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Lack of funding will prevent NextGen, a plan to revolutionize the airline industry, from implementation.

Holeywell and Lippman 12

[Ryan Holeywell, staff writer at Governing, Daniel Lippman, Governing contributor, April 3, 2012, “The 5 Biggest U.S. Infrastructure Projects, Plus 5 at Risk,” Governing, http://www.governing.com/topics/transportation-infrastructure/gov-5-biggest-us-infrastructure-projects-plus-5-at-risk.html]

When airplanes are delayed, nobody wins. Airlines lose money. Passengers become inconvenienced. Airports get overwhelmed. That’s why the FAA is touting an effort that it says could reduce delays by 35 percent by 2018.

The project, which aviation administrators began planning in 2003, is dubbed NextGen, and proponents say it would revolutionize air travel in this country by switching from radar-based to satellite-based flight-tracking technology. That, along with other technological advances like improved weather forecasting and communication systems, would allow planes to fly more direct routes instead of following the existing, inefficient flight paths that are arranged like highways in the sky. The result: More flights in the air at any given time, fewer delays and less wasted fuel.

But the cost is enormous. FAA officials say they’ll need between $20 billion and $27 billion for the project through 2025. The Government Accountability Office says the cost could actually be as high as $160 billion. Meanwhile, there’s an ongoing debate about what proportion of the cost should be picked up by the airline industry, which has historically been skeptical of the benefits of government-mandated technologies. A recent report from the Department of Transportation’s inspector general said the system will likely face delays because the “FAA has not made critical, longer-term design decisions on NextGen ground and aircraft systems.”

To complicate matters, the FAA has spent more than four years without a long-term funding bill, thanks to congressional inaction. That’s made it difficult to pursue larger projects like this one. A long-term bill signed earlier this year should help on that front, but the funding for the effort is still in question. The president’s 2013 budget calls for just over $1 billion for NextGen, which is a drop in the bucket. In a Congress focused on spending cuts, launching something like NextGen could be tough. “I’m guessing we’ll muddle along,” says David Plavin, an aviation consultant. “They won’t provide the big, incremental investment … that’s ultimately necessary.”

Plan: The United States federal government should fully fund the Next Generation Air Transportation System in the United States.

Advantage 1: Economy

Economy is faltering – it’s headed toward another recession

Constable July 7

(2012, Simon Constable, columnist at Dow Jones Newswires and business journalist, “The Threat from a Recession,” Barron’s, http://online.barrons.com/article/SB50001424053111904317504577496670432140932.html?mod=BOL\_twm\_mw#text.print)

Fresh data show the U.S. economy is weakening. The economy added a paltry 80,000 jobs in June, not enough to keep up with population growth. Earlier last week, we learned the manufacturing sector contracted in June for the first time since July 2009. Other indicators have been equally uninspiring. Why does this matter to commodities? The raw-materials sector tends to get hit harder than the rest of the economy in a recession. The Economic Cycle Research Institute, which claims a perfect recession-forecasting record, says an economic contraction is imminent. "We have not seen a slowdown where year-over-year payroll job growth has dropped this low without a recession," ECRI states in a May report.

**We improve the economy.**

**1st internal link: jobs.**

NextGen generates recovery through jobs and business efficiency

Calio 11

[Nicholas Calio, President and CEO of the Air Transport Association of America, 2/9/11, “Aviation infrastructure is vital to winning the future,” http://thehill.com/blogs/congress-blog/technology/143033-aviation-infrastructure-is-vital-to-winning-the-future]

With broad consensus in the business community and organized labor that Congress should work with the president to improve the nation’s aging infrastructure, it is timely for bipartisan actions that support strategic investments to grow the economy. With deficit reduction a national priority, investing in infrastructure is not at cross purposes with cleaning up the nation’s finances. In fact, they go hand-in-hand. Making real progress on the deficit requires that we spark economic growth that drives job creation and generates additional tax revenue. It is essential that key infrastructure projects receive funding now so that industries like commercial aviation that enable businesses to grow can contribute more to the economic recovery. Providing the funding to accelerate implementation of modern air traffic infrastructure should be a top priority in the 112th Congress. The antiquated, ground-based system in place today is a major drag on productivity. As Ben Franklin famously proclaimed, time is money. Unfortunately, the nation has been losing both for years because our archaic air traffic control system has been unable to meet the demands placed upon it – let alone the demands of the future. According to a recent study commissioned by the FAA, flight delays cost the U.S. $31 billion in 2007. With a satellite-based system, airline efficiency will increase and flight delays will be minimized. Safety and customer satisfaction will improve and businesses - large and small - will reap the benefits of greater efficiency and be better positioned to create jobs. Commercial aviation already provides key connections that make the economy grow. The industry contributes $1.2 trillion to the economy, is responsible for 5.2 percent of the nation’s GDP and supports nearly 11 million jobs. A fully operational, NextGen air traffic management system will unleash the true economic power of commercial aviation and benefit every industry in this country. Conservative estimates predict that implementation of this system will lead to the creation of more than 150,000 jobs. In reality, the economic impact of this investment in modern infrastructure will be exponentially bigger. The sky is the limit for what this industry can contribute to the economy. Now it is up to our leaders in Washington to provide airlines with the infrastructure needed to compete successfully and support the U.S. in our national ambition to win

**2nd Internal Link: Congestion**

NextGen ends airport congestion – boosting America’s economy

Schank 6/23

[Joshua L. Schank, President and CEO Eno Center for Transportation, 6/23/12, http://www.enotrans.org/eno-brief/the-federal-role-in-transportation-four-ideas-for-greater-federal-involvement]

We often think of airports as local economic generators, and they are that, but some also have substantial national importance. The aviation network is dependent on large hub airports for the efficient and timely movement of passengers across the country and the world. A safe and reliable aviation network is essential for maintaining our competitiveness in the global economy. Unfortunately, we are in danger of losing our edge in this area because of congestion. Successful NextGen implementation could greatly alleviate the problem, but even if that happens airlines could take advantage of the new capacity and provide more frequent flights. Once economic growth picks up again we are likely to see airport congestion and delays increase as well. Airports such as Newark, San Francisco, and Chicago O’Hare already have approximately 30-40 percent of their flights delayed. Airports face substantial challenges in trying to tackle this issue on their own. The most widely recommended solution is pricing airport runways by time of day. But this politically unpopular solution has faced substantial opposition from communities such as smaller cities flying into hubs, or general aviation aircraft that are concerned about being effectively priced out of the market for a given airport. Congested airports would have a much greater chance of success if they were trying to tackle congestion in partnership with the federal government and other local transportation agencies. The federal role could be improved by dedicating a portion of the Airport Improvement Program (AIP) to provide grants to airports in regions that have a plan to work collaboratively to reduce congestion and overcome some of the political barriers to more effective pricing. Or the AIP could be retooled to set specific performance goals for airports and rewarding achievement. However it is done, there is a clear national interest at play here and the federal government needs to be more involved.

NextGen improves airplanes, airports, and their net-centricity

Joint Planning and Development Office, 7

[Joint Planning and Development Office, “Concept of Operations for the Next Generation Air Transportation System,” 2/28/07, http://www.jpdo.gov/library/nextgenconopsv12.pdf]

These transformations fundamentally change the approach to air transportation operations in 38 2025. Capacity and efficiency are increased with the transformation from clearance-based 39 operations to trajectory-based operations (TBO), as required by demand and complexity. 40 Advancements in aircraft capabilities allow for reduced separation and support the transition 41 from rules-based operations to performance-based operations. Controller workload is no longer a 42 limiting factor because of tools and automation, which provide expanded information and 43 improved decision-making capabilities. In addition, the transition of separation responsibility 44 from the controller to the flight crew in some areas allows controllers to focus on overall flow 45 management instead of individual flight management. Increased levels of service and dynamic 46 resource management will enable the NextGen to meet demand rather than constrain demand to 47 meet available resources. 48 Airports are the nexus of many of the NextGen transformation elements, including air traffic 49 management (ATM), security, and environmental goals. Accordingly, the sustainability and 50 advancement of the airport system is critical to the growth of the nation’s air transportation 51 system. Airports form a diverse system that serves many aviation operators and communities 52 with different needs. Airport operators include a mix of private and local government/public 53 entities that are responsible for aligning their activities with NextGen goals. New technology and 54 procedures will improve access to airports, enabling better utilization of existing infrastructure 55 and currently underutilized airports. The sustainability of existing airports will be enhanced with 56 a preservation program to enhance community support and protect against encroachment of 57 incompatible land uses and impacts to airport protection surfaces. Finally, new airport 58 infrastructure will be developed using a comprehensive planning architecture that integrates 59 facility planning, finance, regional system planning, and environmental activities to enable a 60 more efficient, flexible, and responsive system that is balanced with NextGen goals. 61 At the heart of the NextGen concept is the information-sharing component known as net-centric 62 infrastructure services or net-centricity. Its features allow the NextGen to adapt to growth in 63 operations as well as shifts in demand, making NextGen a scalable system. Net-centricity also 64 provides the foundation for robust, efficient, secure, and timely transport of information to a 65 broad community of users and individual subscribers. This results in a system that minimizes 66 duplication, achieves integration, and facilitates the concepts of distributed decisionmaking by 67 ensuring that all decision elements have exactly the same information upon which to base a 68 decision, independent of when or where the decision is made. The net-centricity component 69 binds NextGen operational and enterprise services together, thereby creating a cohesive link. 70 Enterprise services provide users with a common picture of operational information necessary to 71 perform required functions. The suite of enterprise services includes shared situational awareness 72 (SSA), security, environment, and safety. 73 SSA services offer a suite of tools and information designed to provide NextGen participants 74 with real-time aeronautical and geospatial information that is communicated and interpreted 75 between machines without the need for human intervention. A reliable, common weather picture 76 provides data and automatic updates to a wide range of users, aiding optimal air transportation 77 decision-making. PNT services reduce dependence on costly ground-based navigation aids 78 (NAVAID) by providing users with current location and any corrections, such as course, 79 orientation, and speed, that are necessary to achieve the desired destination. Real-time air 80 situational awareness is provided by integrating cooperative and noncooperative surveillance 81 data from all air vehicles.

**3rd Internal Link: Accidents**

NextGen improves aviation safety

Joint Planning and Development Office 7

[Joint Planning and Development Office, “Concept of Operations for the Next Generation Air Transportation System,” 2/28/07, http://www.jpdo.gov/library/nextgenconopsv12.pdf]

Aviation safety is steadily improved to accommodate the anticipated growth in air traffic while 97 the number of accidents is decreased through an integrated Safety Management System (SMS). 98 A national safety aviation policy is established and formalizes safety requirements for all 99 NextGen participants. The safety improvement culture is encouraged by management and 100 utilizes nonreprisal reporting systems. Safety assurance focuses on a holistic view of operators’ 101 processes and procedures rather than the individual pieces of the system. Modeling, simulation, 102 data analysis, and data sharing are utilized in prognostic assessments to improve safety risk 103 management. 104 Data from the above services are used to provide real-time system-level risk assessments and 105 operational impact reviews to evaluate the performance, system safety, and security of NextGen 106 via the performance management service. Real-time, onboard data are monitored and shared to 107 evaluate and manage individual aircraft risk. Safety compliance is monitored through network- 108 enabled data gathering, which collects interaircraft and pilot-to-pilot performance data. This 109 enhanced monitoring of operational characteristics facilitates the integration of “instantaneous” 110 system performance metrics into system management decisions.

NextGen solves weather disruptions

Stough 7

[Paul Stough, Senior research engineer in the Aviation Operations and Evaluation Branch at the

NASA Langley Research Center, “AIRCRAFT WEATHER MITIGATION FOR THE NEXT GENERATION AIR TRANSPORTATION SYSTEM,” http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20070006538\_2007005339.pdf]

In the U.S., a Next Generation Air Transportation System is envisioned that can handle up to three times the current level of operations. A key to achieving this level of operations is minimizing the disruptions due to adverse weather. In addition to improvements in weather observing systems, forecasts, communications, and information integration, there is a desire for aircraft to operate in more demanding environments and even worse weather conditions than are currently possible, so as to enable further increases in the efficiency and capacity of the air transportation system. Needs have been identified to improve aircraft and their systems to counter the effects of turbulence, ice, wake vortices, obstructions to visibility, space weather, and atmospheric particulates. The solution is seen as an integrated system of observations, forecasts, information integration and dissemination, and aircraft enhancements that provide the greatest overall operational benefit for the least cost.

Accidents negatively affect the aviation industry

Bosch, Eckard, and Singal 98

[Jean-Claude Bosch, Associate Professor of Finance at the University of Colorado, E. Woodrow Eckard, Professor of Economics at the University of Colorado, Vijay Singal, Professor of Finance at Virginia Tech, “THE COMPETITIVE IMPACT OF AIR CRASHES: STOCK MARKET EVIDENCE,\*” 1998, http://www.finance.pamplin.vt.edu/faculty/vs/pdfs/JLE1998.pdf]

Our central hypothesis is that the product market reacts to air crashes either by consumer switching and/or negative spillovers. We expect the switching effect to be stronger the greater the overlap with the crash airline. We therefore first report difference-between-means tests for non-crash airline sub-samples with above and below mean market overlap (PCTLAP, see Section IV), as shown in Table 4.27 An economically and statistically significant difference of about 1.2 percent exists between the high and low PCTLAP sub-samples over the (0,2) event window. Non-crash airlines with little market overlap lose value while close rivals on average experience slight gains. The last step in our analysis is a regression of individual non-crash airline abnormal returns on the overlap index PCTLAP. The constant term in the regression allows us to simultaneously test the negative spillover hypothesis that implies a negative abnormal return absent a switching effect (zero market overlap). We also incorporate a dummy variable TWA96 that equals one for non-crash airlines at the 1996 “crash” (mid- air explosion) of TWA flight 800. The exceptionally large negative abnormal returns for the non-crash airlines (see regression results below and Table 1) may be caused by the initial reports of a possible surface-to-air missile attack.28 This suggests a new safety threat to all airlines beyond the control of present air security measures, that is, a large negative externality. Because our dependent variables are estimated with error, heteroscedasticity may be present. We therefore report weighted least squares 12 regressions where the weights are the inverse of the standard errors of the individual abnormal returns. This procedure assigns a greater weight to more precisely estimated returns, thereby increasing parameter estimation efficiency. The results are summarized in Table 5.29 First, PCTLAP is positive and statistically significant at the 10 percent level or better, supporting the switching hypothesis, and consistent with the means-tests of Table 4. Second, the constant term is negative in all equations. While it is not significant in the AR(0) equation, it approaches significance at the 10 percent level in the CAR(0,1) regression (t = 1.57), and is significant at better than the 1 percent level in the CAR(0,2) regression (t = 3.27). This suggests a negative spillover emerging on days 1 and 2, as additional information appears and the crash is given wider publicity. 30 For the CAR(0,2) equation, the switching effect offsets the externality (constant term) at PCTLAP = 73 percent; that is, rival airlines with higher overlap are forecast to gain because of the crash. Last, the TWA96 dummy is highly significant both economically and statistically, suggesting a special externality associated with this crash, reaching -6.54 percent for the (0,2) event window. Two observations regarding the spillover effect are in order. First, the crash airlines suffer from this in addition to switching, which also affects them negatively. This implies that the crash airline CARs of Table 2 should be greater in magnitude (more negative) than the corresponding constant terms of Table 5, which is indeed the case. Second, Jarrell and Peltzman31 on drug recalls and Mitchell32 on the Tylenol poisonings each report larger industry-wide effects, about -1.2 percent and -6.8 percent, respectively. Since they do not isolate switching effects, they do not measure a "pure" 13 spillover. Hence, an appropriate comparison is with our non-crash airline CAR(0,2) of - 0.48 percent in Table 3. The lower industry-wide impact for airlines may reflect the industry's overall excellent safety record.33 VII. CONCLUSIONS Previous work established that financial markets react to air crashes by reducing the market value of the crash airline, but did not establish the causal mechanism. We investigate whether a product market reaction is at work, in which consumers respond to crashes by switching to rival airlines and/or simply flying less. We find a positive relation between non-crash airline stock reactions and the degree of market overlap with the crash airline, supporting a switching effect despite likely mitigating strategies by the crash airline. This is consistent with the “brand name” effect observed by Mitchell and Maloney.34 We also find that non-crash airlines with little market overlap lose value, that is, a negative spillover exists. Previous studies finding little or no reaction may have been observing the net impact of these offsetting effects. Our results have public policy implications. The crash airline suffers significant financial losses from a crash, which appear to be related to consumer switching. While this suggests a traditional market incentive to "supply" safety, it can only apply to safety related factors under each airline's control. The evidence we find of a negative spillover suggests that consumers and/or insurers may be concerned about other elements of the commercial air travel system that are involved in the joint production of air safety. Perhaps regulatory concerns should be redirected from individual airlines toward system elements where market incentives are weak or absent.

The U.S. aviation industry is key to the economy

**Trupo 6/21**

Mary Trupo,  International Trade Administration's Director of the Office of Public Affairs, International Trade Administration, “Aerospace Industry is Critical Contributor to U.S. Economy According to Obama Trade Official at Paris Air Show,” 6/21/12.

PARIS – Francisco Sánchez, Under Secretary of Commerce for International Trade, addressed national and international groups at the 2011 Paris Air Show to reinforce the President’s National Export Initiative (NEI) and support the U.S. aerospace industry.

“The U.S. aerospace industry is a strategic contributor to the economy, national security, and technological innovation of the United States,” Sánchez said. “The industry is key to achieving the President’s goals of doubling exports by the end of 2014 and contributed $78 billion in export sales to the U.S. economy in 2010.” During the U.S. Pavilion opening remarks, Sánchez noted that the aerospace sector in the United States supports more jobs through exports than any other industry. Sánchez witnessed a signing ceremony between Boeing and Aeroflot, Russia’s state-owned airline. Aeroflot has ordered eight 777s valued at $2.1 billion, and the sales will support approximately 14,000 jobs. “The 218 American companies represented in the U.S. International Pavilion demonstrate the innovation and hard work that make us leaders in this sector,” said Sánchez. “I am particularly pleased to see the incredible accomplishments of U.S. companies participating in the Alternative Aviation Fuels Showcase, which demonstrates our leadership in this important sector and shows that we are on the right path to achieving the clean energy future envisioned by President Obama.” The 2011 Paris Air Show is the world’s largest aerospace trade exhibition, and features 2,000 exhibitors, 340,000 visitors, and 200 international delegations. The U.S. aerospace industry ranks among the most competitive in the world, boasting a positive trade balance of $44.1 billion – the largest trade surplus of any U.S. manufacturing industry. It directly sustains about 430,000 jobs, and indirectly supports more than 700,000 additional jobs. Ninety-one percent of U.S. exporters of aerospace products are small and medium-sized firms.

Economic Collapse causes Global War

**Mead 9**

[Walter Russel Mead Senior Fellowin U.S. Foreign Policy at the Council on Foreign Relations, 2009, http://www.tnr.com/politics/story.html?id=571cbbb9-2887-4d81-8542-92e83915f5f8&p=2]

None of which means that we can just sit back and enjoy the recession. History may suggest that financial crises actually help capitalist great powers maintain their leads--but it has other, less reassuring messages as well. If financial crises have been a normal part of life during the 300-year rise of the liberal capitalist system under the Anglophone powers, so has war. The wars of the League of Augsburg and the Spanish Succession; the Seven Years War; the American Revolution; the Napoleonic Wars; the two World Wars; the cold war: The list of wars is almost as long as the list of financial crises. Bad economic times can breed wars. Europe was a pretty peaceful place in 1928, but the Depression poisoned German public opinion and helped bring Adolf Hitler to power. If the current crisis turns into a depression, what rough beasts might start slouching toward Moscow, Karachi, Beijing, or New Delhi to be born? The United States may not, yet, decline, but, if we can't get the world economy back on track, we may still have to fight.

And, economic decline leads to war — unstable governments use external conflict as a distraction

Royal 10

Jedidiah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, M.Phil. Candidate at the University of New South Wales, 2010 (“Economic Integration, Economic Signalling and the Problem of Economic Crises,” *Economics of War and Peace: Economic, Legal and Political Perspectives*, Edited by Ben Goldsmith and Jurgen Brauer, Published by Emerald Group Publishing, ISBN 0857240048, p. 213-215)

Less intuitive is how periods of economic decline may increase the likelihood of external conflict. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson's (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crises could usher in a redistribution of relative power (see also Gilpin. 1981) that leads to uncertainty about power balances, increasing the risk of miscalculation (Feaver, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner. 1999). Separately, Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland's (1996, 2000) theory of trade expectations suggests that 'future expectation of trade' is a significant variable in understanding economic conditions and security behaviour of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, if the expectations of future trade decline, particularly for difficult [end page 213] to replace items such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources. Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states.4 Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favour. Moreover, the presence of a recession tends to amplify the extent to which international and external conflicts self-reinforce each other. (Blomberg & Hess, 2002. p. 89) Economic decline has also been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. “Diversionary theory" suggests that, when facing unpopularity arising from economic decline, sitting governments have increased incentives to fabricate external military conflicts to create a 'rally around the flag' effect. Wang (1996), DeRouen (1995). and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force. In summary, recent economic scholarship positively correlates economic integration with an increase in the frequency of economic crises, whereas political science scholarship links economic decline with external conflict at systemic, dyadic and national levels.5 This implied connection between integration, crises and armed conflict has not featured prominently in the economic-security debate and deserves more attention. This observation is not contradictory to other perspectives that link economic interdependence with a decrease in the likelihood of external conflict, such as those mentioned in the first paragraph of this chapter. [end page 214] Those studies tend to focus on dyadic interdependence instead of global interdependence and do not specifically consider the occurrence of and conditions created by economic crises. As such, the view presented here should be considered ancillary to those views.

# Advantage 2: Terrorism

**Scenario 1: National Attacks**

Aviation terrorism empirically sparked massive retaliations — and critical threats remain today

Brandt 11

[Ben Brandt, Director at Lime, a political risk consultancy based in the United Arab Emirates, ex-threat analyst for a major U.S. airline and New Jersey Office of Homeland Security and Preparedness, “Terrorist Threats to Commercial Aviation: A Contemporary Assessment,” Combating Terrorism Center at West Point, 11/30/11, http://www.ctc.usma.edu/posts/terrorist-threats-to-commercial-aviation-a-contemporary-assessment]

Ten years ago, al-Qa`ida utilized four U.S. commercial airliners to destroy the World Trade Center’s towers, damage the Pentagon, and kill close to 3,000 people. This attack spurred the United States to convert its counterterrorism efforts into a sustained war on terrorism, resulting in the invasion of Afghanistan and Iraq, the capture or killing of hundreds of al-Qa`ida members, and the eventual death of al-Qa`ida chief Usama bin Ladin. There has been extensive reflection in recent months regarding the implications of Bin Ladin’s death and the Arab Spring to al-Qa`ida and its affiliated groups. Two critical issues, however, have been partially sidelined as a result. How has the terrorist threat to commercial aviation evolved since the events of 9/11? How have actions by the U.S. and other governments worked to mitigate this threat? This article offers a thorough review of recent aviation-related terrorist plots, subsequent mitigation strategies, and current terrorist intentions and capabilities dealing with commercial aviation. It concludes by offering three steps security experts can take to reduce the terrorist threat to commercial aviation. Aviation-Related Plots Since 9/11 and the Regulatory Response A number of al-Qa`ida-affiliated plots sought to target commercial aviation since 9/11. A sampling of these include the “shoe bomber” plot in December 2001, an attempt to shoot down an Israeli airliner in Kenya in 2002, the liquid explosives plot against transatlantic flights in 2006, the Christmas Day plot in 2009, and the cargo bomb plots in 2010. Other prominent operations attempted or executed by Islamist extremists during this period include a 2002 plot to hijack an airliner and crash it into Changi International Airport in Singapore, the 2002 El Al ticket counter shootings at Los Angeles International Airport, the 2004 bombings of two Russian airliners, the 2007 Glasgow airport attack, a 2007 plot against Frankfurt Airport by the Sauerland cell, a 2007 attempt by extremists to target fuel lines at JFK International Airport in New York, the 2011 suicide bombing at Moscow’s Domodedovo International Airport, and the 2011 shootings of U.S. military personnel at Frankfurt International Airport. In response to these incidents, the U.S. government and many other countries have dramatically increased aviation security measures to prevent or deter future attacks. Many of these measures are well known to the public, including: the hardening of cockpit doors; federalization of airport security screening staff and the creation of the Transportation Security Administration (TSA); deployment of federal air marshals (FAMs) and federal flight deck officers (FFDOs) aboard aircraft; implementation of new detection equipment and methods, such as advanced imaging technology (AIT), often referred to as “body scanners”; increased amounts of screening for cargo; explosive trace detection (ETD), full body “patdowns,” and behavioral detection officers (BDOs); enhanced scrutiny for visa applicants wanting to travel to the United States; and the use of watch lists to screen for terrorists to prevent them from boarding flights or from gaining employment in airports or airlines. Certain measures—such as invasive patdowns, AIT scanning, inducing passengers to remove jackets, belts, and shoes for inspection, and requiring them to travel with minimal amounts of liquid in their possession—have drawn widespread complaints regarding their inconvenience, as well as questions about their supposed efficacy. The reactive nature of many such measures has been widely noted as well, with some security practices designed to counter highly specific attack techniques utilized in past terrorist plots. Al-Qa`ida in the Arabian Peninsula (AQAP) sarcastically commented on this tendency in its online magazine Inspire, rhetorically asking the U.S. government whether it thought the group had no other way to conceal explosives after the TSA prohibited passengers from carrying printer cartridges. Current Threats to Aviation Despite the strenuous efforts by governments to harden commercial aviation in the post-9/11 era, the number of plots illustrates that al-Qa`ida core, its affiliates, and numerous other Islamist extremist groups and self-radicalized individuals maintain a high level of interest in attacking aviation. Despite the organizational disruptions caused by the deaths of numerous senior al-Qa`ida leaders in 2011, and the current preoccupation of several al-Qa`ida affiliates with local conflicts, this ongoing interest in attacking aviation is unlikely to dissipate in the long-term. Furthermore, the evolving tactics utilized in these various plots lend weight to AQAP’s contention that government regulators suffer from a lack of imagination in anticipating and mitigating emergent and existing threats. As indicated by numerous accounts, including the description of the cargo plot contained in Inspire, terrorists constantly seek to analyze existing aviation security measures to probe for weaknesses and develop countermeasures. Terrorists’ ongoing efforts to study and defeat security are further exemplified by the arrest of Rajib Karim, a former information technology employee at British Airways; prior to his arrest, Karim maintained an ongoing dialogue with AQAP operative Anwar al-`Awlaqi and attempted to provide al-`Awlaqi with information on aviation security procedures.[1] Therefore, despite government efforts to improve aviation security, a number of critical tactical threats remain.

NextGen prevents and mitigates aviation attacks

Joint Planning and Development Office, 4

[“Next Generation Air Transportation System: Integrated Plan,” Department of Transportation, 2004, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

The system is already showing signs of stress and it is clear that projected demand will soon surpass the system’s capacity. The U.S. aviation system must transform itself and be more responsive to the tremendous social, economic, political, and technological changes that are evolving worldwide. We are entering a critical era in air transportation, in which we must either find better, proactive ways to work together or suffer the consequences of reacting to the forces of change. The consequence of a do- nothing approach to this public policy problem is staggering. As the Commission on the Future of the United States Aerospace Industry noted, consumers stand to lose $30B annually due to people and products not reaching their destinations within the time periods we expect today. We are nearing a time when we will have to develop a new approach to air transportation. The current approach – ground based radars tracking congested flyways and passing information from control center to control center on the ground throughout the flight of an aircraft – is becoming operationally obsolete. The density of air traffic is making the current system increasingly inefficient. Bottlenecks are showing up now, and large increases in air traffic will cause mounting delays and increased need for structuring or limiting service in many parts of the nation. Driven by the increasing pace of change, the old evolving approach is insufficient for system modernization. In terms of improving the system over the next 25 years, it is clear that business as usual will not succeed.1 Technology is giving us opportunities for an entirely new approach—one that utilizes modern communication techniques, advanced computers, precision plotting through GPS and modern computer-based decision assistance programs. This new approach to air navigation could open up the sky to much greater and more efficient utilization of airspace. It also holds great promise for improved aviation security. For example, this system opens the possibility for automated protection zones around critical infrastructure sites, where computers would take control of an unauthorized aircraft approaching a critical facility and divert it to land at a nearby airfield where security personnel can take control of the situation.

NextGen protects America from terrorist attacks

Joint Planning and Development Office, 4

[“Next Generation Air Transportation System: Integrated Plan,” Department of Transportation, 2004, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

In light of the continuing threat of terrorism, new defense tactics and technologies must be put in place without compromising efficiency. These measures must address a wider range of threats, while at the same time lowering the cost and impact of these measures on pilots and the traveling public. Growth in air travel and air cargo will challenge our ability to manage security risks while ensuring efficiency of operations. The advent of increased operations at thousands of small airports will increase ease of access to the system and the difficulty of securing it. Similarly, UAVs will be used to aid security monitoring, but could also create a new threat as they become more widely available to commercial users. An integrated, multi-layered security approach for air transportation will help ensure the security of U.S. borders and airspace and minimize risks associated with an expanding range of potential security threats. Effective, seamless countering of these terrorist threats and mitigating their risk will demand the full cooperation and partnership of all air transportation stakeholders. Additionally, security measures will benefit from consolidated threat information and workforce response to protect the system itself from hostile actions without limiting personal liberty. Future air transportation screening and detection systems will enable positive identification of travelers while minimizing unauthorized access. Baggage and cargo screening systems will not only reveal explosives and weapons, but will also detect chemical, biological, radiological, and nuclear threats. The future system will be highly resistant to disruptions, incidents, and false positive alarms. Therefore, in spite of increases in demand for the air transportation system, security systems will process travelers, baggage, and cargo with greater speed, accuracy, and efficiency.

Airport attacks tank the economy

Balvanyos 5

[Tunde Balvanyos, Post-doctoral research engineer at the University of California Berkeley based Partners for Advanced Transit and Highways research institute, “The Economic Implications of Terrorist Attack on Commercial Aviation in the USA,” Homeland Security Center, Create Research Archive, 9/4/05, http://research.create.usc.edu/cgi/viewcontent.cgi?article=1162&context=nonpublished\_reports]

In addition to the airlines, other businesses would suffer losses. Even short disruption in cargo delivery could result in significant economic losses due to perishable goods and because of the time-sensitive nature of many air shipments. In our air transportation dependent economy, even short airport closures can cause major disruptions in just-in-time delivery businesses. Airport businesses, such as terminal shops and in-flight services would have to close immediately and could not reopen until the airport is reopened. Until the airport reopens, even postal services would be affected. DRAFT 24 ￼￼￼Hotels, taxi cabs and rent-a-car businesses would experience a short-term gain due to stranded passengers. However, once these passengers are gone, these industries suffer continuing losses until travel demand returns to pre attack levels. Short run reduction in stock market wealth As a result of the attack on 9/11 the US stock market closed between September 10 and 21. The NYSE and the NASDAQ indexes suffered double digit drops. Other markets around the world also suffered losses. In case of an attack on commercial aircraft, the US stock market need not close down. However, it is likely that the markets would suffer losses. We accept the stock markets response to a natural crash as a lower bound to the loss. However, it is hard to establish an upper bound. It is reasonable to assume that the markets would react stronger to another attack on a commercial aircraft than to a natural crash. Psychological impact of terrorism Navarro and Spencer use contingency valuation to think about how much people would be willing to pay for eliminating the terrorist threat of 9/11. We need to ask the same question as Navarro and Spencer asked: “How much would we pay to be able to fly without fear?” They estimate that if “each of the 100 million households not living in poverty would give up a mere $1000 to be able to forget” about Osama Bin Laden and the threat his personifies, the emotional damage of 9/11 would be measured at $100 billion. The terrorist attack we discuss here would be smaller then that on 9/11. It would only affect those who travel by air or whose jobs are related to the industry. If, for example, all air travelers were willing to pay 1 cent more per mile traveled to eliminate this threat, then the impact would be $6.6 billion per year. LONGER TERM MICROECONOMIC IMPACT Microeconomic impact of airport closure Airport closures can have serious economic impact on each regional economy and disrupt urban services. While there will be federal decisions, regional governments also need to understand the economic and social implications of an airport closure. In this section, we discuss the potential impacts of closure of a major airport due to a terrorist attack; the length of closure and other restrictions would be determined by the federal DRAFT 25 ￼government. Our discussion is mainly based on Chang, Ericson, and Pearce4 in their paper prepared for the Office of Critical Infrastructure Protection and Emergency Preparedness, Government of Canada.

Terrorist attacks cause panic and scapegoating through massive retaliation

Jenkins 2012 [Brian Michael, July “New Challenges to U.S. Counterterrorism Efforts” Testimony presented before the Senate Homeland Security and Governmental Affairs Committee on July 11, 2012

http://www.rand.org/content/dam/rand/pubs/testimonies/2012/RAND\_CT377.pdf]

Americans have come to hold unrealistic expectations about security, believing that risk can be abolished. We are too ready to seek someone to blame when security fails. Instead of the stoicism needed for a long fight, Americans remain vulnerable to overreaction. A terrorist attack of even modest scale could provoke paroxysms of panic. Whatever one thinks about the wisdom, or the folly, of the wars in Iraq and Afghanistan, the sacrifices of war have been borne unequally. Our sense of community has eroded. 14 Terrorists did not create America’s anxieties. Terrorism acted as their condenser. Nor will America’s homeland be secured in the mountain passes of Afghanistan, the Arabian Peninsula, or the sands of the Sahara.

Only the federal government has the authority to enact the plan.

Court of Appeals 98

(137 F.3d 81, National Helicopter Corp. of America, Plaintiff-Appellee-Cross-Appellant, v. the CITY OF NEW YORK; The Council of the City of New York; The City Planning Commission of the City of New York; The New York City Economic Development Corporation, Defendants-Appellants-Cross-Appellees. Dockets 97-7082, 97-7142, United States Court of Appeals, Second Circuit, argued Sept. 8, 1997, decided Feb. 17, 1998, http://bulk.resource.org/courts.gov/c/F3/137/137.F3d.81.97-7142.97-7082.html)

The City claims the invasive nature of helicopter noise justifies the condition restricting sightseeing routes to the East River and the Hudson River. This argument, as the trial court recognized, evidences a misunderstanding of federal aviation law. Congress, the Supreme Court, and we have consistently stated that the law controlling flight paths through navigable airspace is completely preempted. See, e.g., Concorde I, 558 F.2d at 83 ("[L]egitimate concern for safe and efficient air transportation requires that exclusive control of airspace management be concentrated at the national level."); City of Burbank, 411 U.S. at 626-27, 93 S.Ct. at 1856-57 (recognizing the federal government's possession of exclusive national sovereignty in U.S. airspace); 49 U.S.C. § 40103(a)(1) (stating that the federal government has "exclusive sovereignty of airspace of the United States"). The proprietor exception

\*\*\*Add-on—International Terrorist Attacks—1:30

NextGen will integrate with Europe’s aviation systems

EUROPEAN COMMISSION 2011 [4/2, In Brussels“a Memorandum of Cooperation between the European Union and the United States of America in civil aviation research and development”

http://eur-lex.europa.eu/Notice.do?mode=dbl&lang=en&ihmlang=en&lng1=en,en&lng2=bg,cs,da,de,el,en,es,et,fi,fr,hu,it,lt,lv,mt,nl,pl,pt,ro,sk,sl,sv,&val=556632:cs&page=]

In the USA, the FAA has also launched an ATM modernization programme, known as NextGen. Considering the parallelism of SESAR and NextGen, the European airspace users have raised a strong requirement to secure interoperability between SESAR and NextGen to ensure safe and seamless operations worldwide, to increase market opportunities for the European industry and to avoid costly duplication of equipment on board aircrafts. US companies already have access to European research and development programmes such as SESAR. It is therefore, essential to guarantee reciprocal opportunities for European industry. The Commission considers that strengthening technical and operational cooperation with the FAA is an urgent and necessary action for the civil aviation sector in general. In fact, more efficient and sustainable air transport systems can be better achieved through a holistic approach addressing all aspects of civil aviation. This motivated the Commission to recommend the extension of the scope of the cooperation framework to the broader civil aviation domain. The proposed Memorandum of Cooperation with the USA provides a sound and legally binding basis for establishing cooperative research and development activities, while duly addressing sensitive issues such as liability, Intellectual Property Rights (IPR) and reciprocity. In addition, the Memorandum has the potential to set the international standards in aviation providing a worldwide interoperability in response to aviation stakeholders' expectations and providing the European industry with wider market opportunities. 1.3. Existing provisions in the area of the proposal The European Commission and the FAA initially signed a Memorandum of Understanding (MoU) on 18 July 2006 establishing a framework for cooperation to contribute to more global ATM by facilitating joint global operations. The MoU was updated on 17 March 2009 to take into account the SJU's key role in the technical cooperation with the FAA under the authority of the European Commission. However, because of its declarative nature, the MoU does not provide the required legally binding framework to adequately address liability, intellectual property rights and reciprocity issues. The proposed Memorandum of Cooperation, and in particular its Annex on SESAR-NextGEN interoperability, will replace the existing MoU. 1.4. Consistency with the other policies and objectives of the Union The proposed Memorandum of Cooperation will contribute to achieve the objectives of the SES policy as it supports the SESAR programme, its technological pillar. The timely development and deployment of new ATM technologies and procedures will, in fact, boost Europe's innovation capacity and the competitiveness of its industry worldwide allowing the EU to have a strong voice in standardisation bodies. The draft Memorandum will stimulate the technical and operational cooperation between the parties through the provision of a clear legal framework. Such a stimulus is in line with the research policy of the EU and will contribute to the achievement of 7th Framework Programme. 2. CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT 2.1. Consultation of interested parties The aviation industry supports the perspectives offered by a binding Memorandum of Cooperation between the EU and the USA. The European industry expects that through the implementation of reciprocity principles underlying the Memorandum, it will be able to take advantage of comparable opportunities to engage in cooperative activities with the USA on the basis of transparency, mutual benefits, equitable and fair treatment.

Aviation cooperation unites U.S., European, and Russian systems against airborne terrorism

Loukianova , Research Associate at the James Martin Center for Nonproliferation Studies, 11

Anya Loukianova , Research Associate at the James Martin Center for Nonproliferation Studies, graduate assistant at the Center for International and Security Studies at Maryland, 5-11, [“Cooperative Airspace Security in the Euro-Atlantic Region ,” CISSM Working Paper, www.cissm.umd.edu/papers/display.php?id=547]

This paper offers an overview of existing arrangements and provides a discussion of policy challenges involved in constructing a regional Euro‐Atlantic capability to jointly monitor and counter common airspace threats through the networking of military and civil air traffic control systems.i It argues that a strengthened political, financial, and technical commitment to build a cooperative airspace security system is a “win‐win” area for NATO‐ Russian engagement that would promote regional military transparency, deepen cooperation against airborne terrorism, and enhance regional crisis stability. Deeper and broader regional airspace security arrangements would also foster the culture of cooperation, transparency, and confidence built between all Euro‐Atlantic states—large and small—through practical civil‐military cooperation. In a May 2010 op‐ed, U.S. Vice President Joseph Biden wrote of the “vital” need to “adapt” Euro‐Atlantic security institutions “to the challenges—and opportunities—of a new era.”1 He noted the importance of “reciprocal transparency” of military forces, called for improved cooperative means to deal with “external challenges,” argued for more “effective conflict‐prevention, conflict‐management, and crisis‐resolution” mechanisms to enhance stability, and reaffirmed the importance of territorial integrity and the indivisibility of regional security. “We seek an open and increasingly united Europe in which all countries, including Russia, play their full roles,” Biden stated.2 A careful examination of “bottom‐up” cooperative opportunities in airspace security in line with this vision is in order at a time when policy makers in Washington, Brussels, and Moscow seek to design and agree on a common capability to defend the Euro‐Atlantic against missile threats.3 Toward this end, an expansion of ongoing cooperative airspace security projects is a cost‐effective and technically feasible undertaking that could promote both agreement and action on the rules of engagement, as well as on the sharing of information, technology, and costs in regional missile defense that involves Russia.

Aviation cooperation key to prevent global terrorist threats

Loukianova , Research Associate at the James Martin Center for Nonproliferation Studies, 11

Anya Loukianova , Research Associate at the James Martin Center for Nonproliferation Studies, graduate assistant at the Center for International and Security Studies at Maryland, 5-11, [“Cooperative Airspace Security in the Euro-Atlantic Region ,” CISSM Working Paper, www.cissm.umd.edu/papers/display.php?id=547]

A common concern for Euro‐Atlantic policy officials and military planners is the timely detection, tracking, communication, and coordination of a response to threats to and from the region’s airspace. Airborne terrorism is a high‐impact threat that knows no borders and comes in many forms. Terrorist attempts to exploit passenger aviation and related infrastructure through hijacking, explosive attacks, attacks with shoulder‐launched weapons, as well as the potential “seizure of civil aircraft for use as ‘manned missiles’” are permanent fixtures on the landscape of threats.17 In the future, the possibility of terrorist attacks with radar‐evading Unmanned Aerial Vehicles (UAV) and cruise missiles with explosive or unconventional payloads is also set to bedevil security bureaucracies. The “manned missile” scenario is a threat that has attracted significant policymaker attention since the September 11, 2001 terrorist attacks on New York and Washington.18 Strengthened airport security measures have made it difficult to plan and execute an attack with a hijacked aircraft, known as “renegade” in NATO parlance. Yet, these measures are unlikely to eliminate it completely.19 The preparedness level of national authorities—both civil and military—and their ability to cooperate are frequently tested by the incidents of the loss of voice communication (COMLOSS) between air traffic controllers and aircraft.20 In one infamous case in 2002, an unscheduled Tupolev Tu‐154 aircraft from Central Asia entered the airspace of the Czech Republic, which was heavily guarded at that time due to a NATO summit in Prague.21 This aircraft intended to land at a restricted airport. But, the Tu‐ 154 was unable to communicate with Czech air traffic monitors that had attempted to reroute it to another airfield.22 Thankfully, a special U.S. Air Force F‐16 Air Patrol that worked jointly with Czech air defense and NATO for the duration of the summit was able to escort the aircraft to an alternate airfield for landing. It later turned out that the aircraft was ferrying the Minister of Defense of Kazakhstan.vi This sequence of events highlights the complexity that would be involved in tracking and scrambling assets to chase a potential “renegade” or a UAV across the “patchwork” Euro‐ Atlantic skies, while simultaneously coordinating a response between political and military authorities on the ground.vii In turn, the absence of tested and trusted arrangements and data sharing channels that would enable the timely detection and the adequate tracking of a potential “renegade” between Russia and its NATO neighbors makes all parties— populations on the ground as well as aircraft passengers transiting through airspace— vulnerable. vi Comparable ad hoc arrangements involving NATO states require intricate rules of engagement and transfer of authority procedures as well as ample joint training. In this case, Czech legislation assigned engagement authority to the Czech Air Force and air defense. Thus, for the 2002 summit, NATO worked out procedures by which NATINADS would detect the threat and transfer the authority to the Czechs. Both sides also had to work out the rules of engagement that would involve U.S. Air Force aircraft that participated in the special Air Patrol. See James Smith, “Operation Summit CAP,” Air & Space Power Journal, Fall 2004, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj04/fal04/smith.html. vii It should be noted that “renegade” is a civilian threat in accordance with NATO policy. As briefly noted above, Russia and NATO view ballistic missile defense cooperation as the pinnacle of their cooperative security engagement in the region. Yet, projects that build capacity to respond to more immediate threats such as airborne terrorism or regional instability can also promote the demilitarization of regional relationships. Mutual challenges require the negotiation of detailed crisis management arrangements and prudent information sharing agreements—political, military, and technical—especially between Russia, its insecure neighbors, and NATO states.

Terrorism is a global threat and it causes international responses

CFR, 7/9 [Council on Foreign Relations, “The Global Regime for Terrorism” 2012 <http://www.cfr.org/asia/global-regime-terrorism/p25729>]

September 11, 2001, shocked the international system, changing global perspectives on both the threat of terrorism and the tools required to prevent it. Although multilateral instruments against terrorism have existed since the 1960s, the unprecedented reach and potential of terrorist networks such as al-Qaeda and its affiliates constitute a new danger that challenges standing tools and institutions. Despite the death of al-Qaeda leader Osama bin Laden in May 2011, the world is still—a decade after September 11—looking for an effective way to respond to the global terrorist threat. In recent years, terrorist networks have evolved, moving away from a dependency on state sponsorship; many of the most dangerous groups and individuals now operate as nonstate actors. Taking advantage of porous borders and interconnected international systems—finance, communications, and transit—terrorist groups can reach every corner of the globe. While some remain focused on local or national political dynamics, others seek to affect global change. At the forefront of this trend is al-Qaeda. From its base in the borderlands between Afghanistan and Pakistan, the al-Qaeda network has spread widely, establishing branches or affiliates elsewhere, including in North Africa, Yemen, and Southeast Asia. Driven by an extreme salafi ideology—characterized by opposition to Western influence and the goal of creating a global Islamic caliphate—al-Qaeda operatives have killed thousands—from Madrid to Bali to Baghdad. What is more, the group's alluring ideology extends its reach, prompting some individuals outside its direct command to take violent action. The threat from al-Qaeda has proven global, multifaceted, and difficult to track and contain. It continues to pose the most prominent terrorist threat. Other groups, however, have also emerged, and operate, with their own distinct goals, outside traditional networks and hotspots. Europe and the United States are not immune from terrorism within their borders. This global diffusion of the threat requires a comprehensive response that provides solutions on national, regional, and international levels—and addresses not only the methods but also the factors that can contribute to the spread of terrorism. Since September 11, generating such a comprehensive response has proven difficult.

Case—Inherency

NextGen could cost a hundred billion dollars or more, but the government has only funded enough money for a “drop in the bucket.” They won’t provide the big investment that’s ultimately necessary – that’s Holeywell and Lippman 12.

Aviation operators’ reluctance to invest in incomplete infrastructure renders the project useless

Salam 12

Sakib bin Salam, Policy Intern at Eno Center for Transportation, “NextGen: Aligning Costs, Benefits, and Political Leadership,” April 2012.

Third, the airlines and general aviation users have been hesi­tant to bear equipage costs due to low profitability, econom­ic turmoil, and a lack of clear incentives to justify investing in NextGen. Operators are unlikely to invest until, at a minimum, the FAA is ready to deliver the promised benefits. This leads to a stalemate: operators are uncertain whether investing in NextGen is worthwhile, when the infrastructure is not yet fully in place, and without equipage the infrastruc­ture by itself is ineffective. The FAA has mandated equi­page of Automated Dependent Surveillance-Broadcast Out (ADS-B) that allows the equipped aircraft to send transmis­sion to other equipped aircraft ADS-B ground stations for all operators by 2020. However, there is uncertainty over when other NextGen on-board equipment will be required, particularly ADS-B In which allows the equipped aircraft to receive transmission from other ADS-B ground stations and other aircraft.

Fourth, NextGen faces funding issues that pose some very difficult policy decisions. Work on the ground infrastruc­ture aspect of NextGen is currently funded by the Facilities and Equipment account of the AATF and some progress, albeit slow, has been made on this project. However, recent reports by the Congressional Budget Office and the Gov­ernment Accountability Office show that current AATF revenues are inadequate to fund NextGen.2 Despite recent resolution over the long overdue FAA reauthorization bill, little progress has been regarding securing a full-fledged modernization funding plan. The current bill authorizes a flat amount of $2.731 billion over four years for Next­Gen and funding is still subject to annual appropriation. A project that is already endangered by uncertainties regarding its worth would benefit from a stable and adequate funding source.

Budget cuts are causing NextGen cut backs

GAO, 2011 [“NEXT GENERATION AIR TRANSPORTATION

Collaborative Efforts with European Union Generally Mirror Effective Practices, but Near-Term Challenges Could Delay Implementation” Report to Congressional Requesters, <http://www.gao.gov/assets/590/581393.pdf>]

Delays in program implementation, as described above, and budget constraints have also affected FAA’s capital budget planning. The Administration has proposed reducing FAA’s capital budget by a total of $2.8 billion, or 20 percent, for fiscal years 2012 through 2015 largely due to governmentwide budget constraints. Most of this proposed reduction is on NextGen and NextGen-related spending, as reflected in FAA’s revised 5-year Capital Investment Plan for fiscal years 2012 through 2016. Congress has not completed FAA’s appropriation for fiscal year 2012, but current House and Senate appropriation bills propose to fund the agency near or above 2011 levels. FAA will have to balance its priorities to ensure that NextGen implementation stays on course while also sustaining the current infrastructure—which is needed to prevent failures and maintain the reliability and efficiency of current operations. To maintain credibility with aircraft operators that NextGen will be implemented, FAA must deliver systems and capabilities on time so that operators have incentives to invest in the avionics that will enable NextGen to operate as planned. As we have previously reported, a past FAA program’s cancellation contributed to skepticism about FAA’s commitment to follow through with its plans. That industry skepticism, which we have found lingers today, could delay the time when significant NextGen benefits—such as increased capacity and more direct, fuel- saving routing—are realized. A number of NextGen benefits depend upon having a critical mass of properly equipped aircraft. Reaching that critical mass is a significant challenge because the first aircraft operators to equip will not obtain a return on their investment until many other operators also equip.

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STOP

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Despite FAA reauthorization, NextGen is still underfunded and faces congressional obstacles.

Carey 12 (Bill Carey is senior editor with Aviation International News, based in Washington, D.C. He covers the airline and defense industries as well as business aviation.)

The FAA reauthorization legislation passed by Congress and signed by the President in February after more than four years of delay and 23 temporary extensions is a good-news-and-bad news story, Jones said. The good news: it finally provides the FAA with funding stability of $63 billion over four years, with $11 billion directed to ATC modernization. It moves forward “discrete” NextGen programs such as ADS-B and DataComm, and provides a “first framework” for the introduction of unmanned aircraft into civilian airspace. “The bad news,” Jones said, “is that out of the $11 billion designated for modernization of the ATC system in February, only about one-third, or $4 billion, will likely be dedicated to NextGen programs and will require four years of annual Congressional appropriations.” He then begged the question: did anybody in the room really believe our broken, ineffectual Congress could make that happen?

Government budget cuts and industry skepticism could derail NextGen

GAO, 2011 [“NEXT GENERATION AIR TRANSPORTATION

Collaborative Efforts with European Union Generally Mirror Effective Practices, but Near-Term Challenges Could Delay Implementation” Report to Congressional Requesters, <http://www.gao.gov/assets/590/581393.pdf>]

The continuing skepticism among industry stakeholders about FAA’s commitment to follow through on its plans elevates the importance of providing these stakeholders with more detailed information on the agency’s efforts toward interoperability and in particular, on the structure and processes laid out in the 2011 MOC’s Annex 1. These details could allow stakeholders to judge for themselves whether interoperability efforts are moving ahead deliberately, as planned, and provide assurances that FAA is serious about collaborating on interoperability and implementing NextGen. Providing this assurance could help to mitigate stakeholders’ skepticism about whether or when NextGen and SESAR benefits will be realized and alleviate airlines’ hesitancy to equip with new technology. As Congress works to reduce the federal debt, we believe that it will be important for FAA to provide current information on how budget decisions will affect the progress of NextGen, as well as for stakeholders to understand how any changes in planned funding will affect their realization of NextGen benefits.

 Budget cuts put NextGen implementation at risk.

Turner 7/18

(Aimee Turner, Staff writer, Air Traffic Management, “Sequestration’s ‘crippling’ effect on NextGen: AIA,” 7/18/12, http://www.airtrafficmanagement.net/2012/07/sequestrations-crippling-effect-on-nextgen-aia/)

The devastating cuts to US defence spending set to impact in a matter of months could cripple a number of non-defence programmes including the Next Generation Air Transportation System, according to a US aerospace industry expert.

Richard Efford, a legal affairs chief at the US industry group Aerospace Industries Association insists that US attempts to balance the budget through the 2011 Budget Control Act could mean a potential loss of $1 billion or more from the Federal Aviation Administration’s (FAA) budget to overhaul its air traffic control system. “The FAA – the agency responsible for monitoring and safely guiding 85,000 aircraft each day through our nation’s skies – has never faced a budget cut of this magnitude,” said Efford. “Because the NextGen portfolio provides state-of-the-art capabilities, it will be hit the hardest. AIA believes that as a result of sequestration, NextGen could lose 30-50 per cent of its funding, not the eight per cent many believe,” said Efford who reasons that to protect the operating accounts, FAA could be forced to slash the budgets of its procurement and research programmes. At a US Congressional hearing on aviation to  to review the FAA’s Contract Tower programme today, the chief operating office of the Air Traffic Organization David Grizzle was grilled on the likely impact of the budget cuts – or sequestration – on the FAA service. “We have received no specific direction as to the impact of sequestration on the FAA. We have done a great deal of internal planning looking at different scenarios and how we would be required to shift our priorities in the event that different sequestration scenarios came into place,” he told the hearing. “We have not begun sharing those with anyone because we are not far enough along in designing those priorities. But suffice it to say that it would require a significant re-prioritisation of what we currently do. It could be a large impact, we just don’t know. We are in communication with various parts of the Administration and our perceptions are developing.” Efford points to Congressional Budget Office estimates that non-defence agencies would suffer an immediate 7.8 per cent budget cut from sequestration with Center for Budget and Policy Priorities’ estimates coming in even higher at 9.1 per cent.“Two-thirds of FAA’s budget is allocated to operating expenses – most of which pays the salaries of air traffic controllers, safety inspectors and other federal employees whose skills are required each day to ensure safe flights of aircraft through US airspace,” said Gifford. “The House Appropriations Committee’s Democratic staff estimated that sequestration would cause the layoff of 1,200 air traffic controllers, the closure of almost 250 airport control towers and the loss of 600 safety inspectors and certification staff.” Efford said it is unlikely that senior officials will allow a nationwide layoff of air traffic controllers that will have a large negative impact on the US economy. “An option the agency could exercise to prevent this from happening is the ‘transfer authority’ provided in its annual appropriations bills that could be used to modify sequestration’s across-the-board cuts,” he said. Even so, Efford argues that forcing today’s air travellers to choose between today’s flight and tomorrow’s safety and efficiency is a poor choice. “The shock wave of sequestration will rattle windows far beyond the Pentagon’s walls, shaking our vital domestic programmes and technologies to their core,” he said. The FAA’s David Grizzle told the aviation hearing: “We are committed to maintaining the highest level of safety and we will not undertake any change that will diminish that.”

NextGen is losing investor confidence due to cost overruns and delays.

Salam 12

Sakib bin Salam, Policy Intern at Eno Center for Transportation, “NextGen: Aligning Costs, Benefits, and Political Leadership,” April 2012.

On-board equipage could allow improved decision-making capabilities and accessibility during adverse weather, as well as better data communications between cockpit and ATC. This more precise system has the potential to reduce the minimum aircraft separation standard and allow more direct flight patterns, thus decreasing fuel consumption, carbon emissions, and congestion.

On the policy-side, there are several obstacles to NextGen that hinder progress and the likelihood of a timely and cost-efficient implementation. First of all, there are uncertainties regarding the extent of the benefits NextGen can potentially provide. It is difficult to make forecasts about how much congestion or fuel consumption can be reduced to make the infrastructure investment worthwhile. This makes it chal­lenging to create sustained political, financial, and industry support for the project.

Secondly, there are doubts about costs and the FAA’s ability to deliver technology solutions of this magnitude. In the early 1980s, aviation modernization projects were pro­jected to cost $12 billion and be ready in 10 years. NextGen infrastructure and equipage is now estimated to cost about $40 billion with expected completion by 2025.1 Testimony by the US Department of Transportation Inspector Gen­eral and a recent report by the Government Accountability Office (GAO) have pointed out cost overruns and delays in several NextGen programs. This continued uncertainty regarding the total infrastructure and equipage cost figure of NextGen has planted seeds of doubt amongst stakeholders and potential NextGen beneficiaries.

Congress won’t enact NextGen

Salam, April [Sakib bin, Policy Intern at Eno Center for Transportation, “NextGen: Aligning Costs, Benefits, and Political Leadership,” April 2012.]

A fifth problem facing NextGen is lack of Congressional political leadership in prioritizing a project of such potential value. In July 2011 the House of Representatives passed a short-term extension bill that failed to pass the senate, resulting in a shutdown that lasted a fortnight. The AATF received no tax revenues during the shutdown. As Con­gressional leaders argued over the Essential Air Services program, the trust fund lost over $400 million in foregone tax revenues. Those are funds that could have potentially been used towards an investment like NextGen. Further­more, according to the FAA some of the NextGen program delays can be attributed to the furlough of some of the FAA employees in July 2011 and a freeze on contractor funding which resulted in work stoppage orders for several projects.3 This impact of the impasse on NextGen was also docu­mented on the GAO report on the FAA’s NextGen cost-management.4 In order for NextGen to succeed, there must be greater certainty about potential benefits and costs. In the highly competitive low profit-margin airline industry, few want to take on the burden of paying for something that spreads speculative benefits so widely. It will also be essential to have a mechanism that raises sufficient capital for NextGen infrastructure in a transparent and equitable manner, while imposing minimal burdens on those who pay for it. Without a sustainable, stable, and reliable strategy for both continued infrastructural improvements and incentives for equipage, there is no guarantee that NextGen can be implemented in a timely and cost-effective manner. Without strong politi­cal leadership, a clear and unbiased delineation of costs and benefits, a transparent source of funds, and incentives for operators to equip, it is unlikely that NextGen benefits can be delivered in a timely manner if at all.

NextGen’s funding won’t be continued.

Dorgan and Hunter 6/4

Byron Dorgan, Arent Fox LLP senior policy adviser and co-chair of the firm’s Government Relations Department, and James Hunter, Government Relations Director at the firm. “Federal Aviation Administration Bill Will Help the Economy,” 6/4/12.

Like the highway bill, the FAA bill is a multiyear infrastructure bill that authorizes federal funding and user-fee derived revenue to support our national transportation system. It helps fund runways, airport expansions, technology upgrades, surveillance systems, and other parts of our aviation infrastructure. This, in turn, helps employ engineers, construction workers, technology specialists, researchers, and many other Americans in jobs tied directly and indirectly to aviation. To be sure, there are limits to what the FAA bill will accomplish. Funding for the FAA through 2015 will likely be flat, or at best achieve minimal growth, and there are major regulatory and financial hurdles to overcome before NextGen can be completed. Still, the bill makes significant changes to aviation policy that will have positive consequences for the aviation industry and the economy at large, and it stands as a good example of what lawmakers can accomplish if they work together cooperatively.

Case—Growing Aviation Demand

America can’t meet growing aviation demand

Pearce 2006 [Robert A., Mr. Pearce is a NASA executive serving as the Acting Director of the Next Generation Air Transportation System Joint Planning and Development Office. For the past two years, Mr. Pearce served as the Deputy Director of the office.

Previously, Mr. Pearce was responsible for strategy and program development for NASA’s Aeronautics Research Mission Directorate. January- March, ATCA Journal of Air Traffic Control.“The Next Generation Air Transportation System: Transformation Starts Now” <http://www.jpdo.gov/library/ngats_transformation.pdf>]

There is already consensus on our starting point. The current U.S. aviation system cannot meet 21st century needs. That was the conclusion of numerous studies and blue ribbon panels, including most recently, the National Research Council and the Walker Commission on the Future of the United States Aerospace Industry. And if we do not quickly take action, things could get much worse and the effect on our economy and global leadership in aviation could be devastating. We already have a capacity tinder box, not just at traditional hot spots like O’Hare, but throughout the entire system. Think of new choke points like Atlanta, Phoenix and even Ft. Lauderdale. The list keeps growing. Most forecasts show that 20 years from now there will be two to three times the passengers, flights and cargo. The FAA predicts that even more airports will be congested in the 2020 time frame. By then, eight metro areas and 19 airports will need more capacity, and an additional 23 may need more. Meanwhile, low-cost carriers, which use smaller aircraft that carry fewer passengers, are now major players, and are sending the number of daily domestic operations through the ceiling at airports like Dulles. Throw in a mix of new aircraft such as very light jets, jet taxis and unmanned aerial vehicles and there is the making of gridlock in our skies. We could even lose the cherished ability to fly anywhere on the same day. Clearly, the existing system was not designed to meet this growing demand for air service. It was not designed to handle all of the new security enhancements that were layered over old ones. It was not designed to allow for anything the future can throw at us. The paradigms we have relied upon for almost 50 years cannot accommodate the massive change that has already begun.

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**NGATS must be enacted**

**Arbuckle et al, 06** [Doug, January-March Issue of the ACTA Journal of Air Traffic Control, <http://www.jpdo.gov/library/vision_2025_air_trans.pdf>]

Today’s U.S. air transportation system1 is under stress. The demands on air transportation are outpacing our ability to increase system capacity. Operating and maintenance costs of the air traffic system are outpacing revenues and the air carrier industry is going through a period of dramatic change. Security requirements established in the wake of the 9-11 attacks significantly impact costs and the ability to efficiently move people and cargo. In addition, growth in air transportation is provoking community concerns over aircraft noise, pollution, and congestion. Adapting our current air transportation paradigm will not be sufficient to meet these challenges. Instead, transformation of today’s system is required to ensure a healthy, environmentally friendly, globally interoperable air transportation system for 2025. Over the past two years, the Joint Planning and Development Office has developed strategies for developing the Next Generation Air Transportation System (NGATS). The NGATS vision for 2025 enables the safe, efficient and reliable movement of large numbers of people and goods throughout the air transportation system in a way that is consistent with national security objectives. Our NGATS vision is founded upon an underlying set of principles and enabled by a series of key capabilities that will free the U.S of many current system constraints, support a wider range of operations, and deliver an overall system capacity up to 3 times current operating levels.

Case—Economy—Ext. Congestion

Gridlock costs billions

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, <http://www.jpdo.aero/pdf/NGATS_v1_1204r.pdf>]

Paradoxically, aviation’s own success will erode the unique speed, predictability, and affordability benefits of air travel if the air transportation system does not expand and adapt at the same pace as the market demands. Historically, growth in aviation was possible because significant investments were made to expand the national airport system and because of our ability to incorporate productivity enhancing technologies into the system. Today, in the most densely populated areas of the U.S., we are barely keeping pace with demand. In the year 2000, millions of Americans were stranded in airports experiencing delays of more than an hour and, in rare cases, to six hours or more. Using present forecasts and maintaining aggressive plans for improvements, the Federal Aviation Administration (FAA) predicts that even more major airports will be congested in the 2020 time frame3 (see Figure 1). Failure to address the impact of air travel congestion on the mobility of Americans could cost consumers up to $20 billion a year by 2025.4

Airport congestion crushes American economy – NextGen is key to solve

Schank 6/23/12

[Joshua L. Schank President & CEO Eno Center for Transportation http://www.enotrans.org/eno-brief/the-federal-role-in-transportation-four-ideas-for-greater-federal-involvement]

We often think of airports as local economic generators, and they are that, but some also have substantial national importance. The aviation network is dependent on large hub airports for the efficient and timely movement of passengers across the country and the world. A safe and reliable aviation network is essential for maintaining our competitiveness in the global economy. Unfortunately, we are in danger of losing our edge in this area because of congestion. Successful NextGen implementation could greatly alleviate the problem, but even if that happens airlines could take advantage of the new capacity and provide more frequent flights. Once economic growth picks up again we are likely to see airport congestion and delays increase as well. Airports such as Newark, San Francisco, and Chicago O’Hare already have approximately 30-40 percent of their flights delayed. Airports face substantial challenges in trying to tackle this issue on their own. The most widely recommended solution is pricing airport runways by time of day. But this politically unpopular solution has faced substantial opposition from communities such as smaller cities flying into hubs, or general aviation aircraft that are concerned about being effectively priced out of the market for a given airport. Congested airports would have a much greater chance of success if they were trying to tackle congestion in partnership with the federal government and other local transportation agencies. The federal role could be improved by dedicating a portion of the Airport Improvement Program (AIP) to provide grants to airports in regions that have a plan to work collaboratively to reduce congestion and overcome some of the political barriers to more effective pricing. Or the AIP could be retooled to set specific performance goals for airports and rewarding achievement. However it is done, there is a clear national interest at play here and the federal government needs to be more involved.

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NextGen alleviates aviation deficiencies - sustains competitiveness

Calio 11

[Nicholas Calio, President and CEO of the Air Transport Association of America, The Hill, “Aviation infrastructure is vital to winning the future,” 2/9/11, http://thehill.com/blogs/congress-blog/technology/143033-aviation-infrastructure-is-vital-to-winning-the-future]

In his State of the Union address, President Obama focused the nation’s attention on the economic importance of investing in infrastructure. America can win the future, and successfully compete against emerging powers such as China if we transform our economy with modern technology and infrastructure. As Congress moves forward with the reauthorization of the Federal Aviation Administration (FAA), lawmakers have an opportunity to pass a jobs bill that will enhance the global competitiveness of the U.S. economy. It is vital that our government better utilize aviation policy to fuel economic growth, mindful that our competitors are effectively using commercial aviation to further their national ambitions. The growth markets of the world understand how commercial aviation can transform an economy and they are investing accordingly. Just a few weeks ago, China announced plans to pour a total of 1.5 trillion Yuan, roughly $228 billion, into its aviation sector over the next five years, including the construction of 11 new commercial airports and the acquisition of 290 new planes in 2011 alone. We must meet the challenge with government investment in our nation’s air traffic control system. This is critical infrastructure that will allow us to keep pace with our competitors. We have the technology. Now it is time for America to step into the future by fully deploying a modern system that supports the national goals of global competitiveness and putting people back to work.

Aviation gridlock alienates local communities

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

Finally, the growth in air transportation has stressed the balance between local aviation and other interests. This could deprive communities of the opportunity for direct access to the global marketplace. Worse, many communities may even be unable to sustain satisfactory, affordable service.

NextGen sustains economic competitiveness

Calio, 11 [Nicholas, Calio is the president and CEO of the Air Transport Association of America, 2/9/11, “Aviation infrastructure is vital to winning the future,”

http://thehill.com/blogs/congress-blog/technology/143033-aviation-infrastructure-is-vital-to-winning-the-future]

In his State of the Union address, President Obama focused the nation’s attention on the economic importance of investing in infrastructure. America can win the future, and successfully compete against emerging powers such as China if we transform our economy with modern technology and infrastructure. As Congress moves forward with the reauthorization of the Federal Aviation Administration (FAA), lawmakers have an opportunity to pass a jobs bill that will enhance the global competitiveness of the U.S. economy. It is vital that our government better utilize aviation policy to fuel economic growth, mindful that our competitors are effectively using commercial aviation to further their national ambitions. The growth markets of the world understand how commercial aviation can transform an economy and they are investing accordingly. Just a few weeks ago, China announced plans to pour a total of 1.5 trillion Yuan, roughly $228 billion, into its aviation sector over the next five years, including the construction of 11 new commercial airports and the acquisition of 290 new planes in 2011 alone. We must meet the challenge with government investment in our nation’s air traffic control system. This is critical infrastructure that will allow us to keep pace with our competitors. We have the technology. Now it is time for America to step into the future by fully deploying a modern system that supports the national goals of global competitiveness and putting people back to work.

Case—Economy—Jobs

NextGen boosts the economy

Calio, 11 [Nicholas, Calio is the president and CEO of the Air Transport Association of America, 2/9/11, “Aviation infrastructure is vital to winning the future,”

http://thehill.com/blogs/congress-blog/technology/143033-aviation-infrastructure-is-vital-to-winning-the-future]

With broad consensus in the business community and organized labor that Congress should work with the president to improve the nation’s aging infrastructure, it is timely for bipartisan actions that support strategic investments to grow the economy. With deficit reduction a national priority, investing in infrastructure is not at cross purposes with cleaning up the nation’s finances. In fact, they go hand-in-hand. Making real progress on the deficit requires that we spark economic growth that drives job creation and generates additional tax revenue. It is essential that key infrastructure projects receive funding now so that industries like commercial aviation that enable businesses to grow can contribute more to the economic recovery. Providing the funding to accelerate implementation of modern air traffic infrastructure should be a top priority in the 112th Congress. The antiquated, ground-based system in place today is a major drag on productivity. As Ben Franklin famously proclaimed, time is money. Unfortunately, the nation has been losing both for years because our archaic air traffic control system has been unable to meet the demands placed upon it – let alone the demands of the future. According to a recent study commissioned by the FAA, flight delays cost the U.S. $31 billion in 2007. With a satellite-based system, airline efficiency will increase and flight delays will be minimized. Safety and customer satisfaction will improve and businesses - large and small - will reap the benefits of greater efficiency and be better positioned to create jobs. Commercial aviation already provides key connections that make the economy grow. The industry contributes $1.2 trillion to the economy, is responsible for 5.2 percent of the nation’s GDP and supports nearly 11 million jobs. A fully operational, NextGen air traffic management system will unleash the true economic power of commercial aviation and benefit every industry in this country. Conservative estimates predict that implementation of this system will lead to the creation of more than 150,000 jobs. In reality, the economic impact of this investment in modern infrastructure will be exponentially bigger. The sky is the limit for what this industry can contribute to the economy. Now it is up to our leaders in Washington to provide airlines with the infrastructure needed to compete successfully and support the U.S. in our national ambition to win in the global economy.

Next Gen is key to the aviation industry – increased capacity is vital to economic growth

Kramer 5/22

[Hillary Kramer, renound stock broker, financial contributor to forbes and several other news organizations, BA from Wellesley College, 5/22/12, <http://www.forbes.com/sites/hilarykramer/2012/05/22/building-the-runway-to-the-skies-of-tomorrow/>]

It seems that these days, the general public is a bit weary of commercial air travel – and who can blame them? We hear countless stories of TSA screeners taking their jobs perhaps too seriously, to say nothing of the general unpleasantness and inconvenience of arriving 90 minutes early to your flight, removing your shoes and getting full-body scanned. Despite these admitted irritations, I think it’s important to take a step back and realize just how complex and technologically sophisticated an achievement it is – even a miracle, you might say – that we, the traveling public, make it safely from departure gate to arrival gate day-in and day-out. It’s really quite impressive, especially considering that today’s air traffic network is based on systems developed more than 60 years ago. This is both good news (that the network is resilient) and bad (the network is old). Demand for air travel – and the resulting pressure this demand places on the existing aviation network – is imminently on the verge of exceeding our system’s limits. Consider that in 1995, our air-traffic management system accommodated 580 million passengers per year on 30,000 flights per day. Just 15 years later, in 2010, those numbers jumped to 712 million passengers per year on 43,000 flights per day. The Federal Aviation Administration (FAA) estimates that, if left unaddressed, increased air congestion could cost the American economy $22 billion annually in lost market activity by 2022. The reason for this is simple: Aviation is now the premier enabler of global commerce. $562.1 billion in goods were transported in 2008 alone; $249.2 billion was spent on direct expenditures by air travelers in 2009, the same year in which aviation made up 5.2 percent of total U.S. GDP. This is a staggering reality. If technology cannot keep up, the entire industry will face massive economic and logistical difficulties that will affect millions of travelers and businesses annually. The entire fabric of global connectivity is at risk. Thankfully, though, innovation and technology are advancing at a rate faster than any previous generation thought possible. We now live in a world whose aviation technology needs are light-years ahead of those in which our current systems were first implemented. The landscape has changed, and our aviation technology must change with it if we are to address the aviation challenges of tomorrow – not only for the airlines and the air travel market, but for the traveling consumer as well. The technology is there, in the form of what the FAA calls the Next Generation Air Transportation System, or NextGen. NextGen is unique in that it represents an incremental but innovative and integrated system that will vastly improve efficiencies for both the traveling public and the aviation industry. It moves air-traffic management systems away from ground-based radar, instead relying on more advanced satellite-based technology to accommodate continued growth and increased safety. By switching to GPS-based systems, airlines can get more planes in the air; these planes can fly, safely, in closer proximity to each other; and the airlines can run more routes, getting more people to more places more quickly. According to the FAA, “This evolution is vital to meeting future demand, and to avoiding gridlock in the sky and at our nation’s airports.” If fully implemented, FAA analysts indicate that NextGen is expected to save $123 billion in costs by 2030. And, as a bonus, NextGen is expected to significantly reduce aviation’s impact on the environment by allowing for more direct routes. In fact, according to the International Air Transport Association, cutting flight times by just one minute per flight on a global basis – something that NextGen technology would easily make a reality – would save 4.8 tons of carbon dioxide emissions every year. The private sector has a role to play here as well, particularly companies like Boeing, Booz Allen Hamilton, Exelis and Raytheon. Ultimately, NextGen’s success will depend on the leadership and contribution of these and a handful of other companies that are playing a central role in its development and the overall evolution of air-traffic management. But while technology is the inanimate core of NextGen, the benefits of these new systems and technologies will never be realized without air traffic controllers and other aviation industry professionals who undergo efficient and successful training, which is arguably the most critical element to NextGen. (After all, the new technology is rather useless if no one knows how to properly operate it.) At first, training does seem to be a huge challenge as we look forward to the implementation of this next generation of global air traffic technology. But, it actually won’t be so ominous and will ultimately be a very beneficial process integrally woven into NextGen. In fact, Raytheon (RTN), in particular, comes to mind for its role in providing training. Active in air-traffic management for over 60 years, Raytheon is a major player in providing both systems and training for all dimensions of air-traffic control. Currently, Raytheon trains allU.S.air-traffic controllers, in addition to providing 60 percent of all air-traffic control training worldwide. Raytheon has delivered more than 350 air-traffic management systems to more than 60 countries, and companies like Raytheon will be critical partners for the FAA as the agency continues to implement (and require training for) NextGen technologies. Of course, while all of this sounds great in theory, NextGen has had its bumps in the road along the way. Cost has been one of the more contentious issues, with the FAA and the airlines currently embroiled in a tug-of-war when it comes to picking up the $29 – 42 billion check. Despite challenges in its development and execution, it is vital that NextGen be implemented as rapidly as possible in order to ensure the ability ofU.S.aviation systems to meet traveler and cargo demand, achieve efficiencies and minimize the impact of aviation on the environment. Simply put, NextGen will succeed if it can equip the talented individuals who manage and oversee America’s airspace to meet the growing demands of tomorrow’s aviation challenges – all while ensuring you and I make it safely, happily and more efficiently to our arrival gate.

Case — Ext. Accidents

Even marginal safety improvement from NextGen would save billions of dollars.

Salam 12

(Sakib bin Salam, Policy Intern at Eno Center for Transportation, “NextGen: Aligning Costs, Benefits, and Political Leadership,” April 2012.)

With more precise location information on all aircraft, con­trollers can have a much better sense of their location with respect to the location of other moving and non-moving aircraft in their vicinity. NextGen provides precision verti­cally guided approaches with no equipment expenditure on the ground. The direct result of the improved information is less of a risk of collisions on the ground or in the air, especially in times of low visibility.

While commercial aviation in the United States has an unparalleled safety record, general aviation still faces sub­stantial flight incidents and casualties annually. An analysis of the National Transportation Safety Board’s (NTSB) data for general aviation accidents shows over 1,000 cases in 2010, including 245 casualties.25 A common probable cause for accident according to the NTSB’s investigation reports is pilot error due to lack of situational awareness, particularly during times of poor visibility.

In quantifying the cost of fatalities, the USDOT’s recom­mended value per casualty is $5.8 million, or a range of $3.2-$8.4 million due to uncertainty.26 Based on this estimate, the cost of general aviation accidents in terms of lives lost is about $1.421 billion or between $784 million-$2.058 billion annually.27

The database indicates damage to the aircraft as “substan­tial” or “destroyed”. In 2010 there were 38 cases where the aircraft was completely destroyed, and 981 cases of substantial damage. Using a roughly estimated price of a used Cessna 180 aircraft of $100,000, the cost of destroyed aircraft is approximately $3.8 million. The cost of damaged aircraft is about $24.5 million, assuming the per-aircraft cost to be a quarter of damaged aircraft.

Based on these estimates, the total cost of accidents to the general aviation community in 2010 was about $1.449 bil­lion.

Even with on-board ADS-B, the prospect of greater situ­ational feedback and data could be undermined by human error of judgment. However, a reasonably moderate esti­mate can be made where greater situational awareness does contribute to preventing some accidents. Table 5 shows savings to the general aviation community under various levels of NextGen’s impact on safety. Even if NextGen plays a small role in improving safety and reduc­ing incidents in general aviation, the potential benefits are substantial.28

Case — Al Qaeda Strong

**Al Qaeda is growing stronger**

Jones, June [Seth G., April/June, 2012, “Think Again: Al Qaeda,” Foreign Policy, http://www.foreignpolicy.com/articles/2012/04/23/think\_again\_al\_qaeda]

These declarations of victory, however, underestimate al Qaeda's continuing capacity for destruction. Far from being dead and buried, the terrorist organization is now riding a resurgent tide as its affiliates engage in an increasingly violent campaign of attacks across the Middle East and North Africa. And for all the admiration inspired by brave protesters in the streets from Damascus to Sanaa, the growing instability triggered by the Arab Spring has provided al Qaeda with fertile ground to expand its influence across the region. Al Qaeda's bloody fingerprints are increasingly evident in the Middle East. In Iraq, where the United States has withdrawn its military forces, al Qaeda operatives staged a brazen wave of bombings in January, killing at least 132 Shiite pilgrims and wounding hundreds more. The following week in Yemen, fighters from al Qaeda in the Arabian Peninsula seized the town of Radda, while expanding al Qaeda's control in several southern provinces. "Al Qaeda has raised its flag over the citadel," a resident told Reuters. Beyond these anecdotes, several indicators suggest that al Qaeda is growing stronger. First, the size of al Qaeda's global network has dramatically expanded since the 9/11 attacks. Al Qaeda in Iraq, al Qaeda in the Arabian Peninsula, al Qaeda in the Islamic Maghreb, and Somalia's al-Shabab have formally joined al Qaeda, and their leaders have all sworn bayat -- an oath of loyalty -- to bin Laden's successor, Ayman al-Zawahiri. These al Qaeda affiliates are increasingly capable of holding territory. In Yemen, for example, al Qaeda in the Arabian Peninsula has exploited a government leadership crisis and multiple insurgencies to cement control in several provinces along the Gulf of Aden. Al Qaeda's affiliates in Somalia and Iraq also appear to be maintaining a foothold where there are weak governments, with al-Shabab in Kismayo and southern parts of Somalia, and al Qaeda in Iraq in Baghdad, Diyala, and Salah ad Din provinces, among others. The number of attacks by al Qaeda and its affiliates is also on the rise, even since bin Laden's death. Al Qaeda in Iraq, for instance, has conducted more than 200 attacks and killed more than a thousand Iraqis since the bin Laden raid, a jump from the previous year. And despite the group's violent legacy, popular support for al Qaeda remains fairly high in countries such as Nigeria and Egypt, though it has steadily declined in others. If this is what the brink of defeat looks like, I'd hate to see success. Wishful thinking. In recent years, al Qaeda leaders have consciously developed a strategy to expand their presence in North Africa, the Middle East, and South Asia. Rather than weakening the organization, this mergers-and-acquisitions strategy has been fairly successful in allowing al Qaeda to expand its global presence. Today, al Qaeda has evolved from a fairly hierarchical organization at its 1988 founding to a more decentralized one composed of four main tiers. First, there's al Qaeda's core leadership in Pakistan. Zawahiri took over as emir after bin Laden's death, and Abu Yahya al-Libi, the head of al Qaeda's religious committee, became his deputy. They are flanked by a new cast of younger operatives, such as Hassan Gul, Hamza al-Ghamdi, Abd al-Rahman al-Maghrebi, and Abu Zayd al-Kuwaiti al-Husaynan -- figures charged with plotting al Qaeda operations, managing its media image, and developing its religious dogma.

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**Al Qaeda is globally strong**

Habeck, 4/17 [Foreign Policy, Mary, 2012, “Evaluating the war with al Qaeda, part IV: How well are we doing?” http://shadow.foreignpolicy.com/posts/2012/04/17/evaluating\_the\_war\_with\_al\_qaeda\_part\_iv\_how\_well\_are\_we\_doing]

Al Qaeda's leadership, on the other hand, considers itself to be much more than just a core of terrorists, but rather the "high command" of a global organization. In their view, the affiliates (or branches), as well as many fighters in Afghanistan-Pakistan, are integral members of al Qaeda. They have publicly described expansive objectives that include overthrowing the rulers of every Muslim-majority country (whether part of an earlier Islamic state or not), imposing their version of sharia, and then setting up "amirates," or Islamic states in these countries. Al Qaeda believes that they have achieved many of these goals already and are pressing forward to seize more territory and set up new shadow governments. So how do we reconcile these very different versions of the war and determine where we are at in this conflict? I believe that the most important question we can ask ourselves is this: Is al Qaeda better off now than it was ten years ago? If we just look at attacks on the U.S., its citizens, and even its allies, we will agree with the current majority view of al Qaeda and answer "no." Unlike before 9-11, when al Qaeda and terrorists trained by the group were able to carry out devastating attacks against the U.S. and its interests in 1993, 1995, 1998, and 2000, the period since 9-11 has been marked by one CT triumph after another. The planned follow-up attacks (the so-called "second wave") were foiled or failed to materialize and other serious plots have been stopped on a regular basis. The only large-scale attacks that succeeded were abroad (Bali (2002), Spain (2004), London (2005) -- no other major attempts since 2005 have made it past the CT nets of the U.S. and our allies. We will, however, draw quite a different conclusion if we look at how al Qaeda is faring in the rest of the world. On September 11, al Qaeda controlled perhaps a half-dozen camps in one safe-haven (Afghanistan) and had a few tentative alliances with other jihadist groups that had mostly local concerns. Today al Qaeda has multiple safe-havens (in northern Pakistan, Somalia, Yemen, the Sahel); controls branches in many countries that share al Qaeda's global aspirations; holds territory through shadow governments that force local Muslims to follow al Qaeda's version of sharia; and is waging open war on numerous battlefields (Afghanistan, Somalia, Yemen, Mali, etc.). Most tellingly, it is involved -- sometimes weakly, at other times in strength -- in every Muslim-majority country in the world. Based on these facts, any net assessment of al Qaeda would conclude that, despite its failure to carry out a mass-casualty attack on the U.S. since 9-11, the group is in far better condition on a global scale than at any time in its history. And if, as al Qaeda itself has always argued, attacking the U.S. was just one means toward the greater ends of overthrowing Muslim rulers, imposing their version of sharia, and controlling territory, then they have made real progress toward achieving their strategic goals.

**Terrorists are trying to attack Aviation System**

CBS News, 7/2

[“Norwegian at center of new al Qaeda plot fears,” CBS This Morning, 7/2/12, http://www.cbsnews.com/8301-505263\_162-57464755/norwegian-at-center-of-new-qaeda-plot-fears/]

There are reports of concern over another terror plot involving Al Qaeda targeting a U.S. airliner. Sources say that the bomber that Al Qaeda in the Arabian Peninsula (AQAP) has recruited is a Norwegian convert to Islam, who is believed to be in his thirties, with no criminal record. The Times of London reports that the airliner attack is believed to be timed to the upcoming Olympics, though a U.K. intelligence official told the paper that the plot would be pursued regardless of the London Games: "The only thing that connects this to the Olympics is the fact that they are about to happen," the official said. An earlier AQAP plot to blow up a plane was foiled two months ago when a man working with British intelligence infiltrated the group and volunteered to be a suicide bomber - then delivered the bomb to intelligence officials. CBS News senior correspondent John Miller, a former Deputy Director of National Intelligence, said that despite foiled bomb plots targeting airliners, al Qaeda has not lost its fascination with commercial aviation - and that AQAP (al Qaeda's branch based in Yemen) has been specifically assigned to find a way to blow up a U.S. plane. "They were the architects of the first underwear bomb, they were the architects of the ingenious printer bomb which was interdicted before it could go off," Miller said. "And I think what we're seeing once again is they've tried to put a bomb on a person and get them on a plane. Whether it has anything to do with the Olympics or the Fourth of July - one of the chosen target holidays by bin Laden - is something we don't yet know. "Another thing that AQAP and Yemen developed was a surgically implanted bomb," Miller added. "Now, we've seen the design for that, but we haven't seen it used in a commercial airline threat yet." On "CBS This Morning" Miller said using a Norwegian convert matches al Qaeda's efforts to find operatives who don't fit the profile of terrorists for whom Western intelligence is searching, who are radicalized via the Internet. Miller said intelligence agencies must now find an individual who fits the profile of an al Qaeda convert: "Someone 18 to 35, someone who is from Norway, someone who has traveled to places that are jump-off spots to go to Yemen. Now, you've got maybe tens of thousands of people, or thousands. But you want to crunch that down to who has connection somewhere else in the database, and focus on those people." Miller said there are two ways to investigate the pool of possible suspects: "One, the traditional way, which is you have intelligence officers overseas who run intelligence agents in the field and you say, 'Now bang against your sources and see if we can come up with a real name on this guy and where he is.' "And the less traditional and perhaps the more interesting way is the data crunching piece where you take what you do know about him and then what you know about the geography, and then you use supercomputers to crunch through those records and say 'How do we narrow this pool down and then how do we look for further connections?'

Case — Ext. Terrorism Impact

Terrorism results in great power war

Ayson 10**,** Professor of Strategic Studies and Director of the Centre for Strategic Studies: New Zealand at the Victoria University of Wellington, 2010 (Robert,“After a Terrorist Nuclear Attack: Envisaging Catalytic Effects,” *Studies in Conflict & Terrorism*, Volume 33, Issue 7, July, Available Online to Subscribing Institutions via InformaWorld)

But these two nuclear worlds—a non-state actor nuclear attack and a catastrophic interstate nuclear exchange—are not necessarily separable. It is just possible that some sort of terrorist attack, and especially an act of nuclear terrorism, could precipitate a chain of events leading to a **massive exchange** of nuclear weapons between two or more of the states that possess them. In this context, today’s and tomorrow’s terrorist groups might assume the place allotted during the early Cold War years to new state possessors of small nuclear arsenals who were seen as raising the risks of a **catalytic nuclear war** **between the superpowers** started by third parties. These risks were considered in the late 1950s and early 1960s as concerns grew about nuclear proliferation, the so-called n+1 problem. It may require a considerable amount of imagination to depict an especially plausible situation where an act of nuclear terrorism could lead to such a massive inter-state nuclear war. For example, in the event of a terrorist nuclear attack on the United States, it might well be wondered just how Russia and/or China could plausibly be brought into the picture, not least because they seem unlikely to be fingered as the most obvious state sponsors or encouragers of terrorist groups. They would seem far too responsible to be involved in supporting that sort of terrorist behavior that could just as easily threaten them as well. Some possibilities, however remote, do suggest themselves. For example, how might the United States react if it was thought or discovered that the fissile material used in the act of nuclear terrorism had come from **Russia**n stocks,40 and if for some reason Moscow denied any responsibility for nuclear laxity? The correct attribution of that nuclear material to a particular country might not be a case of science fiction given the observation by Michael May et al. that while the debris resulting from a nuclear explosion would be “spread over a wide area in tiny fragments, its radioactivity makes it detectable, identifiable and collectable, and a wealth of information can be obtained from its analysis: the efficiency of the explosion, the materials used and, most important … some indication of where the nuclear material came from.”41 Alternatively, if the act of nuclear terrorism came as a complete surprise, and American officials refused to believe that a terrorist group was fully responsible (or responsible at all) **suspicion would shift immediately to state possessors.** Ruling out Western ally countries like the United Kingdom and France, and probably Israel and India as well, authorities in Washington would be left with a very short list consisting of North Korea, perhaps Iran if its program continues, and possibly Pakistan. But at what stage would Russia and China be definitely ruled out in this high stakes game of nuclear Cluedo? In particular, if the act of nuclear terrorism occurred against a backdrop of existing tension in Washington’s relations with Russia and/or China, and at a time when threats had already been traded between these major powers, would officials and political leaders not be tempted to assume the worst? Of course, the chances of this occurring would only seem to increase if the United States was already involved in some sort of limited armed conflict with Russia and/or China, or if they were confronting each other from a distance in a proxy war, as unlikely as these developments may seem at the present time. The reverse might well apply too: should a nuclear terrorist attack occur in Russia or China during a period of heightened tension or even limited conflict with the United States, could Moscow and Beijing resist the pressures that might rise domestically to consider the United States as a possible perpetrator or encourager of the attack? Washington’s early response to a terrorist nuclear attack on its own soil might also raise the possibility of an unwanted (and nuclear aided) confrontation with Russia and/or China. For example, in the noise and **confusion during the immediate aftermath of the terrorist nuclear attack,** the U.S. president might be expected to place the country’s armed forces, including its nuclear arsenal, **on a higher stage of alert.** In such a tense environment, when careful planning runs up against the friction of reality, it is just possible that Moscow and/or China might mistakenly read this as a sign of U.S. intentions to use force (and possibly nuclear force) against them. In that situation, the temptations to preempt such actions might grow, although it must be admitted that any preemption would probably still meet with a devastating response.

**Terrorism crushes the economy and leads to retaliation and global war**

Diamond 8 [USA Today, 10/9, John Diamond is a Washington fellow of the Saga Foundation. He is also a former national security reporter for USA TODAY and author of The CIA and the Culture of Failure. “A financial apocalypse isn't nearly as scary as a nuclear one”] LexisNexis

Nuclear terrorism, the most serious existential threat to our homeland, has fallen off our priority list. The startling crisis on Wall Street, and the threat it poses to Main Street, has relegated national security to an afterthought -- when it should be anything but. Four years ago, during the presidential campaign, President Bush and Sen. John Kerry, D-Mass., agreed that the possibility that a terrorist group could obtain fissile material, fashion a crude nuclear weapon and set it off in an American city was our greatest threat. This year, the topic barely got a mention in the presidential debates. Go to the websites of Barack Obama and John McCain and click on the "Issues" buttons. In neither case does the drop-down list include a separate category called "terrorism." Once you click through enough layers, you discover that they both agree on the importance of securing nuclear weapons material. Both have endorsed the concept of "a world without nuclear weapons." And they both support gradual but significant reductions in the U.S. and Russian arsenals. The absence of a sharp disagreement between the candidates on responding to the nuclear terror threat might explain why it has all but disappeared from view as the fall campaign approaches. Yet perhaps our leaders and their constituents have not fully grasped the consequences of such an attack beyond the grim image of a mushroom cloud over an American city. The aftershocks As the Saga Foundation -- a non-profit organization focused on the threat of terrorism involving weapons of mass destruction -- argued in a recent white paper, the vast damage at and around a nuclear ground zero would be dwarfed in scope by the national and global economic aftershocks. These aftershocks would stem not only from the explosion itself but also from a predictable set of decisions a president would almost certainly have to make in grappling with the possibility of a follow-on attack. Assuming, as the experts believe likely, that such a weapon would have to be smuggled into the country, the president could be expected to close the nation's borders, halt all freight commerce and direct a search of virtually any moving conveyance that could transport a nuclear weapon. Most manufacturing would then cease. In a nation that lives on just-in-time inventory, these developments could empty the nation's shelves in days. The effects of post-attack decision-making go far beyond this example. If U.S. intelligence determined that one or more countries had somehow aided and abetted the attack, we would face the prospect of full-scale war. Even short of that, the nation would demand, and the president would almost certainly order, a level of retaliation at the suspected locus of the attacking group that would dwarf the post-9/11 military response. The possibility of follow-on attacks could transform our notions of civil liberties and freedom forever. And as former 9/11 Commission co-chairman Lee Hamilton has pointed out, a nuclear terrorist attack would prompt a collapse in public faith in the government's ability to protect the American people. Think your 401(k) hurts now? The presidential nominees, and the American people, should reconsider the tendency to view these two issues -- economic crisis and the threat of catastrophic terrorism -- as separate problems. A nuclear attack on a U.S. city would not only devastate the target and kill possibly hundreds of thousands, it would also create instantaneous national and global economic ripple effects with incalculable consequences. To put it in personal terms, if you think things are tough in the nation's financial sector now, imagine what your 401(k) -- or your paycheck -- might look like six months after a nuclear detonation in Lower Manhattan or downtown Washington. Saga's study merely began what must become a much larger-scale effort to understand in the fullest detail possible the consequences of an act of nuclear terrorism, not only the attack itself but also the decisions that would almost certainly follow. The idea is not to depress people but to motivate them. While some of the consequences are obvious, others are not, and it is the less understood aftershocks that could damage our world as well as transform it -- and not for the better. John Diamond is a Washington fellow of the Saga Foundation. He is also a former national security reporter for USA TODAY and author of The CIA and the Culture of Failure.

Case — Environment

NextGen protects the environment

Joint Planning and Development Office, 2007 [February 28, “Concept of Operations

for the Next Generation Air Transportation System” http://www.jpdo.gov/library/nextgenconopsv12.pdf]

Environmental interests are proactively addressed through the development and implementation 89 of an integrated Environmental Management System (EMS). Technologies are incorporated 90 before and during operations to enable optimized route selection, landing, and take-off 91 procedures based on a range of data feeds including noise, air emission, fuel burn, cost, and route 92 efficiency. At airports, a flexible, systematic approach is developed to identify and manage 93 environmental resources that are critical to sustainable growth. Environmental considerations 94 continue to be incorporated into aircraft design to proactively address issues including noise 95 reduction and aircraft engine emissions.

NextGen would reduce carbon dioxide emissions.

Salam 12

(Sakib bin Salam, Policy Intern at Eno Center for Transportation, “NextGen: Aligning Costs, Benefits, and Political Leadership,” April 2012.)

Another criticism is that the operators cause most of the de­lays in some airports through flight scheduling for business reasons as opposed to due to airport capacity limitations. As a result it is argued that NextGen could do little to alleviate delays.

In part to counter these concerns, the FAA released its NextGen Implementation Plan in March 2011 where it esti­mated benefits from NextGen in terms of reduced conges­tion and increased fuel efficiency based on both simulations and in some case actual data: In Atlanta, arrivals making use of Performance Based Navi­gation (PBN) procedures have saved hundreds of thousands of gallons of fuel and thousands of tons of carbon dioxide and air pollutants. Similar fuel savings and reductions in emissions have resulted from the use of precise, continuous descents into Los Angeles and customized descents into San Francisco. Preliminary results from a surface management initiative in Boston point to a fuel savings of 5,100 gallons and a reduction in carbon dioxide emissions of 50 tons dur­ing periods of heavy congestion. Shared surface surveillance data coupled with aircraft metering techniques are creating taxi-out time savings of up to 7,000 hours a year at New York’s John F. Kennedy airport and 5,000 hours a year at Memphis, Tenn.6

Case —Terrorism—National Attacks—Congestion Now

NextGen eases air transportation’s stress

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

The system is already showing signs of stress and it is clear that projected demand will soon surpass the system’s capacity. The U.S. aviation system must transform itself and be more responsive to the tremendous social, economic, political, and technological changes that are evolving worldwide. We are entering a critical era in air transportation, in which we must either find better, proactive ways to work together or suffer the consequences of reacting to the forces of change. The consequence of a do- nothing approach to this public policy problem is staggering. As the Commission on the Future of the United States Aerospace Industry noted, consumers stand to lose $30B annually due to people and products not reaching their destinations within the time periods we expect today. We are nearing a time when we will have to develop a new approach to air transportation. The current approach – ground based radars tracking congested flyways and passing information from control center to control center on the ground throughout the flight of an aircraft – is becoming operationally obsolete. The density of air traffic is making the current system increasingly inefficient. Bottlenecks are showing up now, and large increases in air traffic will cause mounting delays and increased need for structuring or limiting service in many parts of the nation. Driven by the increasing pace of change, the old evolving approach is insufficient for system modernization. In terms of improving the system over the next 25 years, it is clear that business as usual will not succeed.1 Technology is giving us opportunities for an entirely new approach—one that utilizes modern communication techniques, advanced computers, precision plotting through GPS and modern computer-based decision assistance programs. This new approach to air navigation could open up the sky to much greater and more efficient utilization of airspace. It also holds great promise for improved aviation security.

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Air transportation is on the brink

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

The U.S. air transportation system as we know it is under stress. The demand for air transportation is outpacing our ability to increase capacity in our airports. Operating and maintenance costs of the air traffic system are outpacing revenues and the air carrier industry is going through significant change. The terrible events of September 11, 2001, radically altered our country and they exposed a new impediment to the future of the air transportation industry. New security requirements are significantly impacting costs and the ability to efficiently move people and cargo. In addition, the growth in air transportation has provoked community concerns over aircraft noise, pollution, and congestion that affect our ability to respond adequately or rapidly enough to our changing world.

NextGen ensures air superiority

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

Achieving the vision of a transformed air transportation system requires us to open our minds to new possibilities, embrace new approaches and create new ways to work together. To secure America’s place as a global leader in aviation’s second century, we need an air transportation system that supports a strong commercial capability, facilitates private-sector expansion, and creates jobs.

Case—Terrorism—National Attacks—Prevention

Integration is essential to national defense

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

The future air transportation system must be able to facilitate the nation’s ability to respond rapidly to emerging threats while maintaining commercial and civilian access to our airspace. Integrating the information and communication systems of defense agencies is essential to ensuring that our nation is prepared to combat threats. Integrated capabilities will support national defense by improving our ability to share information among agencies and organizations responsible for protecting our country. Sharing information and obtaining a common picture of our skies will enable a proactive approach to protection. It also will facilitate rapid responses to a variety of threats. For example, improved information regarding aircraft that may be entering restricted airspace will likely reduce the need for combat air patrols. The future air transportation system also will improve support for military missions. Commercial carriers will be able to provide more capable and economical transportation services and access to global airspace. Additionally, global harmonization of standards, procedures, and operations will reduce the investment necessary to ensure U.S. military access to international airspace. The availability of improved tracking and surveillance technologies will allow continued commercial and civilian access to our national airspace while mobilizing defense activities. The future system will feature the ability to define flexible airspace, quickly changing boundaries required by military and civilian operations. This will enhance the ability to support military missions and ensure continuous quality service to other airspace users.

NextGen prevents aviation attacks

Joint Planning and Development Office, 2007 [February 28, “Concept of Operations

for the Next Generation Air Transportation System” http://www.jpdo.gov/library/nextgenconopsv12.pdf]

The major objective of Secure Airspace is to prevent or counter external attacks on aircraft and 3531 other airborne vehicles anywhere in the NAS or using an aircraft as a weapon to attack assets and 3532 people on the ground. In order to reduce the security risk within the air domain, NextGen Secure 3533 Airspace systems and procedures detect and prevent or mitigate (1) anomalies in aircraft 3534 operation that indicate unauthorized use or attempted unauthorized use, (2) aircraft not providing 3535 the appropriate cooperative data concerning identity and intentions, (3) external attacks on 3536 aircraft, and (4) aircraft that can pose a threat from operating in the NAS. These risk 3537 management requirements include defining (almost always dynamically) the boundaries of SUA 3538 and temporary flight restrictions (TFR), the cooperative division of responsibilities between the 3539 DSP, SSP, and ANSP in the event of security events in flight or by airborne threat aircraft, and 3540 the security personnel on flights and modifications/equipage to the aircraft. [R-118], [R-119], [R- 3541 120], [R-121], [R-122], [P-57], [P-58], [P-59] In addition, Secure Airspace implements airspace 3542 access and flight procedures based on a verification process that dynamically adjusts for aircraft 3543 performance capabilities. [P-60] The model combines credentialing data with performance data 3544 as part of developing the risk profile of the aircraft. [R-123], [P-61] One objective is to permit 3545 increased NAS access by low-performance aircraft through most restricted zones since the 3546 reaction time to intercept is correspondingly greater than with high-performance aircraft. Refer 3547 to Chapter 2 for additional information. A depiction of secure airpace is provided in Figure 6-1.

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NextGen protects the environment and boosts heg

Joint Planning and Development Office, 04 [2004, “Next Generation Air Transportation System: Integrated Plan” Department of Transportation, http://www.jpdo.aero/pdf/NGATS\_v1\_1204r.pdf]

As aviation grows, we must reduce aircraft noise and emissions as well as contaminants from airports. Aviation simply must become a better neighbor. Improved environmental protection will be a vital element to ensure U.S. air transportation viability and global leadership. Certain regions of the world already have adopted policies that limit aviation growth to protect the environment. Noise and emissions at the Nation’s largest airports would limit capacity if they are not aggressively addressed. his environmental compatibility will be achieved through a combination of improvements in aircraft performance and operational procedures, land use around airports, policies and incentives to accelerate technology introduction into the fleet, and aircraft de-icing procedures. The Next Generation Air Transportation System (NGATS) will apply advances in design, engineering, and emerging technologies to ensure that growth in the number of aircraft and airports does not exceed approved environmental limits. Further gains will be realized from new policies and approaches in regulation and mitigation. Long-term, reinvigorated research and development and refined technology implementation strategies will help to keep pace with changing environmental requirements. Policy and financial incentives will be used to accelerate the introduction of environmental technology improvements in aircraft, including propulsion technologies, materials development, and airframe designs. Intelligent flight planning, coupled with improved flight management capabilities, will enable more fuel-efficient profiles throughout the flight envelope. Noise and local emission reduction efforts will be coordinated among multiple aviation operations in large metropolitan areas. By 2025, the impact of aviation on community noise and local air quality will be reduced in absolute terms, even with anticipated growth in air traffic. Uncertainty in the emerging issues of climate change and health effects of emissions will be reduced to a level that enables appropriate actions to be undertaken to address these effects. Airports will be valued neighbors keeping the public well informed about aviation and environment issues. Airlines and airframe/ engine manufacturers will be recognized as global leaders in jointly addressing mobility and environmental needs.

NextGen enhances security

Joint Planning and Development Office, 2007 [February 28, “Concept of Operations

for the Next Generation Air Transportation System” http://www.jpdo.gov/library/nextgenconopsv12.pdf]

Security services are provided by a risk-informed security system that depends on multiple 83 technologies, policies, and procedures adaptively scaled and arranged to defeat a given threat. 84 New technologies and procedures aid in passenger screening and checkpoint responsibilities. 85 Baggage screening improvements include integrated chemical, biological, radiological, and 86 nuclear explosives (CBRNE) detection and sensor fusion systems ranging in size for increased 87 portability and remote screening.