentive can lead to improved efficiency. However, any relationship between time in the system and costs imposed on FAA appears to be limited to en-route control costs.

En-route charges represent an option to switch to a more direct user charge. Such a charge would be based on the time users spend in the NAS or the distance they travel through the NAS. An en-route charge, relative to the current funding system, would be likely to improve the system's revenue adequacy because it could incorporate a cost component into the charging formula that could be adjusted regularly to reflect any changes in costs. This approach could ensure, over time, that revenues match costs. As with the fuel tax, the ability of en-route charges to address equity and efficiency issues raised by the current system appears to be limited. According to FAA, there is a strong relationship between time and distance in the system and the en-route costs imposed by users. Thus, if en-route charges were limited to funding en-route control costs, they might address equity issues raised by the current system by equating charges to costs imposed, depending on how costs are assigned. Furthermore, en-route charges for en-route control would create clear financial incentives to use the system more efficiently; less use of the system would lead to proportionately lower charges. However, there is no obvious relationship between time or distance in the system and other FAA activities—terminal control services and safety activities. As a result, if en-route charges were used to fund all FAA activities, their ability to address equity and efficiency issues is unclear.

Switching to any alternative funding option would raise administrative and transition issues. For example, any cost-based funding system would require FAA to complete the appropriate cost analysis using either a cost accounting system or cost finding techniques. Some stakeholders who support the adoption of direct user charges also support a change in FAA's governance structure—for example, commercializing air navigation services—but we found no evidence that the

adoption of direct charges would require a governance change. Recent reforms in France show how a government agency has moved toward a cost-based system to fund the air navigation services it provides without changing the underlying governance structure.

Using a combination of workload-related taxes or charges to fund FAA might best address the revenue adequacy, equity, and efficiency concerns associated with the current funding structure, given that the costs of FAA's ATC and safety activities are driven by different factors. No single option that we reviewed creates a direct link between revenues and all components of FAA's activity costs. Fuel taxes, weight/distance charges, or en-route charges based on time or distance spent in the NAS could be used to create a more direct link with FAA's costs of providing en-route ATC services. A segment tax for passengers or a flight segment charge could be used to create a more direct link with the costs of FAA's terminal services. Certification charges could be used to create a more direct link with the costs of FAA's various safety-related activities. Thus, some combination of options, such as en-route charges to fund en-route costs, flight segment charges to fund terminal control costs, and certification charges to fund some safety costs, might best address concerns with the current system by providing a better link between revenues and costs than any of these options used separately. According to one stakeholder, however, state that the administrative expense of using multiple funding options might outweigh the benefits of such an approach. According to FAA, other air navigation service providers, such as those in the European Union, have been able to administer direct charges without incurring excessive administrative costs.

Debt Financing for FAA Raises Budgetary Concerns

Over the years, agencies have used a variety of financing approaches to acquire capital assets. All of these approaches have both advantages and disadvantages. From an agency's perspective, acquiring needed capital without first having to secure sufficient appropriations to cover the full cost of the asset is very attractive, especially in an era of limited resources and growing mission demands. However, from a governmentwide perspective, such approaches—including debt financing—raise serious concerns because they ultimately may result in higher overall costs. Given the federal government's long-term structural fiscal imbalance, any action that may increase costs requires sound justification and careful consideration before it is adopted.

Supporters of debt financing for FAA cite a number of advantages. One such advantage is that debt financing could provide FAA with a stable and predictable revenue source for funding capital developments. FAA officials state that the uncertainty associated with the appropriation process makes planning for a large, complex, and expensive air traffic control system difficult. Another cited advantage is that debt financing would allow the costs of capital projects to be repaid as the benefits are received, better aligning costs and benefits. Finally, supporters of debt financing, including some investment firms, state that the

private capital market may offer disciplinary mechanisms—such as bond covenants—that may encourage FAA to finance itself more efficiently. Treasury officials question whether the private capital market would provide any market discipline to FAA debt obligations because investors may perceive that the obligations are backed by the federal government and not just agency revenues.

If Congress allowed FAA to use debt financing, it could grant statutory authority for FAA to borrow either through the Treasury or directly from the private capital market. In either case, for FAA to use debt financing, Congress would have to provide the agency with statutory authority to borrow. There is variation in the legal, financial, and structural ways borrowing authorities for other government entities have been established. For example, some government entities produce their own revenue to pay for borrowing costs, whereas others pay with appropriations.[23] Agencies that have borrowing authority include the Bonneville Power Administration (BPA), the U.S. Postal Service, and the Tennessee Valley Authority.[24] If FAA were provided with borrowing authority, all revenue options to repay the funds—excise taxes, user fees, or appropriations—could be considered. According to some investment banks and the Treasury, no organizational changes such as a change to a government corporation or corporate entity would be needed.

The use of debt financing by FAA to pay for capital projects raises budgetary concerns. If Congress grants FAA borrowing authority, the associated costs are likely to be higher if the agency borrows directly from the private capital market instead of through the Treasury. According to Treasury officials and representatives of investment firms, the Treasury would likely be charged a lower interest rate to borrow money from the private capital market than FAA and thus could pass along these lower costs to FAA. Interest rates charged to FAA would likely be higher because bonds and notes issued by FAA would likely be viewed as a greater credit risk than Treasury bonds and notes because debt issued by the Treasury is backed by the full faith and credit of the U.S. government, while FAA debt would not be. Instead, FAA debt would be backed by specific revenue sources. In addition, if FAA borrowed directly from the private capital market, the transaction costs of borrowing would likely be higher than if FAA borrowed through the Treasury; investment banks that serve as debt underwriters charge substantial fees for these services, while the Treasury would charge a minimal administrative fee, if any. Given these advantages, Treasury officials told us that it is the department's long-standing policy that all debt issued by federal entities,

---

[23]GAO, *Budget Issues: Agency Authority to Borrow Should Be Granted More Selectively*, GAO-AFMD-89-4 (Washington, D.C.: September 1989).

[24]BPA is a self-supporting agency in the Department of Energy that borrows from the Treasury, which in turn borrows from the public, to finance capital investments, such as new transmission facilities that it owns. BPA receives no appropriations and is solely funded by revenues from power sales, which it uses to finance its operations and to make debt payments. BPA received direct borrowing authority from Congress in 1974 and has a borrowing cap of $4.5 billion. Because it is a federal agency that is performing a federal function, it is borrowing for federal purposes, and its assets are federally owned, the interest rate on BPA debt to Treasury is equal to the rate on debt of comparable maturity issued by government corporations.

including FAA, should be issued solely to the Treasury because centralized financing of all such debt through the department is the least expensive, most efficient means of financing this debt. If FAA capital spending is financed through appropriations and results in an increase to the deficit, the cost to the government is comparable to the costs of borrowing through the Treasury.[25]

Borrowing costs are particularly important in light of the federal government's long-term structural fiscal imbalance. Absent a change in policy, federal health and retirement programs will consume an ever increasing share of the nation's federal budgetary resources and gross domestic product, placing severe pressures on all discretionary programs, including those that fund defense, education, and transportation. Our more optimistic simulations show that by 2040, federal revenues as a share of the economy will not be sufficient to cover any discretionary programs—and that balancing the budget could require raising taxes by almost 60 percent or reducing federal spending by about a third. Accordingly, any program or policy change that may increase costs requires sound justification and careful consideration before adoption.

Mr. Chairman, this concludes my statement. I would be pleased to answer any questions that you and Members of the Subcommittee may have.

Contact and Staff Acknowledgments

For further information on this testimony, please contact Gerald Dillingham at (202) 512-2834 or dillinghamg@gao.gov. Individuals making key contributions to this statement include Ashley Alley, Jay Cherlow, Maria Edelstein, Colin Fallon, Carol Henn, David Hooper, Andrew Huddleston, Edmond Menoche, Faye Morrison, and Rich Swayze.

[25]Although funding through appropriations might appear less costly to FAA because borrowing from the Treasury would require FAA to make interest payments to the Treasury, from the broader perspective of the federal government as a whole, there is no difference if the government is running a deficit.

United States Government Accountability Office
Washington, DC 20548

November 17, 2006

The Honorable Jerry Costello
Ranking Democratic Member
Subcommittee on Aviation
Committee on Transportation and Infrastructure
House of Representatives

Subject: *Responses to Questions for the Record; Hearing on the Next Generation Air Transportation System Financing Options*

Dear Mr. Costello:

This letter responds to your October 18, 2006, request that we address questions that you submitted for the record related to the September 27, 2006, hearing entitled *Next Generation Air Transportation System Financing Options*. Our answers to your questions are attached. Our responses are based on our previous and ongoing work and our knowledge of the areas addressed by the questions.

If you have any questions or would like to discuss the responses, please contact me at (202) 512-2834 or dillinghamg@gao.gov.

Sincerely yours,

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

Enclosure – 1

Enclosure

Responses to Post-Hearing Questions for the Record
Next Generation Air Transportation System Financing Options
Subcommittee on Aviation
Committee on Transportation and Infrastructure
House of Representatives
Submitted November 17, 2006

Questions for Gerald L. Dillingham, Ph.D., Director
Physical Infrastructure Issues
Government Accountability Office

Questions for the Record Submitted by Ranking Member Jerry Costello

1. Dr. Dillingham, the GAO has previously stated that the declining Airport and Airway Trust Fund uncommitted balance is tied largely to over optimistic revenue forecasting by the FAA. What steps has the FAA taken to strengthen its Trust Fund revenue forecasting capabilities? Should we expect accurate Trust Fund revenue forecasts in the future? In GAO's view, should appropriations from the Trust Fund be based on forecasted revenues?

To enhance its forecasting capabilities, the Federal Aviation Administration (FAA) hired an outside party to review its aviation activity and revenue forecasting models and made some changes to its revenue forecasting as a result. In addition, FAA internally reviewed its model to determine why forecasted revenues would have been below actual revenues even if aviation activity had been accurately forecasted and made some adjustments accordingly.

As for expecting accurate revenue forecasts in the future, there will always be differences between forecasted and actual Trust Fund revenues because of the inherent uncertainty associated with forecasting. Some of this uncertainty is due to the impacts of unanticipated external events, such as the terrorist attacks on September 11, 2001, and the outbreak of Severe Acute Respiratory Syndrome (SARS). If there are fewer such events in future years than in the recent past, or if their impacts are smaller, then forecasts might come closer to actual revenues. However, we recognize that anticipating future events that might affect the demand for air travel is difficult, so some differences between forecasted and actual revenues are likely to continue. FAA's efforts to improve its forecasting methods might reduce these differences in the future, but, according to preliminary data from FAA, it is likely that Trust Fund revenues for 2006 were below the level forecasted when the President's budget for that year was submitted in February 2005. That forecast was made before FAA made changes resulting from its recent outside review. Any effects of those changes on forecasting accuracy will not be apparent until later years.

GAO does not have a position on whether or not an alternative basis should be used for setting appropriation levels. When appropriations from the Trust Fund are based on forecasted revenues, there is a risk that the actual revenues will fall short of the forecasted levels, resulting in a drawdown of the Trust Fund's uncommitted balance to cover the shortfall. Continued shortfalls could reduce this balance to zero, which would likely have implications for Congress in funding FAA programs. Possible alternatives include basing appropriations from the Trust Fund on actual Trust Fund revenues from the most recent year for which data are available or on some designated percentage of forecasted revenues, such as 95 percent. Although these alternatives might reduce the risk of the Trust Fund's uncommitted balance falling to zero, they could result in a smaller appropriation being available for aviation.

2. Dr. Dillingham, GAO has previously stated that the use of a Lead Systems Integrator (LSI) may entail certain risks, particularly regarding conflicts of interest. In testimony before the Subcommittee on Airland of the Senate Committee on Armed Services on March 1, 2006, the GAO stated, "...ideally, you'd want the LSI to be financially indifferent to the outcome of the program" and suggested that a contract provision limiting an LSI's involvement in subcontracts was beneficial. Given GAO's concerns, please provide the following information.

a) Please explain in detail GAO's concerns regarding conflicts of interest that might arise with an LSI.

LSIs are typically used for large, complex projects where the LSI brings an ability to understand and integrate functions across various systems. Although there is no complete consensus on the definition of an LSI, generally, it is a prime contractor with increased responsibilities. These responsibilities may include greater involvement in requirements development, design, and source selection of major system and subsystem subcontractors.

Since 1995, we have designated FAA's air traffic control modernization program as high risk because of systemic management and acquisition problems. In particular, we have noted that a lack of expertise contributed to weaknesses in FAA's past management of air traffic control modernization projects. We have suggested that FAA may not have the complete in-house technical expertise or contract management expertise needed to handle the complex systems integration that will be required to successfully transition to the next generation air transportation system (NGATS). Use of an LSI is one possible avenue that FAA could explore to address its need for expertise.

However, one of the primary risks of using an LSI is that conflicts of interest could arise. Specifically, the companies that have the expertise to integrate complex systems and thus operate as an LSI are often the same companies (or affiliates of the companies) that already hold contracts or would be likely to bid on contracts related to the systems integration task. Thus, an LSI with control over the selection of contractors or subcontractors would be in a position to award contracts to itself or an affiliate. Similarly, oversight and protection of the government's interests by the

LSI would be called into question when the LSI is overseeing itself or an affiliate in the performance of subcontracts.

The National Research Council recently addressed this issue in its assessment of potential system integration approaches for the National Aeronautics and Space Administration. The council noted that it would be difficult for a company acting as both the systems integrator and a major hardware vendor to avoid real or perceived conflicts of interest. The council also noted that a systems integrator would have a great deal of difficulty in accessing information from competitive prime contractors and that other hardware vendors could be expected to strongly resist being managed by this kind of systems integrator in situations that would require the sharing of proprietary data. These concerns would reduce the incentive for contractors other than the systems integrator to bid on the project's hardware procurements, the council concluded.

b) Please explain specifically why an LSI should be financially indifferent to the outcome of the program.

Let me clarify, because "financially indifferent" can mean different things. As explained above, the LSI is expected to protect the government's interests, and when the government is relying on the LSI for unbiased judgment—regarding, for example, the selection of lower-tier contractors or an assessment of their performance—it is important that nothing impair the LSI's objectivity. It is when the LSI is performing its duties related to contractor selection and oversight that an organizational conflict of interest would arise if the LSI stands to benefit financially from the outcomes. For example, if the LSI were to benefit financially from the actual production of a system for the government, that benefit could impair the LSI's objectivity during the development of that system.

c) Please provide some examples of potential conflicts of interest that could occur by utilizing an LSI to build the Next Generation Air Transportation System (NGATS).

As explained above, the companies that have the expertise to function as an LSI are often the same companies that already hold contracts or would be likely to bid on contracts related to the systems integration task. For example, Raytheon, Lockheed Martin, and ITT held contracts on 10 of the 16 major air traffic control modernization programs that we reviewed in 2005. Such companies may find it difficult to act as an LSI and a major contractor while avoiding real or perceived conflicts of interest. Partial or complete limitations could be placed on the LSI's ability to use its own products. However, it is important to note that such limitations could (1) rule out solutions that may, in fact, be the best alternative and (2) make the LSI role unattractive to the most qualified companies.

3. Dr. Dillingham, section 807 of the Conference Report on the Defense Authorization Act for FY 2007 (H. Rept. 109-702) would limit contractors acting as Lead Systems Integrators (LSI). More specifically, the provision would limit the participation of LSIs in the development or construction of

any individual system or element of a system of systems. Given GAO's concerns regarding conflicts of interest and belief that an LSI should be "financially indifferent" to the outcome of its program, do you agree with the approach taken in section 807 of the Defense Authorization Conference Report? What other measures might be taken to avoid potential conflicts of interest?

The approach taken in section 807 of the recently passed John Warner National Defense Authorization Act for Fiscal Year 2007, Public Law 109-364, addresses some of the issues discussed above. Under the provision, Department of Defense LSIs can only be awarded lower-tier contracts under two scenarios. First, the Secretary of Defense has to certify that the contract was awarded using competitive procedures and that steps were taken to prevent conflicts of interest in the source selection. Otherwise, the LSI can only be selected as a lower-tier subcontractor if the LSI exercised no control in the source selection process for the particular subcontract. Thus, section 807 reduces the risk of conflicts of interest by not allowing the LSI to award itself subcontracts.

Section 807 also requires the Secretary of Defense to provide to Congress a precise and comprehensive definition of a lead system integrator. As mentioned above (see question 2(a)), there is no consensus on what constitutes an LSI or when a contractor's roles and responsibilities reach the level of an LSI. This provision would clarify what is meant by the LSI description and what types of contracts and fee structures are appropriate for use by LSIs.

GAO is currently reviewing the use of an LSI as it relates to the Department of the Army's Future Combat System (FCS). Our work will specifically explore the role of the LSI in this project, as well as the Army's oversight of the LSI. We will also review how the FCS program contract protects the interests of the Army. We have noted in our prior work on FCS the importance of the Army's involvement in the management of the program and in overseeing the LSI. Thus, if FAA were to select an LSI approach to the implementation of NGATS, similar involvement by FAA would be important to maintain control of the program and to help avoid organizational conflicts of interest.

Another approach we have identified to avoid potential conflicts of interest involves obtaining technical advice from federally funded research and development corporations to assist the agency in oversight and management of prime contractors. These nonprofit corporations are chartered to provide long-term technical advice to government agencies in accordance with various statutory and regulatory rules to ensure independence and prevent conflicts of interest. Such a corporation could be employed to provide technical advice to FAA as it implements NGATS or to assist with oversight of an LSI.

U.S. House of Representatives
Committee on Transportation and Infrastructure

Washington, DC 20515

Don Young
Chairman

Lloyd A. Jones, Chief of Staff
Elizabeth Megginson, Chief Counsel

James L. Oberstar
Ranking Democratic Member

David Heymsfeld, Democratic Chief of Staff

October 11, 2006

Dr. Gerald Dillingham
Director, Physical Infrastructure Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Dr. Dillingham:

On September 27, 2006, the Subcommittee on Aviation held a hearing on the "Next Generation Air Transportation System Financing Options."

Attached are questions from Rep. Jerry F. Costello for Dr. Susan Irving to answer for the record. I would appreciate receiving your written response to these questions within 30 days so that they may be made a part of the hearing record.

Sincerely,

Jerry F. Costello
Ranking Democratic Member
Subcommittee on Aviation

JFC:ss/pk
Attachment

September 27, 2006
Subcommittee on Aviation
HEARING on
"Next Generation Air Transportation System"

Questions for the Record from Rep. Jerry F. Costello to:

Dr. Susan Irving
Director, Civil Aviation Issues
U.S. Government Accountability Office

Dr. Irving, you mentioned the Federal Financing Bank. What is the Federal Financing Bank?

Dr. Irving, please explain the mechanics of how an agency would borrow from the Federal Financing Bank. For example,

a) Is statutory authorization required to borrow from the Federal Financing Bank?

b) Is a dedicated revenue stream required to borrow from the Federal Financing Bank?

c) Are there examples of federal agencies that have financed capital projects through the Federal Financing Bank? If so, please provide a few?

d) What are the budgetary implications of financing a capital project through the Federal Financing Bank? How would it be scored?

e) What are the advantages, if any, of an agency borrowing from the Federal Financing Bank versus private capital markets?

Questions for the Record on the Next Generation Air Transportation System and the Federal Financing Bank

It helps to think of the Federal Financing Bank (FFB) in context. The least expensive way to debt-finance a government activity is to have the Treasury borrow in the market. Treasury debt carries a lower interest rate than does agency debt of similar maturity and size. In her statement, Ms. Jewett, Vice President with Goldman Sachs & Co., indicated that borrowing through the private sector would afford much greater flexibility in terms of budgeting than borrowing from Treasury. This discussion shows a fundamental misunderstanding of how the federal government debt-finances activities. When the Treasury borrows, it does so for the total amount of funds it must raise in the credit markets. Specific bills or notes are not linked to specific federal activities. Should Congress and the President agree that the nation should invest in the Next Generation Air Transportation System (NGATS)—and that this was an activity it was willing to debt-finance—it would be impossible to identify any specific Treasury security as tied to NGATS. Therefore the question of "matching" fees or other earmarked receipts to borrowing would never arise.

Although borrowing by the U.S. Treasury is the least expensive way to deficit- or debt-finance federal activity, Congress and the President may decide that for a given activity an agency should be the borrower. The FFB provides the most cost effective means to deal with this circumstance. As described in answer to your questions below, it reduces the cost of borrowing from the public while also assuring coordination of such borrowing to reduce disruption to the private financial markets and avoid increasing federal costs. An agency would borrow from the FFB, which borrows from the U.S. Treasury, which borrows from the public. The U.S. Government still pays the lowest cost of borrowing.

1. **What is the Federal Financing Bank (FFB)?**

The FFB is a government corporation created by the Federal Financing Bank Act of 1973 under the general supervision of the Secretary of the Treasury.[1] The FFB was established to reduce the costs of federal and federally assisted borrowing from the public and to ensure the coordination of such borrowing in a manner least disruptive to private financial markets and institutions. In addition to its unlimited authority to borrow from the Treasury, to finance its purchases of agency debt, loan assets, and its direct loans to guaranteed borrowers, FFB has the statutory authority to borrow up to $15 billion from other sources. Any such borrowing is exempt from the statutory ceiling on federal debt.

FFB makes funds available to federal agencies at a rate lower than what the borrower would receive in private credit markets.[2] Lending may take one of three forms, depending on the authorizing statutes pertaining to a particular agency or program. First, the FFB may purchase agency financial assets. Second, it may acquire debt securities that the agency is otherwise

[1] Pub. L. 93-224 (87 STAT.937), Dec. 29, 1973

[2] Section 16 of the Federal Financing Bank Act provides that the purchase by the Bank of the obligations of any local public body or agency within the United States shall be made upon such terms and conditions as may be necessary to avoid an increase in borrowing costs to such local public body or agency as a result of the purchase by the Bank of its obligations.

authorized to issue to the public. Finally, it may originate direct loans on behalf of an agency by issuing loans directly to private borrowers and receive repayments from the private borrower on behalf of the agency.[3]

2. What are the mechanics of how an agency would borrow from the Federal Financing Bank?

Typically, to arrange financing for an agency, the FFB allows the agency to specify the terms of the loan with respect to amount, maturity, and payment dates.[4] The FFB borrows the necessary funds from the Treasury Department, paying interest rates that the Treasury would have to pay to borrow the funds in the market. The FFB then executes the loan to the agency, charging a rate that captures the liquidity premium between Treasury securities and the private sector lending rate. The difference is used to cover FFB's administrative costs and possible contingencies and to pay dividends to Treasury.[5] Risk is not a factor in these pricing decisions; rather the determining factor is the Treasury's current cost of money.

The FFB is willing to assure the availability of funds to eligible borrowers and offers flexible terms. For example, borrowers may refinance or prepay loans. Also, line-of-credit type loans are made if program requirements necessitate.

a. Is statutory authorization required to borrow from the FFB?

Statutory authorization is required to permit a federal agency to issue, sell, or guarantee an obligation. Any federal agency with such authority may issue or sell such obligations directly to the FFB,[6] which can then issue its own securities either to the Treasury or, in some cases, in the private markets.

b. Is a dedicated revenue stream required to borrow from the FFB?

A dedicated revenue stream is not required to borrow from the FFB. According to the Bank's lending policy, "the Federal Financing Bank is flexible enough to avoid the need for any accumulation of pools of funds by agencies. This does not exclude the maintenance of liquidity reserves for those agencies that have such a need, though such funds must be invested in a manner compliant with Treasury investment policies."

c. Are there examples of federal agencies that have financed capital projects through the FFB? If so, please provide a few.

---

[3] With the implementation of the Credit Reform Act in 1992, agencies finance such loan programs through direct loan financing accounts that borrow directly from the Treasury.

[4] Congressional Budget Office, *The Federal Financing Bank and the Budgetary Treatment of Federal Credit Activities* (Washington, D.C.: Jan. 1982).

[5] 1982 CBO Report

[6] "Federal agency," as defined in the Federal Financing Bank Act, includes a corporation or other entity established by the Congress which is owned in whole or in part by the United States. However, the Department of Justice's Office of Legal Counsel has determined that corporations that are wholly privately funded, that have a significant measure of independence in their management, and that issue obligations not backed by the full faith and credit of the United States are excluded from this definition.

We are aware of only a few examples where federal agencies or corporations have financed capital projects through the FFB, as described below.

- To finance construction of a new Northeast Metro Michigan Processing and Distribution Center, the Postal Service borrowed $2.1 billion from the FFB in fiscal year 2006. This project is due to be completed in August 2008.

- When the budget scoring rules changed to provide up-front budget recognition of the full costs of the lease-purchase contracts—rather than the old rule of reporting those costs incrementally over the life of the contracts—OMB and GSA agreed to finance the projects with cheaper FFB financing. In effect, this converted these lease-purchase contracts into outright purchase contracts with government financing provisions.

- The Pennsylvania Avenue Development Corporation (PADC) was responsible for the planning, development, and construction of the Federal Triangle International Cultural and Trade Center-Federal Office Building project, authorized in 1987.[7] Originally, PADC planned to select a developer who would raise private capital for the project. However, OMB later determined that obtaining federal financing through the FFB was permissible and would save the government interest costs. Accordingly, the project's trustee obtained this financing through a promissory note that was issued to the FFB. This note was secured by the trustee's assignment to the FFB of the trustee's rights to receive rental payments from GSA.

d. What are the budgetary implications of financing a capital project through the FFB? How would it be scored?

Federal agencies require budget authority to commit to any purchase or contract. This budget authority must be sufficient to cover the full cost for which the federal government is obligated. In the past, GAO has taken the position that up-front budget authority should be provided for the full estimated cost of a capital project or a usable segment if the project is divisible into stand-alone stages.[8] Borrowing authority is a kind of budget authority—and would be scored. There would be no difference whether the agency borrowed from the FFB or the project was financed as part of general Treasury borrowing. One of the basic premises underlying the establishment of the FFB was that it should not affect the treatment in the unified budget of the activities it financed. Agency borrowing from the FFB is not included in gross federal debt—since the agency borrows from FFB which borrow from the Treasury which in turn borrows from the public, it would be double counting to add together (a) the agency borrowing from the FFB and (b) the Treasury borrowing from the public needed to provide the FFB with the funds to lend to agencies.

---

[7] Federal Triangle Development Act, Pub L. No. 100-113, 101 Stat. 735-747 (1987).
[8] U.S. General Accounting Office, *Budget Issues: Incremental Funding of Capital Asset Acquisitions*, GAO-01-432R (Washington, D.C.: Feb. 26, 2001).

Funds borrowed by Treasury from the public are not counted as receipts to the government—if they were, the budget would always be balanced. Similarly, when Treasury securities are redeemed (i.e., when Treasury repays federal borrowing), those repayments are not considered outlays.[9] Outlays are recorded when the agency disburses funds for the program activity. Flows of loan principal from the FFB and repayments to the FFB from agency receipts mirror this treatment. Borrowing is only a means of financing other federal activities.

e. What are the advantages, if any, of an agency borrowing from the FFB versus private capital markets?

Because Treasury can borrow more cheaply than either the private sector or individual agencies, it is always cheaper to have Treasury do any borrowing for federal activities. Therefore, since the FFB is an instrument of the Treasury, the key advantage of agency borrowing from the FFB instead of private capital markets is that it is less expensive.

At the time the FFB was established in 1973, Congress was concerned that the demands for funds through federal and federally assisted borrowing programs were increasing faster than the total supply of credit and that such borrowings were not adequately coordinated with overall federal fiscal and debt management policies.

[9] Payments of interest on the federal debt, however, are recorded as outlays.

Statement of

R. John Hansman, Jr.
T. Wilson Professor of Aeronautics & Astronautics and Engineering Systems
Director, MIT International Center for Air Transportation
Massachusetts Institute of Technology

before the

Subcommittee on Aviation
House Committee on Transportation and Infrastructure
U.S. House of Representatives

September 27, 2006

Chairman Mica and Members of the Subcommittee:

Thank you for the opportunity to comment on the Next Generation Air Transportation System (NGATS) Financing Options. I am a Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology and the Co-Chair of the FAA Research and Development Advisory Committee (REDAC). The REDAC is a congressionally mandated committee which advises the FAA Administrator on research and development. I have also participated in the NGATS Executive Council.

The development and implementation of the Next Generation Air Transportation System (NGATS) is essential for the future economic vitality of our country our quality of life. The nation relies on air transportation but our infrastructure is approaching capacity limits at key points in the system. As we approach these capacity limits nominal interruptions, such as weather, result in nonlinear amplification of delay. This can be seen in Fig. 1 where beginning in 1988 delays began to spike up in the summer months due to increased traffic levels and summer convective thunderstorms. These delays abated somewhat due to reduced air traffic after the September 11, 2001 attacks but have returned, in recent years as air traffic has increased.

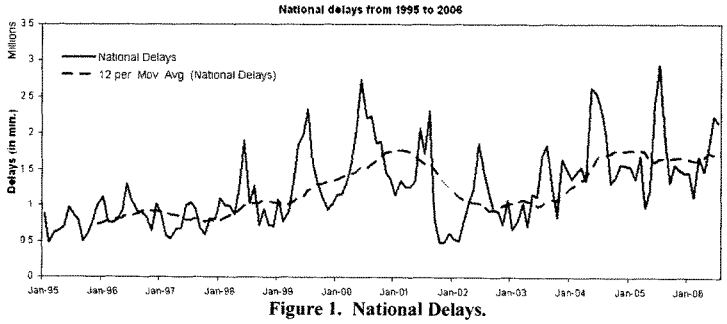


Figure 1. National Delays.

There is a general consensus, by those who have investigated this issue, that the current air transportation system paradigm will not scale to meet the future demand for air traffic. An aggressive national response is required otherwise we face extensive delays or restrictions to air travel to and around our major metropolitan areas which will impair our regional and national competitiveness and our quality of life. In addition to capacity, other emerging issues such as security, fuel availability and environmental concerns further challenge the air transportation system. NGATS offers the promise of a coordinated national response to these challenges.

Recognizing the importance of NGATS the REDAC established a working group on Financing the Next Generation Air Transportation System chaired by Mr. Jerry Thompson. The goal was to identify the level of resources required as well as available options for funding and financing research and development, capital projects, and the operations cost of NGATS. The effort focused on the FY2006 through 2025 time frame and I will attempt to briefly summarize the approach and results.

The approach the working group took was to compare a reference Status Quo scenario to the NGATS scenario. For each scenario Best, Worst, and Baseline cases were defined to scope the range of operating costs. The group also considered opportunities to reduce costs through introduction of advanced technologies and techniques or outsourcing, but did not consider issues such as labor contracts, privatization or major structural changes in the FAA organization.

Status Quo Scenario

In the Status Quo Scenario IFR traffic was projected to grow at the FAA 2005 forecast rate for the next 10 years and a slightly lower rate after that due to expected degradation in system performance.. Operations costs were estimated with the following assumptions. The Worst case assumed no productivity improvements in operations. The Best case assumed a 1% per year productivity improvement for the next 10 years and then 0.5% per year resulting in a 15% reduction in cost growth over the 20 years of the projection period. The Baseline case assumed productivity improvement rate equal to one half of the Best case.

Airport Improvement Program (AIP) funding was projected at current levels of $3.55 billion per year (note: all projections are in constant 2005 dollars). Facilities and Equipment (F&E) funding was projected using the ATO Planning and Finance Office estimates. Research and Development funding was projected at a constant rate of $125 million per year. The total FAA cost for the Status Quo scenario over the 20 year period is shown in Figure 2.

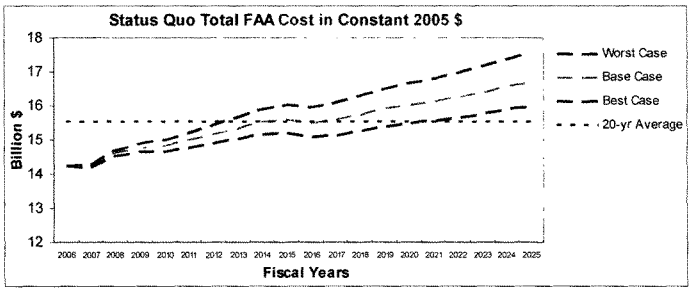


Figure 2. Total Annual FAA Costs for the Status Quo Scenario.

NGATS Scenario

In order to evaluate the NGATS Scenario, the working group first developed a "Roll Out" of NGATS capabilities in 5 year increments over the 20 year projection period. The capability roll out was developed with the input of the JPDO and was based on the best available understanding of the evolving NGATS plan at the time of analysis. The high level NGATS capabilities included:

- Network Enabled Information Access
- Performance Based Services
- Advanced Air Traffic Automation Services
- Aircraft Trajectory-Based Operations
- Weather Assimilation Into Decision Loops
- Broad-Area Precision Navigation
- Equivalent Visual Operations
- Super Density Operations
- Layered Adaptive Security

The capability rollout included a prototype implementation plan which was used to estimate R&D, Facilities and Equipment costs and Operations funded activities necessary to develop the NGATS capabilities.

The NGATS Operations costs were modeled using Best, Worst and Baseline estimates. For the first 5 years of the period the NGATS Operations costs were assumed to be the same as the Status Quo scenario. After 2011 the Best case NGATS assumption is that operations costs would be reduced about 2% per year, resulting in a 25% cost savings by 2025. The Baseline case assumed that NGATS cost savings would offset traffic growth and that operations costs would remain at 2011 levels in constant dollars. The Worst case assumed that the cost per operation would remain fixed and that operations costs would increase with traffic. The NGATS and Status Quo operational costs are shown in Figure 3.

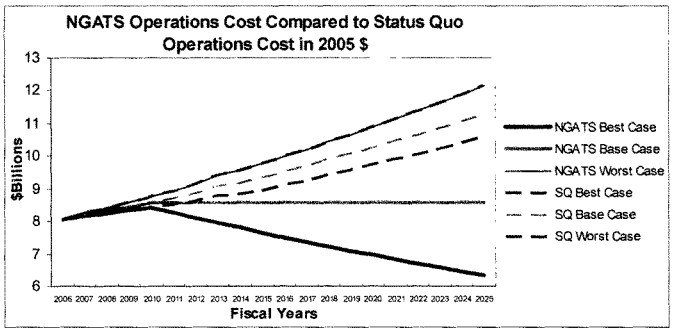


Figure 3. FAA Operational Costs for the NGATS and Status Quo Scenarios.

A top down estimate of the NGATS R&D Costs was made based on the NGATS capability roll out and is shown in Figure 4. The R&D costs include FAA R&D costs and also costs from other JPDO agencies such as NASA, DOD, TSA and NOAA. Because NASA Aeronautics activities have refocused on lower Technology Readiness Levels (TRL), more of the R&D transition burden will shift to the FAA and an increase in FAA R&D costs of approximately $100 million annually is projected to be required to cover this gap. The DOD and DHS contribution to NGATS are probably underrepresented in the estimates due to the difficulty the working group had in obtaining strong insight into those R&D programs. The direct NGATS R&D efforts are projected to taper off around 2020 as the research will move into the implementation phase. However it is likely that additional R&D funds will be necessary to prepare for post NGATS system improvements.

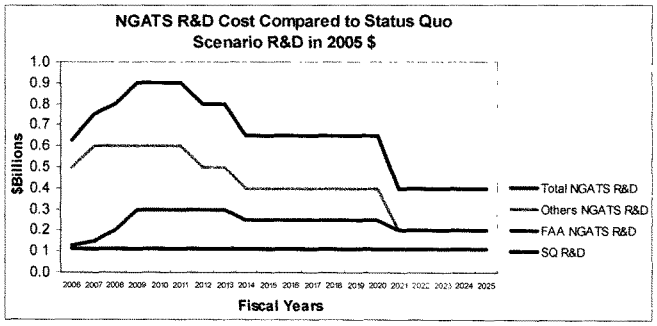


Figure 4. Estimated NGATS Research & Development Costs.

The NGATS Facilities and Equipment cost estimates are shown in Figure 5 along with the Status Quo scenario F&E costs. These estimates were developed in coordination with the JPDO and ATO Planning and Finance Offices. It should be noted that these costs only include FAA F&E costs and do not include other agencies' F&E or user equipage costs. In

the NGATS scenario the AIP costs are assumed to be the same as the Status Quo scenario at current annual levels of $3.55 billion 2005 dollars.

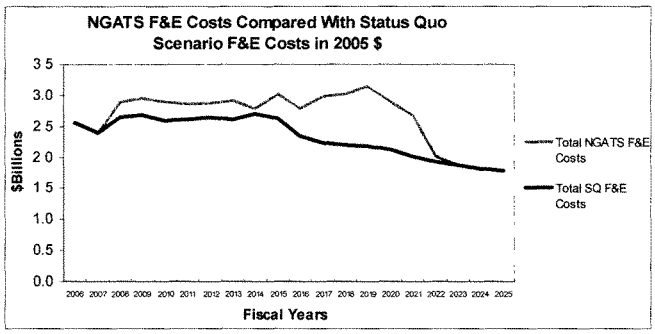


Figure 5. FAA Facilities and Equipment Costs for the NGATS and Status Quo Scenarios.

The total NGATS Costs are presented along with the total Status Quo scenario costs in Figure 6. In both the Status Quo and NGATS scenarios the annual costs are on the order of $15 billion (2005 dollars). Based on the projections NGATS will require an initial investment above the Status Quo levels but is likely to have reduced annual costs in the mid 2010-2020 time period. It should also be noted that the Status Quo scenario will not provide sufficient capacity to meet expected demand and the NGATS is expected to provide improved capacity, as well as improved environmental and security performance.

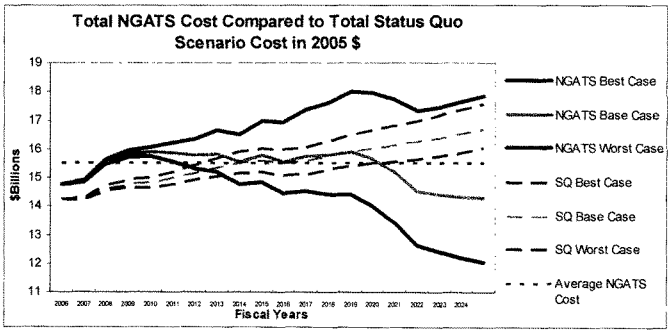


Figure 6. Total FAA Costs for the NGATS and Status Quo Scenarios.

NGATS Funding Requirements

In order to estimate FAA NGATS Funding Requirements the working group compared the cost estimates with a model of the FAA Aviation Trust Fund revenue. The trust fund model was a parametric Best, Worst, Baseline case model. Because the FAA trust fund revenue estimates have been optimistic over the past few years, the FAA forecast was

assumed as the Best case and was discounted by 4% and 10% for the Baseline and Worst cases respectively.

Another important factor is the level of contribution from the general fund to the FAA budget. The rationale for a general fund contribution is that a safe and efficient air transportation system is a public good which benefits the economy as a whole and supports military and other federal operations. It is also consistent with American values to make the National Airspace System (NAS) affordable to as many users as possible. The general fund contribution is currently determined by a statutory formula and was approximately 20% of the total FAA budget in 2005 and 18% in 2006. For the analysis, several assumptions were made regarding the contribution from the general fund including the current statutory formula and fixed percentages. An example of this analysis is shown in Figure 7.

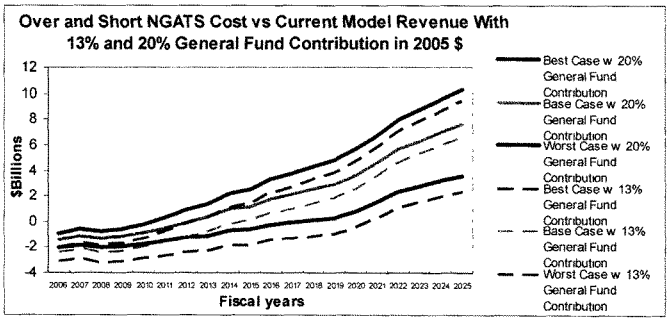


Figure 7. Example of NGATS Scenario Revenue Surplus/Shortfall with Different General Fund and Trust Fund Assumptions.

The results indicate that the continued use of the current FAA trust fund revenue rates will lead to approximately a $1 billion shortfall over the next several years without an increase in the General Fund contribution. This projection assumes a General Fund contribution to the FAA budget on the order of 20% (2005 levels).

The working group explored a number of alternatives for closing the near term funding gap including:)
- Reduction of costs (Operations, F&E, R&D, AIP),
- Increase user taxes and fees,
- Increasing the general fund contribution,
- Financing options that bridge the near term gap to repay with longer term surpluses.

Regarding the first point, the FAA is pursuing substantial cost reductions in operations and other costs, for example, the outsourcing of Flight Service operations. The working group identified additional cost saving opportunities. A composite annual cost savings on the order of $500 million is a reasonable objective for these cost reduction activities but will not be realized immediately.

The working group made a preliminary assessment of user taxes and fee approaches:
- Current revenue approach with rate adjustments,
- Fuel tax or fee only
- Weight/distance fee,
- Distance fee.

No one approach was identified as optimal or thought to be acceptable to all stakeholders. A hybrid approach is likely. More detail is included in the full working group report.

Conclusion

Successfully transforming the NAS into a Next Generation Air Transportation System (NGATS) that meets America's future aviation needs is a demanding project that will require twenty years of consistent and stable funding, management, and oversight to be successfully and efficiently completed. All the while, the system must safely and efficiently provide services every day to satisfy an ever-expanding demand for air transportation.

September 27, 2006

Subcommittee on Aviation
HEARING on
"Next Generation Air Transportation System"

Response to Questions for the Record from Rep. Jerry F. Costello

Rep. Costello: In your opinion, when would we likely begin to see savings in FAA operating costs due the Next Generation Air Transportation System?

Prof. Hansman: In the analysis the REDAC subcommittee made the assumption that the NGATS benefits would begin in 2010. There are, however, savings from current cost saving efforts which are already having an impact on FAA operating costs and these were included in the baseline (Status Quo) cost analysis. The line between NGATS and nearer term improvements such is the Operational Evolution Plan (OEP) is not that clear. It is likely that successful procedures and technologies in the NGAS plan will be integrated into the OEP have near term impact. This has already occurred with some RNAV and Required Navigation Performance (RNP) procedures.

Corrected

Statement of Ms. Ellen Jewett, Vice President, Goldman, Sachs & Co.
Testimony before the Subcommittee on Aviation of the
House Transportation and Infrastructure Committee
September 27, 2006

Good afternoon, Chairman Mica and members of the Subcommittee. My name is Ellen Jewett and I am a Vice President in the Municipal and Infrastructure Finance Group of Goldman, Sachs & Co. where I manage our Transportation business. I appreciate the opportunity to testify before the Subcommittee today on "The Next Generation Air Transportation System Financing Options". The NGATS initiative is a worthwhile and necessary step towards securing our nation's future development in aviation and I am pleased to be a part of the discussion on how to properly fund it.

Historically, the Federal Aviation Administration has relied on approximately 80% of its funding from the Aviation Trust Fund, which is set to expire by this time next year. As the FAA embarks on its ambitious NGATS program as well as restructuring the Trust Fund, this is an optimal time to explore alternative funding sources.

There are three primary capital markets options that the FAA could evaluate to fund NGATS. On the traditional end of the spectrum, the FAA could borrow from the US Treasury which would provide the lowest cost of capital. However, from a capital markets perspective borrowing Treasuries is expensive in its lack of flexibility, particularly as they can not be called or refinanced.

The debt capital markets offer another solution for the program's funding gap. In 2005, more than $450 billion of municipal bonds were issued with a total market size of $2.3 trillion. Of the total issued last year, more than 60% were revenue bonds, or bonds that are backed by revenues of a project or asset as opposed to the taxing power of the government. This robust market provides an opportunity for issuers to borrow against any type of revenue, including any user fee without recourse back to the governmental entities.

A particular approach that is widely used and ensures the highest security to a bondholder is a securitized revenue structure. Under this structure, the FAA or a conduit issuer levies a charge which is then

passed through a special purpose entity and is irrevocably pledged to the bondholders.

How might this revenue securitization model be applicable to the NGATS program? One example is through a securitization of FAA revenues or user fees. How the fee is levied – ticket tax, passenger levy, airline charge – is less important to the capital markets than whether it is a stable revenue stream. A portion of this charge would be irrevocably pledged to a special purpose vehicle that would issue bonds backed by the expected regular collections of those fees. These collections would be used to pay principal, interest and other related costs.

The special purpose vehicle would remain legally remote from the FAA. In order to ensure the involvement of all users of the system, a capital policy board could be set up to determine the scope of the capital financing plan and to enact it on behalf of the FAA. It is envisioned that members from all interested parties – airlines, airports, labor – would be represented along with members of the FAA. This board would ultimately determine the size and strategies governing the financing and set rules to ensure accountability.

There are a number of benefits to this financing structure. The most important to note is that neither the FAA nor the US Government is obligated to pay anything other than transferring the pledged revenue collections. Should the revenue collections fall short of necessary debt payments, there is no recourse back to the FAA or the government. Additionally, there is no FAA operational risk. Thus, the FAA is able to transfer its risk and collect money up front to fund a significant investment in aviation infrastructure.

The public policy implications are important. Under the proposed securitization structure, the FAA could separate the public policy determination of financing needs and capital plan from the execution of the financing. By granting a legally separate oversight board the authority to control the amount and timing of the issuance of securities, the board would have the right to review and/or reject the proposed financing plan. Thus, users of the system that would be impacted by the financing decisions would have a direct role in determining if such a financing is necessary.

The third and more radical alternative to solve the funding gap would be to explore the burgeoning public-private partnership market which would result in effectively transferring assets to private operators. With a large demand for projects that produce long-term, steady revenue streams (and thus, long-term,

steady returns) from a wide variety of pension funds, insurance companies and private equity funds, this market could provide an additional or alternative source of funds for the FAA.

It is not unusual for governments to tap private investors for funding assistance. In fact, there are numerous examples of the Army or Navy leasing all of the housing on its bases to private developers. In the United Kingdom and Canada public-private partnerships form the basis for management of the air traffic control systems.

The FAA has already enacted such a program under the Pilot Privatization Act whereby a private entity can own and operate airports in the US through a long-term, performance-based concession. Currently, there is a small airport in New York that has been privatized under this approach. Additionally, Chicago Midway Airport has just submitted an application to seek privatization under the act. This recent surge in interest in privatizing airports could signal that the public-private partnership market may be a very real and viable alternative to a debt financing.

It is apparent that there are a number of options available to solve the future funding issue. Ultimately, the revenue bond structure may be the best choice for the FAA to consider to solve its upcoming funding gap. The cost of borrowing would not be much greater than borrowing directly from the US Treasury and it will afford much greater flexibility in terms of budgeting and refinancing. Additionally, the public-private partnership alternative presents a unique opportunity for the FAA to transfer all operating control and risk to the private sector in lieu of a financing.

That concludes my statement, Chairman Mica. Thank you, I appreciate the opportunity to speak here today. I would be pleased to address any questions you or other Members of the Subcommittee might have.

CBO TESTIMONY

Statement of
Donald B. Marron
Acting Director

Financing Investment in the Air Traffic Control System

before the
Committee on Transportation and Infrastructure
Subcommittee on Aviation
U.S. House of Representatives

September 27, 2006

This document is embargoed until it is delivered at 2:00 p.m. (EDT) on Wednesday, September 27, 2006. The contents may not be published, transmitted, or otherwise communicated by any print, broadcast, or electronic media before that time.

CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

Mr. Chairman, Congressman Costello, and Members of the Subcommittee, I am pleased to appear before you today to discuss financing of the investments necessary to expand the capacity of the air traffic control system to meet future demands as well as the way spending for that purpose would be recorded in the budget.

My testimony today makes three points:

- Developing and putting in place a new air traffic control system are likely to require significant investments by the federal government or by entities acting on its behalf.

- Outlays from appropriations for the costs of a new air traffic control system would be recorded in the budget when the investments were made. The least expensive way of paying for such investments would be through federal spending financed by the U.S. Treasury. Alternative methods of financing would increase the government's costs.

- The Congress will face important decisions in allocating costs among taxpayers and various types of users of the new system. Those decisions will have important consequences for how efficiently the national airspace is used. A strong economic rationale exists for assigning a substantial portion of those costs to users.

The Future of Air Traffic Control

In response to the growing demands on the United States' management of its air traffic—both from increasing air travel and the need for greater security—the Congress established an office, jointly managed by the Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA), to develop and implement a plan for improving the capacity, safety, and security of the nation's air travel. Public Law 108-176 (Vision 100–Century of Aviation Reauthorization Act), enacted in 2003, created the Joint Planning Development Office (JPDO). Its main task is to manage the transition to the Next Generation Air Transportation System (NGATS).

According to the most recent planning materials from the JPDO, the new system is designed to accommodate up to three times the volume of current air traffic by making more efficient use of both the national airspace and airport facilities.[1] The NGATS would be a more decentralized air traffic control system than the system currently in place in the United States. In-plane guidance systems would work in conjunction with satellites of the Global Positioning System (GPS) to supplement direct supervision of individual planes by ground-based controllers and radar

1. See Federal Aviation Administration, Joint Planning and Development Office, "Concept of Operations for the Next Generation Air Transportation System" (draft version 0.2, July 24, 2006), p. 1-7, available after free online user registration at http://techhangar.jpdo.aero/index.php?option=com_content&task=view&id=39&Itemid=112.

stations. As a result, each plane would depend less on instructions from an air traffic controller and more on its own resources for maintaining a safe flight pattern and would be better able to adjust to the particular air traffic conditions in its vicinity.

The new system would be based on more-precise guidance techniques. If those techniques worked as intended, the distance required between aircraft for safe flight would be smaller and the amount of air traffic could increase. In addition, the new system would allow airspace to be used less rigidly than it is today; that is, aircraft might be able to fly more direct routes because of the system's capacity to manage the national airspace more efficiently. Those changes would enable more flights to be airborne safely and could also mean that greater capacity would be required at airports.

Underlying the NGATS generally is more effective use of information about the air traffic in a particular plane's vicinity, the prevailing or impending weather conditions that will affect the plane's flight, and the constraints related to airports that the aircraft faces. The FAA envisions that the information available to each plane will also be available to other aircraft and to ground control units. As a result, the new system should allow ground-based air traffic controllers to establish and maintain contact with planes nationwide, regardless of where a particular aircraft or air traffic control facility is located.

Implementation of the NGATS is likely to require substantial capital investments on the part of both the federal government and private-sector entities. For example, outfitting aircraft with the Automatic Dependent Surveillance–Broadcast (ADS–B) system (which enables a plane to determine its location through GPS satellites and automatically broadcast its position to other aircraft) would be expensive. Allowing seamless connections between individual planes and ground-based air traffic control units nationwide, which the FAA plans to carry out through its systemwide information management technology, would require substantial expenditures for communications hardware and software.

Projections of costs for the new system are still very preliminary. The ultimate costs will depend on a number of factors, including advances in key technologies and the ability of a number of government agencies—such as NASA and the National Oceanic and Atmospheric Administration—to coordinate their efforts.

Funding for Activities of the Federal Aviation Administration

The Vision 100–Century of Aviation Reauthorization Act (Vision 100) is the most recent authorization law governing spending for aviation programs. Set to expire at the end of fiscal year 2007, Vision 100 provides contract authority for grants-in-aid to airports and authorizes the appropriation of specific amounts from the Airport and Airway Trust Fund for air transportation research and for facilities and equipment—primarily infrastructure and systems for communication, navigation,

and radar surveillance related to air travel. The law specifies that amounts in the trust fund should be used first to fully fund those activities; it authorizes appropriation of the remaining funds to support the FAA's operations. Vision 100 also authorizes additional appropriations from the general fund of the U.S. Treasury for the balance of the FAA's operating costs.

The FAA receives funding for most activities, including those related to air traffic control, in annual appropriation acts. For 2006, the agency received nearly $14.4 billion in discretionary resources, including appropriated budget authority and obligation limitations on contract authority (see Table 1).[2] That amount included $2.6 billion for air traffic control facilities and equipment, $8.1 billion for the FAA's operations (used primarily to operate the air traffic control system), and $3.7 billion for most of the agency's other programs.

Appropriations for the FAA's facilities and equipment have declined in recent years. From 2002 through 2004, they averaged about $2.9 billion annually. Over the 2005–2006 period, annual appropriations averaged about $2.5 billion—the same amount that the Administration requested for 2007.

The Airport and Airway Trust Fund

Approximately 82 percent of the FAA's funding for 2006 was provided from the Airport and Airway Trust Fund (see Figure 1). (The remaining 18 percent was appropriated from the general fund.) The trust fund is an accounting mechanism in the federal budget that records specific cash inflows from revenues related to air transportation—primarily excise taxes on commercial airline tickets—and cash outflows for programs that receive resources from the fund. Annual spending from the fund is not automatically triggered by the collection of tax revenues but is controlled by budget authority and obligation limitations established in annual appropriation acts.

The status of the trust fund is generally assessed by projecting its uncommitted balances—which represent the amounts credited to the fund that the FAA is not authorized to obligate. The Congressional Budget Office (CBO) has estimated the trust fund's future uncommitted balances under certain assumptions, projecting budgetary resources, revenues, and outlays through 2016 (see Table 1). Outlays and revenues are each estimated separately because they have different bases: outlays depend on the amount of budgetary resources provided in appropriation acts, and revenues depend on the collection of various excise taxes.

CBO's baseline assumptions, which are consistent with the provisions of the Balanced Budget and Emergency Deficit Control Act of 1985, provide one basis for projecting the trust fund's balances. CBO calculates the baseline for discretionary

2. Obligations for grants-in-aid for airports are governed by limitations set in appropriation acts. The outlays are therefore considered discretionary. (The budget authority, in the form of contract authority, was established in Vision 100.)

Table 1.

Discretionary Budgetary Resources for the FAA and Cash Flows and Balances of the Airport and Airway Trust Fund

(Billions of dollars)

	Actual				Baseline Projections[a]			
	2002	2003	2004	2005	2006	2007	Total, 2007-2011	Total, 2007-2016
Discretionary Budgetary Resources for the FAA[b]								
Appropriations from the General Fund for FAA Operations	1.1	3.2	3.0	2.8	2.6	2.7	14.5	31.6
Discretionary Budgetary Resources from the Airport and Airway Trust Fund								
FAA operations (Share from trust fund)	6.0	3.8	4.5	4.9	5.5	5.7	30.5	66.1
Grants-in-aid for airports	3.5	3.4	3.4	3.5	3.5	3.6	18.6	39.1
Facilities and equipment	3.0	2.9	2.9	2.5	2.6	2.6	13.7	28.9
Research, engineering, development, and other	0.3	0.2	0.2	0.2	0.2	0.2	1.1	2.2
Subtotal	12.8	10.3	10.9	11.1	11.8	12.1	63.9	136.2
Total	**13.9**	**13.5**	**13.9**	**13.9**	**14.4**	**14.8**	**78.4**	**167.8**
Cash Flows and Balances of the Airport and Airway Trust Fund								
Trust Fund Deposits (Revenues and interest earnings)	10.1	9.4	9.7	10.8	11.2	11.9	66.7	153.4
Trust Fund Outlays	11.9	9.6	10.4	11.2	12.1	12.3	64.1	136.0
End-of-Year Uncommitted Balances[c]	4.8	3.9	2.5	1.9	1.7	1.2	4.3[d]	18.6[d]

Source: Congressional Budget Office based on data from the Office of Management and Budget.

Notes: Numbers in the table may not add up to totals because of rounding.

FAA = Federal Aviation Administration.

a. Projections for 2007 to 2016 reflect CBO's August 2006 baseline and incorporate the assumption that discretionary budgetary resources from the trust fund total $11.8 billion in 2006 and then grow at the rate of anticipated inflation.

b. Annual appropriation acts provide budget authority as well as obligation limitations on contract authority for grants-in-aid for airports.

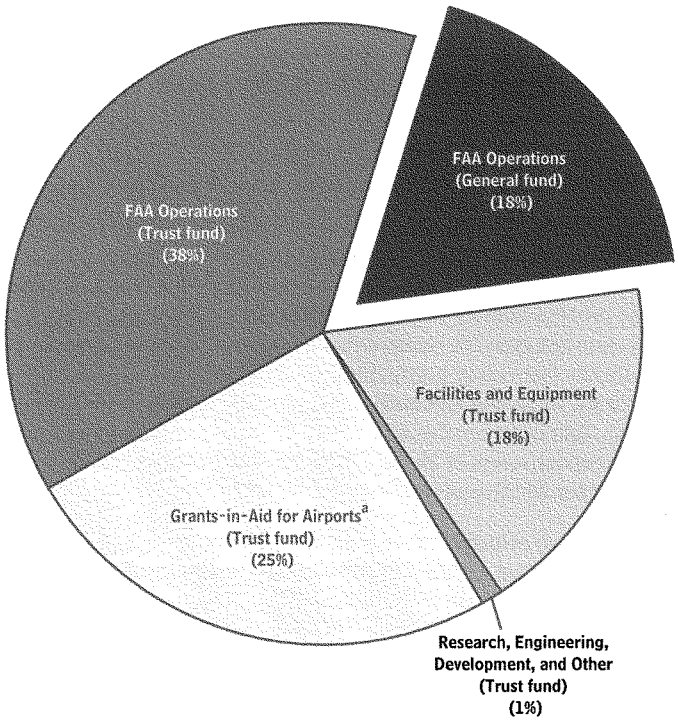
c. Uncommitted balances represent amounts in the trust fund that are unavailable for obligation. Balances at the end of 2006 to 2016 are projections.

d. Balances at the end of 2011 and 2016, respectively.

Figure 1.

Discretionary Budgetary Resources Provided to the Federal Aviation Administration for 2006

(Percent)



Source: Congressional Budget Office based on Federal Aviation Administration, *Budget in Brief—Fiscal Year 2007* (February 2006).

e. Annual appropriation acts provide budget authority as well as obligation limitations on contract authority for grants-in-aid for airports.

spending by inflating enacted levels of discretionary budgetary resources for future years and estimating the outlays that would result. It projects revenues under the assumption that current law remains the same but that expiring taxes dedicated to trust funds will be extended at current rates. Thus, in its baseline projections, CBO assumes that the Airport and Airway Trust Fund taxes that are now scheduled to expire after September 30, 2007, will be extended through 2016.

CBO estimates that under the assumptions used in its August 2006 baseline, amounts (including interest) credited to the Airport and Airway Trust Fund over the 2007–2016 period will total $153 billion and outlays will total $136 billion (see Table 1). Spending related to the infrastructure of the air traffic control system

would account for about one-fifth of that amount under the assumption that funding for facilities and equipment totals $2.6 billion in 2007 and grows to $3.2 billion in 2016 to keep pace with anticipated inflation. In CBO's baseline projections, uncommitted balances in the trust fund increase modestly in 2008 and 2009, but annual additions to those balances total more than $1 billion in 2010 and increase to nearly $4 billion by 2016. Assuming that the general fund continues to provide about 19 percent of total funding for the FAA's operations, CBO estimates that during the next 10 years, the trust fund can support about $19 billion in additional spending over baseline levels (the 2006 funding level growing with inflation), provided that most of that spending occurs after 2010.

Financing New Investments in Air Traffic Control

Policymakers face many decisions about capital investment across the budget. Different methods of funding such investments involve varying financing costs and differing levels of Congressional control over agencies' decisions. The annual appropriation process directly funds most of the government's spending for capital acquisitions. Another possible method that minimizes financing costs is direct spending authority (including borrowing authority) provided in authorizing legislation. In contrast, financing approaches that provide agencies with the authority to issue their own debt or to involve nonfederal entities in certain types of arrangements to lease capital assets or finance the acquisition of such assets on behalf of the government would increase overall costs to taxpayers.

Under the accounting principles that govern the federal budget, the authority to acquire capital assets that are used exclusively or predominantly to provide a governmental service—regardless of the exact details of the transactions—should be recorded as budget authority "up front," when the asset is acquired. That budgetary treatment applies regardless of whether the budget authority takes the form of discretionary appropriations or direct spending and regardless of whether third parties will participate in leasing or alternative financing arrangements.

Annual Appropriations

Funding for the air traffic control system is currently provided through the annual appropriation process. Budget authority is recorded when appropriation laws are enacted, and obligations are shown when commitments to spend are made. Outlays are recorded when the government makes actual cash payments. Thus, in the case of a capital good used for air traffic control—computer systems and radars, for example—outlays occur not over the course of a good's useful life but when it is paid for. That budgetary treatment applies whether the ultimate source of funds is government borrowing or taxes and fees and regardless of whether those taxes and fees are credited to a trust fund. Most of the government's capital investments (military hardware, the space station, dams, and prisons, for example) are recorded in the budget in that way. That approach provides the Congress with the most direct ongoing control over spending, but it can contribute to uncertainty about the amount of resources that will be available in the future and requires difficult choices among competing federal programs.

Full Funding and Advance Appropriations

In appropriation acts, policymakers could provide funding for the air traffic control system all at once (full funding) or specify the amount of funding to become available in future years (advance appropriations). Full funding provides more certainty about the availability of funds but reduces Congressional control over annual spending and may be difficult to accommodate in an appropriation bill if constraints on discretionary spending are tight. Budget authority from advance appropriations provides somewhat less certainty than full funding because it is not immediately available for obligation. For example, the Congress recently provided an advance appropriation to develop countermeasures against terrorist attacks involving biological agents (Project BioShield).

Direct Spending Authority

Agencies that seek increased funding for capital investments sometimes request direct spending authority (such as borrowing authority), which allows the agency to spend funds outside the normal appropriation process. Direct spending authority can be for specific or indefinite amounts. It does not change the budgetary impact of spending for new capital goods—outlays are recorded when spending occurs—but it does diminish the year-by-year control that the Congress asserts over an agency in the annual appropriation process.

The simplest way to authorize direct spending is to specify levels of budget authority that an agency may spend without a subsequent appropriation. For example, authorizing legislation provides up to $50 million annually for the Department of Transportation's Essential Air Service program to subsidize the cost of providing service to certain rural communities. The department's authority to obligate funds for that program is not subject to the appropriation process.

Alternative Forms of Federal Borrowing

The Department of the Treasury conducts the federal government's conventional borrowing by issuing bonds and other types of debt. Conventional Treasury securities are the "gold standard" of bonds because they are free from the risk of default and highly liquid. Other means of borrowing funds can be expected to cost the government more.

The Tennessee Valley Authority (TVA) is an example of an agency that has direct spending authority in the form of borrowing authority. TVA has the authority to issue bonds up to a specified ceiling (now $30 billion) and a source of income (the sale of electricity) that can be used to service its debt. The costs of its borrowing—which are typically 30 to 40 basis points higher than the costs of comparable Treasury securities—are thus borne by the users of the electricity it generates.[3] TVA's operations are subject to various statutory restrictions and contractual covenants that are designed to ensure it can repay its debt in a timely manner.

---

3. A basis point is one-hundredth of a percentage point.

Another financing mechanism that has been proposed to fund the government's capital acquisitions is tax-credit bonds (issued either by the federal government or by nonfederal entities). Such bonds allow their purchasers to receive a credit against their federal income tax liability instead of the cash interest that is typically paid on the borrowing that bonds represent.[4] With tax-credit bonds, the federal government bears virtually all of the costs of borrowing—in the form of forgone tax revenues—even if the bonds are issued by a nonfederal entity. Supporters find the idea of the bonds attractive, in part because they provide multiyear funding and can eliminate the need for yearly legislative action. However, if the bonds were issued by a nonfederal entity, the related debt-service costs would be higher than those incurred with federal borrowing and would not be readily apparent in the budget because they would be recorded as a loss of tax revenues. In the case of funding for air traffic control systems, an entity that issued tax-credit bonds would be part of, controlled by, or acting as an agent of the federal government. As a result, such spending should be recorded as budget outlays in the same way it would be if it were being financed by conventional Treasury securities.

Lease-Purchases, Capital Leases, and Other Forms of Third-Party Borrowing

Alternatively, an agency might seek to acquire investment goods through a third party (such as a private firm, special-purpose entity, or state and local government) that would raise funds in private capital markets to purchase an asset and then provide it to the federal government in return for a series of annual payments.[5] Under such arrangements, an agency does not disburse the full cost of the investment when it is acquired but instead makes annual payments over a period of years. In the case of routine operating leases (for example, for commercial office space not constructed specifically for the government), the budget authority and outlays for those payments are recorded year by year, as payments are made. But if the federal government is the sole or dominant user of the capital asset—as would be the case with air traffic control investments—such arrangements are actually a form of purchase by the government. Established budgetary principles require that both budget authority and outlays for such arrangements (for example, lease-purchases and capital leases) be recorded in the budget when the asset is acquired, not as the annual payments are made.[6] Such approaches often require complicated financial arrangements and rely on private financing, which is more expensive than federal borrowing. Thus, they cost taxpayers more than do straightforward appropriations or direct spending authority.

---

4. Congressional Budget Office, *Tax-Credit Bonds and the Federal Cost of Financing Public Expenditures* (July 2004).

5. See Congressional Budget Office, *Third-Party Financing of Federal Projects* (June 1, 2005).

6. See Office of Management and Budget, *Preparation and Submission of Budget Estimates,* Circular A-11 (June 2006), Appendix B. For further discussion, see Congressional Budget Office, *The Budgetary Treatment of Leases and Public/Private Ventures* (February 2003).

Who Pays for Air Traffic Control Services?

The question of who will pay for the Next Generation Air Transportation System is distinct from the budgetary treatment of spending for air traffic control services. Broadly speaking, taxpayers or users of such services will pay for the new system. Users include providers that carry passengers or cargo, their customers, general aviation users (business and recreational), and the government.

In general, a desirable approach is to require users of a service to pay for it so that the choices they make will take into account the costs of providing it. Allocating costs efficiently and fairly among different types of users presents challenges. Nonetheless, the effort is important because it will influence how efficiently the system of air traffic control works.

Users of air traffic control services currently pay a substantial portion of the costs of providing those services, mostly through the ticket and other taxes. Although some benefits of the services accrue to the economy as a whole, most accrue to aviation service users. A strong case can thus be made that users of the NGATS should pay for a substantial portion of those costs—whether those payments are structured as they are today or modified to distribute the costs differently.

Forecasts of rapid growth in commercial and general aviation reenforce the importance of an efficiently and fairly priced air traffic control system in the future. In recent years, air carriers have added large numbers of smaller regional jets to their fleets (see Figure 2). Such aircraft allow carriers to provide more-frequent jet service and to serve smaller cities—yet still match capacity with demand. However, the proliferation of smaller jets also puts more pressure on the air traffic control system and adds to congestion at busy airports and in heavily traveled airspace. That trend may continue among commercial carriers, according to the FAA. In addition, the potential introduction in the next several years of relatively inexpensive, very light jets may expand demand for air traffic control services. The growth of each aviation sector and the resulting rise in the amount of air traffic in the United States overall are likely to be affected by the prices that the different types of air carriers and passengers pay for air traffic control services.

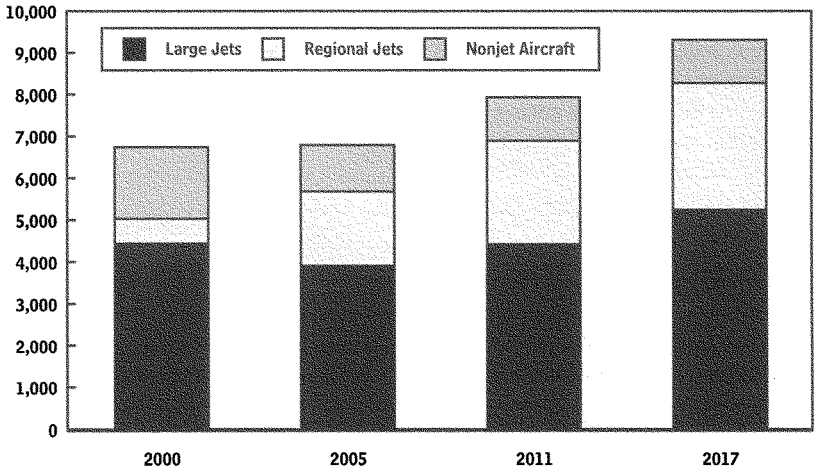
Currently, various taxes on passengers and other users that are credited to the Airport and Airway Trust Fund finance much of the FAA's provision of those services. During 2006, such collections provided about $5.5 billion of the agency's overall operating budget of about $8.1 billion, the bulk of which is used to manage the air traffic control system.[7] About two-thirds of the trust fund's collections comes from taxes imposed on all passengers of commercial airlines (see Figure 3).

7. Other operating costs include those for air safety programs and the activities of various management and administrative offices. Operations of the FAA that are not funded by the Airport and Airway Trust Fund are paid for out of the general fund. In addition to covering some of the FAA's operating costs, the trust fund's income is also currently sufficient to pay for capital investments related to air traffic control, projects to improve infrastructure at airports, and research programs, such as the program carried out by the JPDO.

Figure 2.

The United States' Commercial Passenger Aircraft Fleet

(Number of aircraft)



Source: Congressional Budget Office based on Federal Aviation Administration, Office of Policy and Plans, *FAA Aerospace Forecast—Fiscal Years 2006–2017* (February 28, 2006).

The remaining one-third comes from taxes on specific types of travel, such as international arrivals and departures, and fuel taxes.

Financing much of any new system of air traffic control by charging users will provide incentives to both deploy and operate the system in an economically efficient way. However, a number of issues regarding the allocation of costs among users need to be addressed. For example:

- Quantifying how individual aircraft impose costs on the air traffic control system may be difficult. Such a measurement may be complicated by efforts to gauge the additional costs of congestion in crowded airspace and at certain busy airports—that is, the costs that individual users impose on others by claiming those scarce resources.

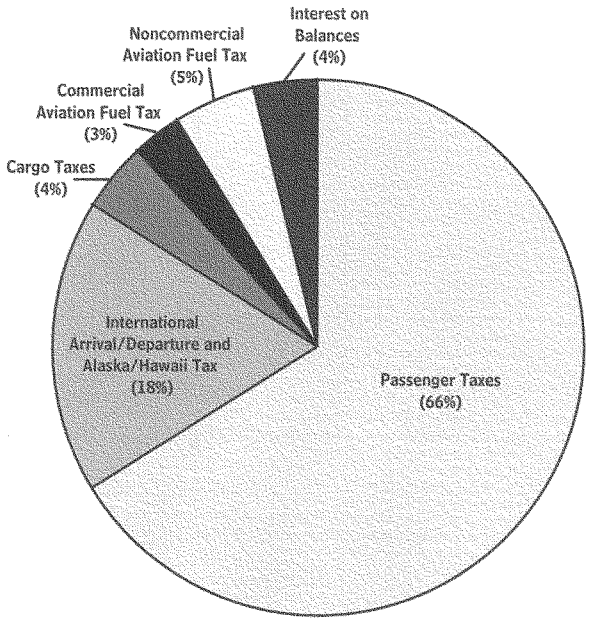
- The provision of air traffic control services may entail substantial costs that cannot readily be allocated to a particular user but that must be incurred to provide the services at all. Those common costs could be allocated by one of several mechanisms.

The resolution of those and related issues will determine how efficiently air traffic control services and the national airspace are used.

Figure 3.

Sources of Receipts Credited to the Airport and Airway Trust Fund in 2005

(Percent)



Source: Congressional Budget Office based on Federal Aviation Administration, *Airport and Airway Trust Fund Receipts* (March 3, 2006).

Note: The total amount credited in 2005 was $10.8 billion.

Responses to Questions for the Record from Representative Jerry F. Costello Regarding Testimony by Donald B. Marron, Acting Director, Congressional Budget Office, Before the House Committee on Transportation and Infrastructure, Subcommittee on Aviation, September 27, 2006

Question 1

Dr. Marron, some believe that cost-based user fees are considered more likely to be given a budget treatment that would permit such fees to be spent outside the constraint of the overall discretionary spending limit. Based on general budgetary guidelines, is this belief correct? Please explain your answer and provide the specific guidelines.

It is not necessarily true that the introduction of cost-based fees would permit spending on the air traffic control system "outside the constraint of the overall discretionary spending limit." The spending of fees outside of such limits would require that either:

- The spending authority be provided in an appropriation act and the fees be established so as to offset the spending on the discretionary side of the budget or

- The fees and the spending authority be enacted in and controlled by authorizing legislation, in which case the budget authority and outlays related to that spending authority would be considered direct spending.

In the first instance, both collections and expenditures would be credited to annual appropriation acts such that only a net amount (which could be zero or something near zero) would be charged against any annual limit on total discretionary spending. However, the principles that generally underlie the federal budget suggest that in the case of air traffic control, such a fee would not ordinarily be treated as an offset to discretionary spending.

In general, collections that result from the government's sovereign power—for example, to levy taxes or regulate private-sector activities—are considered revenues. Guidance on whether federal fees should be treated as revenues or as negative outlays is provided by the 1967 Report of the President's Commission on Budget Concepts. CBO, the Office of Management and Budget, and the House and Senate Budget Committees frequently rely on that report to decide how to classify federal collections. The report states:

> For purposes of summary budget totals, receipts from activities which are essentially governmental in character, involving regulation or compulsion, should be reported as receipts [that is, revenues]. But receipts associated with activities which are operated as business-type enterprises, or which are market-oriented in character, should be included as offsets to the expenditures to which they relate (p. 65).

For purposes of Congressional scorekeeping, revenues and spending are treated separately and are not netted against each other. (In contrast, collections that result from voluntary, businesslike transactions are considered offsets to spending—that is, they are recorded as negative outlays and thus netted against expenditures.)

The Congressional Budget Office (CBO) views the use of the current air traffic control system in the United States and the payment of any associated fees as requirements imposed by the government through an exercise of its sovereign power. Within that context, CBO anticipates, fees for use of the system would likely be considered federal revenues and would not be netted against spending by the Federal Aviation Administration (FAA). How particular fees are treated in the budget process, however, depends on the specifics of the legislation that creates them.

Similar issues arise in the case of fees and spending authority established by authorizing legislation. If the income from the fees was classified as revenues for Congressional scoring purposes, those amounts would not be netted against the direct spending outlays. The relevant committees would need separate allocations governing the revenues and the spending.

The authority to spend federal collections does not necessarily depend on the budgetary treatment of those collections. The government's collections—whether classified as revenues or as negative outlays—are available for expenditure only to the extent authorized by law. The Congress must provide agencies with specific authority to spend collections, either as direct spending authority—that is, in authorizing legislation—or as discretionary budget authority in annual appropriation acts.

Question 2

Dr. Marron, can you please provide a succinct explanation of methods and assumptions underlying CBO's Airport and Airway Trust Fund revenue projections? What is the trust fund's annual rate of growth above inflation and the GDP?

Almost 90 percent of the revenues credited to the Airport and Airway Trust Fund come from the excise taxes levied on the transportation of people by air and on international departures and arrivals. Revenues from the transportation of people by air are generated almost entirely from two major taxes: the passenger ticket tax (7.5 percent of the purchase price of every airline ticket) and the flight segment tax (currently $3.30 on each leg of a journey by plane—or flight segment—with the amount of the tax indexed annually to the consumer price index).

CBO projects revenues from the passenger ticket tax on the basis of the expected average ticket price for traveling one mile multiplied by the number of miles that passengers travel. CBO forecasts ticket prices on the basis of anticipated labor costs and oil prices, two of the primary determinants of airlines' expenses. The estimate of the number of miles traveled is based on CBO's projections of the United States' real (inflation-adjusted) economic performance, as measured by gross domestic product (GDP), and ticket prices. CBO expects that people will fly

more for both business and leisure purposes as the economy continues to grow but also that they will adjust their travel in response to changes in ticket prices. In CBO's projections, the number of miles traveled increases at a rate slightly faster than that of real economic growth (as it has in the past), and ticket prices increase more slowly than do labor costs and oil prices. CBO also uses real GDP and airline costs to forecast the number of flight segments and the resulting revenues from the flight segment tax.

The tax on international departures and arrivals is currently $14.50 for each passenger's takeoff or landing to or from an international destination or origin. As with the flight segment tax, the tax on international departures and arrivals is indexed to the consumer price index. CBO projects the revenues from the tax on the basis of its forecast of the number of flight segments and the past relationship between the number of international departures and arrivals and the number of flight segments. CBO's forecast of consumer price inflation is used to project the future tax rates.

For the remaining sources of revenues—taxes on aircraft fuels and transportation of property—CBO uses projections that the FAA prepares on the basis of its models and CBO's forecasts of macroeconomic variables. CBO is in the process of developing its own forecasting models for those revenue sources.

According to CBO's latest forecast, published in August 2006, trust fund revenues will grow at an average annual rate of 5.5 percent from 2006 to 2016. CBO estimates that consumer price inflation will average 2.3 percent during that period, real GDP will grow at an average annual rate of 2.8 percent, and nominal GDP will grow at an average annual rate of 4.7 percent. (Nominal GDP growth is less than the sum of real GDP growth and consumer price inflation because a different price measure that rises more slowly is used to convert nominal GDP into real GDP.) Therefore, CBO projects that Airport and Airway Trust Fund revenues will increase annually at a rate about 3.2 percentage points above consumer price inflation and 0.8 percentage points above the rate of growth of nominal GDP.

OPENING STATEMENT OF THE HONORABLE JAMES L. OBERSTAR
AVIATION SUBCOMMITTEE
NEXT GENERATION AIR TRANSPORTATION SYSTEM FINANCING OPTIONS
SEPTEMBER 27, 2006

I want to thank Chairman Mica and Ranking Member Costello for calling today's hearing on *Next Generation Air Transportation System Financing Options.* Mr. Chairman, Members should be advised that today's hearing is very much an exercise in oversight through extrapolation. Although we may have a broad idea of the capabilities that will likely comprise the Next Generation Air Transportation System, such as precision satellite navigation, digital voice and text communications and networked information sharing, we do not yet have a comprehensive, consensus blueprint that fully explains the Next Generation system. In April, the Federal Aviation Administration (FAA) presented a preliminary Next Generation capital cost estimate to the industry that amounted to approximately $15 billion, between $1 and $2 billion a year for the next 10 to 15 years. Unfortunately, we do not have an Administration witness here today to explain this cost estimate. That said, I believe that it is prudent for this Subcommittee to stop, take stock, and prepare for the task ahead of us based on the best information we have at this time.

I. The Status of the Trust Fund

The task ahead, of course, is FAA reauthorization. Going forward, a threshold question for this Subcommittee is: *Can the projected Trust Fund revenues under the current statutory tax and financing formula absorb the cost of the Next Generation system?* The preliminary information before us today suggests that the answer is "yes." For fiscal year 2006, the

Congressional Budget Office (CBO) estimates that receipts plus interest into the Trust Fund will total $11.2 billion. The CBO also projects that Trust Fund revenue will increase almost 32% to $14.8 billion in 2011, and over 71% to $19.2 billion in 2016. Based on these projections, it appears that the preliminary $15 billion capital cost estimate for the Next Generation system could be absorbed by the existing FAA financing structure with a General Fund contribution that is consistent with, or even smaller than, recent General Fund contributions.

Mr. Chairman, this new information raises important questions about Administration assertions that there is a revenue crisis at FAA that warrants the radical restructuring of FAA's tax and financing system. For example, the Administration's fiscal year 2007 budget request states that the stability of the FAA's current tax structure is "unpredictable" and "needs reform." Administrator Blakey herself claims that there is a "gap" between revenue going into the Trust Fund and FAA's costs, and that this so-called gap caused a $5.4 billion decline in the Trust Fund's uncommitted balance since fiscal year 2002. I disagree with this analysis.

First, what the Administrator calls a "gap" between Trust Fund revenues and FAA costs is *actually* the General Fund contribution. Moreover, historically speaking, the General Fund contribution has been relatively low in recent years. Over the past 20 years, the General Fund contribution has averaged 27 percent of FAA's total budget. However, in the last 10 years it has averaged only 20 percent. The general

public clearly receives a tremendous benefit from a safe and efficient air transportation system. Therefore, any discussion of financing the Next Generation system must include a robust General Fund contribution towards Operations and Maintenance.

Second, the shrinking uncommitted balance is not so much the result of inadequate revenue, but inaccurate revenue forecasting by the FAA. Under the current statutory formula, the amount drawn from the Trust Fund must equal FAA's forecasted receipts and interest into the Trust Fund for that year. For the last few years, FAA's forecasts have been overly optimistic, and the discrepancy has been drawn from the Trust Fund's uncommitted balance. Going forward, Congress might fix this problem by simply changing the formula to link the amount appropriated from the Trust Fund to actual, rather than, forecasted revenue. The Government Accountability Office (GAO) has suggested this approach and I look forward to hearing from GAO witnesses on this issue.

II. User Fees

That said, I am not arguing that Congress should do nothing to the FAA's tax and financing structure in the upcoming FAA reauthorization bill. However, I would have serious reservations with imposing a direct user fee. A user fee system contemplates that the major system users, principally the airlines, will be saddled with the new fees. In return, airlines will expect to play a greater role in setting the FAA's policies and in deciding how much and what the FAA will spend its money on. I am also extremely skeptical of the

suggestion that user fees will lead the FAA to be more efficient in providing services. Efficiency in a market system is generally driven by competition. Yet, it is unlikely that FAA will propose to form a competitor to itself, but rather merely to alter the way it collects money for its services. Further, if we accept that Congress' policy goal should be to better align FAA's revenue with user activity, there are ways that this can be accomplished within the existing tax structure. For example, a system more reliant on fuel taxes or a passenger segment fee would have stronger connection to activity than the current system, which is heavily reliant on ticket taxes. By working within the existing tax structure, Congress could forego costly administrative burdens of implementing a user fee based system.

III. Alternative Financing

Some have suggested that Congress ought to consider alternative financing mechanisms such as leasing or bonding. I agree that all options should be on the table so Members can evaluate each option relative to the goals of the program. For example, I generally support lease–purchase arrangements for the General Services Administrations' federal building program, and I believe the up-front scoring of these arrangements can lead to lost opportunities for government ownership. However, given the healthy state of the Trust Fund, I am not sure that alternative financing is really necessary. Members should also understand that leasing and bonding are generally more costly to the taxpayer in the long run. Further, no matter what method the government uses to finance the Next Generation system, the Government must maintain its ability to effectively manage and

control its contracts. I have often remarked that during the FAA's ill-fated attempt to develop the Advanced Automation System (AAS), it was difficult to tell where IBM ended and the FAA began. "Turnkey" financing should not be synonymous with "handing over the keys" to vendors on major acquisitions, effectively abrogating the government's management and oversight responsibility. Doing so would be a recipe for disaster.

Thank you again, Mr. Chairman, for holding this hearing. I look forward to hearing from our witnesses.

○