Event Proceedings

ABOUT THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

The Port Authority of New York and New Jersey manages and maintains the bridges, tunnels, bus terminals, airports, PATH and seaport that are critical to the bistate region's trade and transportation capabilities. Through its facilities and services, people are able to make vital connections and businesses are able to grow. Providing safe and efficient travel is the highest priority, and enhancing the well being of everyone who lives, works and travels here is Port Authority's strongest commitment.

ABOUT THE UNIVERSITY TRANSPORTATION RESEARCH CENTER, REGION II

The Region 2 University Transportation Research Center (UTRC) is one of ten original University Transportation Centers established in 1987 by the U.S. Congress. These Centers were established with the recognition that transportation plays a key role in the nation's economy and the quality of life of its citizens. University faculty members provide a critical link in resolving our national and regional transportation problems while training the professionals who address our transportation systems and their customers on a daily basis.

The UTRC was established in order to support research, education and the transfer of technology in the field of transportation. The theme of the Center is "Planning and Managing Regional Transportation Systems in a Changing World." Under the direction of Dr. Robert E. Paaswell, the UTRC represents USDOT Region II, including New York, New Jersey, Puerto Rico and the U.S. Virgin Islands. Functioning as a consortium of twelve major Universities throughout the region, UTRC is located at the City University of New York. The Center, through its consortium, an Agency-Industry Council and its Director and Staff, supports research, education, and technology transfer under its theme.

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The symposium was co-hosted by the Port Authority of NY & NJ and the Region 2 University Transportation Research Center on February 25, 2009 in New York City.

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Executive Summary

On February 25, 2009, the Port Authority of New York and New Jersey (PANYNJ) and the Region 2 University Transportation Research Center (UTRC) convened a half-day symposium "NextGen: The Future of Aviation." Attended by approximately 300 individuals from around New York State and the nation, the symposium generated support and a call to action for a faster deployment of the Federal Aviation Administration's Next Generation Air Transportation System - called NextGen, which promises to improve the current antiquated air traffic control system.

The aviation industry is vital and fundamental to our national economy and to its continued level of prosperity. Over 11 million people work in aviation related jobs; over $1.2 trillion of economic activities are generated from it. According to the Federal Aviation Administration (FAA), the industry contributes approximately 5% of the United States Gross Domestic Product (GDP) and there is a direct link between aviation growth and the GDP growth.

Unfortunately, the National Airspace System (NAS), the backbone of the aviation industry, is at the saturation point, with antiquated ground-based radar technologies no longer able to accommodate the growth of U.S. aviation. These constraints are causing flight delays in the U.S. aviation system, posing a threat to both our regional and national economic growth and prosperity. It is estimated that the delays in the airspace system will only grow worse as the number of passengers flying each year in the U.S. continues to rise. Delays resulting from these constraints of the current NAS are very costly in terms of lost time to the traveling public, loss of productivity, wasted fuel, and pollution on the environment. Flight delays will continue to be costly if no action is taken.

The problem of flight delays is especially acute in the New York metropolitan area and their cascade effects impact flights at airports throughout the global system. The New York Region's three major airports have consistently ranked among the nation's worst in on-time performance. These airports, which handle about one-third of the nation's flights, are ultimately responsible for approximately three-quarters of nationwide delays. According to *Grounded: The High Cost of Air Traffic Congestion*, a report released by the Partnership for New York City, the annual cost of flight delays caused by air traffic congestion at the New York Region's three major airports was more than $2.6 billion in losses to the regional economy in 2008. If no action is taken, it will total a staggering $79 billion over the eighteen year span between 2008 and 2025. By 2025, approximately 40 million passengers that would have flown in the absence of caps will be displaced and turned away from our region. As a result, the New York Metropolitan Region risks to lose its status as a thriving center of international business, finance and innovation.

With insufficient investments on transportation infrastructure, the United States is becoming less important in the global arena in numerous ways. The European countries with a program such as SESAR (Single European Sky ATM Research), understand the importance of investing in the aviation infrastructure to support their economic, quality of life, environmental and energy goals. Others around the world are moving ahead and outpacing the USA. If we do not determine a way to fund these investments in aviation infrastructure, New York, as well as the U.S. will lose its standing in the global arena. [On March 23, Eurocontrol, the European air agency, launched its new satellite based air traffic control system.]

There are no inexpensive solutions to the current problem. The Port Authority of New York and New Jersey (PA) understands the challenge and fully appreciates the level of investments needed to keep our regional airports competitive. The PA has made significant investments to enhance capacity at its airports to meet air travel demand. The PA has rededicated capital funds for major projects to improve runway and taxiway capabilities – projects with the potential to add efficiency to airport operations and reduce delays. It has invested in new technologies which will allow efficient movements of aircraft in its facilities and made improvements to customer service for travelers. The PA also acquired a new facility – Stewart International Airport in Newburgh, NY – as a fifth regional airport. The modernization and expansion of this airport is expected to address the growing regional demand for air travel and modestly alleviate delays at the three major airports. The PA recognizes, however, that to fully meet the expected air traffic demand, more ambitious investments from our federal leaders will be needed, which will require strong public support for capacity expansion of the national airspace system.

In February 2007, the Federal Aviation Administration (FAA) announced its NextGen program, which envisions the use of advanced satellite-based navigational systems across the national airspace. The program is an important technological upgrade that will, over time, provide significant enhancements to the movement of air traffic. NextGen is an umbrella term for the ongoing, wide-ranging transformation of the United States' national airspace system. At its most basic level, NextGen represents an evolution from a ground-based radar system of air traffic control to a satellite-based system of air traffic management. According to the FAA, when fully implemented, NextGen promises to alleviate delays at the nation's most congested and delay-prone airports by safely allowing more aircraft to fly more closely together on more direct routes. This will reduce delays and provide unprecedented benefits for the environment and the economy through reductions in carbon emissions, fuel consumption, and noise. The FAA estimates that by 2018, with only one-third of the proposed NextGen changes, nationwide total flight delays will be reduced by 35 to 40 percent, saving almost a billion gallons of fuel.

It is thus incumbent upon those who work in the aviation industry and all stakeholders, to get the message out and call for the new leaderships at the FAA to implement NextGen now. As documented in Grounded and loudly stated by the speakers of this symposium, inaction, or short-term band-aid solutions, are no longer viable options. What is required is bold action by policy makers to restructure the way the system moves airplanes and passengers through the region. The PA urged the public to join together in calling on the federal government to immediately increase the investment in our national airspace system. Specifically, deployment of NextGen Technologies should target the nation's most congested airspace such as the New York metropolitan area, if we envision our region's future as an economically thriving global gateway.

NextGen: The Future of Aviation

On February 25, 2009, the Port Authority of New York and New Jersey (PA) and the Region 2 University Transportation Research Center (UTRC) convened a half-day symposium "NextGen: The Future of Aviation." Nearly 300 individuals from around New York State and the nation were in attendance at the symposium which featured welcoming remarks by Anthony R. Coscia, Chairman of the Board of Commissioners of the Port Authority and Dr. Robert Paaswell, Director of the UTRC; a presentation on NextGen technologies by William DeCota, the Director of Aviation at the PA, a panel discussion moderated by Susan Bass Levin, the Deputy Executive Director of the PA with a number of distinguished panelists who provided more prospective on the issues of flight delays and solutions. Christopher O. Ward, Executive Director of the Port Authority closed the symposium with a call to action.

The panelists were:

- Kathryn S. Wylde, President and CEO of Partnership for New York City
- Dr. Michael C. Romanowski, Director of NextGen Integration and Implementation for the Federal Aviation Administration
- Captain John Prater, President of Airline Pilots Association International
- Nigel Makins, SESAR/NextGen Liaison from EUROCONTROL
- Dr. Robert D. Yaro, President of the Regional Plan Association

Introduction – Dr. Robert Paaswell

In his opening remarks, Dr. Robert Paaswell noted that air transportation is plagued with the same type of problems and issues commonly associated with surface transportation. Long queues, delays, congestion, and frustrations, frequently used to define the problems of surface transportation certainly apply to air transportation. For Dr. Paaswell, the answer to these problems resides mostly in the integration of new technologies, ready proven technologies that provide instantaneous information for real time event. The implementation of these technologies will provide a much greater control over the infrastructure and assets we manage.

On introducing his co-host of the symposium, Dr. Paaswell mentioned Anthony Coscia's role on creating the Port Authority's Flight Delay Task Force in response to the growing delays at the area's airports. The Flight Delay Task Force, which was the first time major stakeholders in the aviation industry were called together to work collaboratively on the issue of flight delays in the New York region, produced a detailed set of 77 recommendations. He noted that the Port Authority has always been the leader on the issue of congestion and delay, and this symposium on NextGen is just more example of that.

Welcome/Keynote – Anthony R. Coscia

Anthony Coscia commenced his remarks by pointing to the fact that for years the strength of our economy and the prosperity that we have enjoyed for so long has enabled us to ignore many inefficiencies within the aviation industry. However, as we now face some historical challenges in the form of the global financial crisis, energy security, and protection of our environment, we are now forced to address these issues that we endured and accepted years ago.

He noted the importance of the aviation industry to our national and regional economy. Over 10 million people work in aviation related jobs; over $1 trillion per year in economic activity emanates from the aviation industry. According to the U.S. Department of Transportation (DOT), the summer of 2007 became the second worst on record nationally for flight delays. The New York Area airports, JFK, Newark Liberty and LaGuardia, rank as the country's most congested airports. Delays at all airports soared in 2007. These delays resulted in a cascading effect where delays dramatically increased at other airports nationwide. If left unaddressed, our region's recurrent flight delay problems will begin to seriously constrain our regional and national economic growth.

Mr. Coscia confirmed that the Port Authority of New York and New Jersey understands the challenges and fully appreciates the level of investment needed to keep our regional airports competitive. He believes that there will be no costless solution to the current problem. He explained that the Port Authority has taken various steps to enhance capacity and meet air travel demand. He noted that in July 2007, the Port Authority convened a high-level group of influential and interested stakeholders in our region's aviation system to focus on the burgeoning problem of flight delays. The Flight Delay Task Force – composed of senior executives of major airline companies, officials from the FAA, state and local officials, representatives of terminal operators, other business leaders, transportation advocates, and Port Authority staff – was asked to develop recommendations for mitigating congestion and reducing flight delays in the New York metropolitan region, as well as to propose recommendations for improving the customer experience during extensive flight delays. The Task Force identified 77 technical initiatives that can improve capacity and reduce delays, as well as a number of recommendations to improve the travel experience for passengers in the event of a delay.

The PA has identified short-term initiatives that can improve delays. Most of these recommendations focus on the implementation of readily available technologies or modernizing outdated policies. The Port Authority has rededicated capital funds into projects such as improvements on the ground, and to the capability of our runways and taxiways - projects with the potential to add efficiency to airport operations and reduce delays. It has invested on new technologies to allow efficient movements of aircraft in its facilities and made improvements on customer service for travelers.

Mr. Coscia also stated that another initiative of the PA is the acquisition of a new facility – Stewart International Airport in Newburgh, NY, as the fourth regional airport which represents

an opportunity to potentially relieve some of the pressure at the area's three major airports. The modernization and expansion of this airport is expected to help meet the growing regional demand for air travel and modestly alleviate delays at the three major airports.

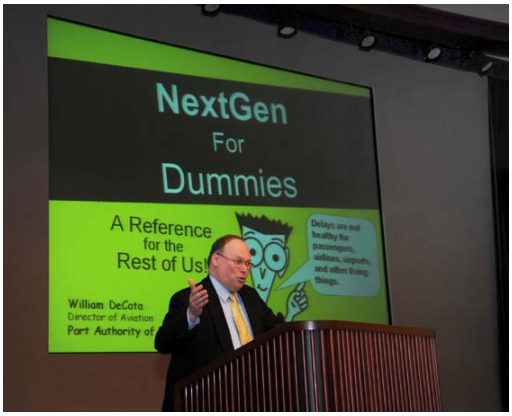
According to Mr. Coscia, to fully meet the expected demand, more ambitious investments will be needed which will require leadership from business, civic and labor organizations in order to build political consensus in support of expansion of airport capacity. He noted that NextGen systems promise to modernize the air transport and provide significant capacity enhancements, particularly in their ability to improve communication and situational awareness among the participants in the aviation system. He called for the federal government to lead and make the implementation of NextGen a near future reality.

Presentation – William DeCota

In his presentation, William DeCota, the Director of Aviation at the PA, took the opportunity to elaborate on the economic and environmental impacts of air delay, the components of the NextGen system and its benefits. He discussed the importance of the symposium and the expectations of the audience. He noted that delays cost airlines and airplane owners a lot of money not only in terms of fuel and labor costs, but also in terms of providing reliable service to the travelers. He provided statistics about the economic impact of air travel nationwide and in the New York Metropolitan Region. Air travel has a $1.2 trillion national impact and a $64 billion impact in the New York-New Jersey Region.

If no action is taken to remediate the current situation, the Partnership for New York City estimates an economic loss of $80 billion for the region and an additional staggering $130 billion due to the cumulative impact of the caps imposed by the FAA between 2008 and 2025. By 2025, approximately 40 million passengers that would have flown in the absence of caps will be displaced and turned away from our region.

After showing a short video of the Twilight Zone television series film, Mr. DeCota, suggested that part of the problem resides with the antiquated technology from the World War II-era air traffic network that often forces planes to take longer, zigzagging routes. Many of the technologies on which the aviation industry currently relies are cumbersome involving voice technology and radar systems. The Radar based system is costing U.S. airlines billions of dollars in wasted fuel while an upgrade to a satellite-based system has languished in the planning stages for more than a decade. While this system is extremely safe, it is a very inefficient option for managing the large number of aircraft that now travel the nation's airspace. Radar systems must overcome several different sources of unwanted signals in order to focus only on the actual targets of interest. Radio waves also move relatively slowly, reducing the accuracy and reliability of the information. This delay must be taken into account for judging the location of the aircraft. The inefficiency means that large aircraft separations must be built into each air travel route to assure safety. Radar is also limited by where you can install equipment and by its range. For example, radar signals cannot be used over the ocean.



The NextGen system would replace the current radar system with the kind of GPS technology that has become common place in cars, internet access, television, and cell phones. NextGen Systems, rely on more accurate satellite based technologies. One of the most significant advantages of satellites is that they can be used to transmit information anywhere in the world, including over the ocean, where the infrastructure that supports radar systems cannot be built. Therefore, satellite communications systems, allow the user to access information all over the world, at any time.

More than a single system, NextGen is a portfolio of technology, equipment, procedures and policies aimed at facilitating the largest airspace transformation in the history of aviation. NextGen makes improvements in four basic areas: navigation and surveillance, communication, back-bone information systems, and weather management. First, satellite navigation and control improvements are made to the situational awareness of both the pilot and the controller, with reliable, accurate and real time information on the location of aircraft. It introduces digital non-voice communication for routine communication, reducing "chatter." It improves the computer network systems that are used to transfer information along the entire national airspace system, ensuring a faster, more streamlined and accurate exchange of information. And finally, it addresses the single most significant cause of delays, the weather. It provides better flight planning that incorporates real-time weather information and provides new technologies that permit aircraft operations to continue in low visibility conditions that currently cause flight delays.

Satellite Based Navigation and Surveillance Automatic Dependent Surveillance - Broadcast (ADS-B)

The cornerstone of NextGen is a new, aviation-specific application of GPS technology called Automatic Dependent Surveillance - Broadcast (ADS-B). ADS-B uses GPS signals both to transmit precise aircraft location information for use by air traffic controllers and other aircraft, and to receive precise location information about other aircraft. This information is provided to flight crews via a cockpit display. But the benefits of ADS-B are not only experienced in the air. The technology is also being deployed at airports in support of systems designed to eliminate ground-based collisions, or "runway incursions."

Satellite Based Navigation and Surveillance Area Navigation/Required Navigation Performance (RNAV/RNP)

Another element used for navigation en-route is the Satellite Based Navigation and Surveillance Area Navigation/Required Navigation Performance (RNAV/RNP). With the introduction of new performance standards, this technology will one day allow pilots to rely instead on a combination of onboard- and satellite-based navigation aids to fly in a much straighter line from Point A to Point B while avoiding turbulent weather. Area Navigation (RNAV) is a method of air navigation, called performance based navigation that allows an aircraft to choose any course within a network of navigation beacons, rather than navigating directly to and from the beacons. As Mr. DeCota said , "*you can get to EWR from midtown by driving east to the FDR, then north to 125th St, then west to the Harlem River Drive, then north to the GWB, then west to the turnpike. You will get there. Or you could just go through the Lincoln Tunnel and save yourself time and fuel.*" Both RNAV and RNP, like the other tools of NextGen, allow aircraft to safely land as quickly and efficiently as possible. RNP is currently being implemented in Australia and parts of the US and more could be done to realize the benefits of RNP sooner rather than later.

Satellite Based Navigation and Surveillance Ground Based Augmentation System (GBAS)

For departures and landing at the airport, NextGen will improve the efficiency of airport operations. Satellite Based Navigation and Surveillance Ground Based Augmentation System (GBAS) is one example of a technology that is being implemented right now at one of our region's airports. It is basically a satellite based type of instrument landing system. Instead of using radio waves, the system has a series of "ground stations" consisting of antennas and receivers around the airport (which is why it is called "ground based") and a VHF "datalink" to

navigational satellites that communicate with each other on aircraft position. It's called an "augmentation system" because it uses sensors to introduce information into the satellite data that improves the accuracy, availability and reliability of the satellite signal with great precision. At Newark, the PA recently partnered with the FAA and Continental Airlines to begin use of GBAS at a major US airport for the first time commencing this summer.

Controller Pilot Data Link Communications (CPDLC)
Another important element of the airspace system is communication between pilot, controller and airport. Today, controllers and flight crews communicate solely by voice. NextGen will improve and expand the potential of voice communication. It will also introduce new, more reliable digital text-based technology like CPDTI or Controller Pilot Data Link Communications. Just like text messaging, it allows digital messages to be sent between controllers and pilots. Therefore, instead of having to pick up the radio for every communication, the pilot and controller can send precise messaging to communicate routine matters. And just like ADS-B, CPTDI also works where radio communications is difficult-to-use such as over the ocean. Data Communications will improve safety and efficiency by taking over many tasks now accomplished through voice communications, which are labor intensive and susceptible to error.

System-Wide Information Management Systems (SWIM)
Another key technological improvement will be the backbone of these technology systems. System Wide Information Management Systems, or SWIM, is an information sharing system for the national airspace system. SWIM is a "mini-internet" information platform that will provide surveillance, weather, and flight data, as well as aeronautical and NAS status information, to users throughout the system. SWIM is an essential part of NextGen, since the safe and efficient use of airspace depends on how well the different parts of the airspace system communicate with each other. By improving the network of information, SWIM will lower information costs, increase speed to establish new systems, increase situational awareness among all users, increase the FAA's ability to handle traffic volumes, and improve the ability to share information with European providers.

Weather Management NextGen Network Enabled Weather (NNEW)
Weather is the single largest cause of delays. It constitutes 70 percent of the delays in our nation's airspace. One of the biggest benefits of NextGen technologies is that they will help to reduce weather related delays. One of the most significant ways it will accomplish this, is through the NextGen Network Enabled Weather system (NNEW). NNEW will provide better, more consistent weather forecasts, particularly for severe conditions that cause delays like convective storms and icing conditions. With this system, changes to weather information will be rapidly disseminated to all users. This will allow pilots, airports and air traffic controllers to make better flight plans, adjust schedules more quickly, accurately and manage air traffic better as weather conditions change over time. Users will access the information in NNEW through a virtual gateway called the 4 Dimensional Weather cube, which will be similar to a website that provides Aviation weather information in terms of latitude, longitude, height and over time. With it, air traffic controllers and pilots will be able to display up-to-the-minute, location-specific weather information.

Mr. DeCota ended his presentation by citing some potential benefits of NextGen. NextGen promises huge benefits to the air traveler. First, it will significantly improve the efficiency of air

traffic control. It will provide more information to pilots and better information in the tower, resulting in a sharing of decision making between the ground and the cockpit. The improvements to the accuracy of the information will translate into significantly more overall efficiency throughout the system, helping airlines to develop flight schedules, airports to manage aircraft at their facilities, and air traffic controllers to better respond to traffic demands. All of this translates into the ability to shorten the spacing between aircraft. Spacing, which is typically over 3 miles, is necessary because of the current inefficiencies in the system. With improved accuracy enhancements, this spacing can be shortened which will translate into significant capacity gains, while maintaining safety as the number one priority.

Finally, he stated that implementing NextGen is ambitious, but that it is also a national issue to be tackled by Washington. It should be the Federal Government's priority to implement it sooner rather than later.

Panel Discussion

Moderator – Susan Bass Levin

Susan Bass Levin, the Deputy Executive Director of the Port Authority, lead the panel discussion. The panelists included a local business leader and a regional planner, technical experts from the FAA and the European Commission, and a chief pilot. Each of the panelists presented their perspectives on NextGen and how they can help with the congestion and delay situation in the NY area. Before introducing her panelists, Ms. Levin stressed that addressing airport delays is a way to bring our economy back to life. She noted that the problems that plague our airspace system must be addressed, today, because it will not get better, but worse if not appropriately tackled.

Kathryn S. Wylde

Kathryn S. Wylde, President and CEO of the Partnership for New York City – a non-profit organization of the city's business leaders dedicated to maintaining New York City as a center of world commerce, finance, and innovation commenced her remarks by explaining the importance of the aviation industry for the business community in the New York Metropolitan region. The future of the Region requires an air transportation system that is efficient and universally accessible. The New York Region relies heavily on its airports for leisure and business travel, as well as for freight transportation all supporting local industries that sustain the region's standing as a global economic center. She highlighted the impact of delays and its costs through the findings of *Grounded: The High Cost of Air Traffic Congestion*, a report released in February 2009 by the Partnership for New York City. As Ms. Wylde indicated, the Partnership undertook this study as a way to establish the full economic costs of air traffic congestion at the three major airports serving the New York Metropolitan Region: John F. Kennedy International Airport (JFK), Newark Liberty International Airport (EWR), and LaGuardia Airport (LGA). Furthermore, the Partnership wanted to determine whether investing in the expansion of regional airport capacity and upgrading the air traffic control system to reduce flight delays would pay off for the region and the nation.

In 2008, the three New York area airports served about 107 million passengers, including 32 million business travelers. To accommodate continued economic growth in the region, these numbers will need to increase in the years ahead. Unfortunately, JFK, LaGuardia and Newark Liberty airports are currently over-utilized and suffering from severe conditions of air traffic congestion. Flight delays caused by air traffic congestion at the three airports were responsible

for more than $2.6 billion in losses to the regional economy in 2008. If no action is taken, losses attributable to congestion will total a staggering $79 billion over the eighteen-year span from 2008 to 2025, and an additional staggering $130 billion due to the cumulative impact of the caps imposed by the FAA.

Ms. Wylde concluded that the findings of the study clearly indicate that such investment is more than justified by the costs resulting from inefficient and unpredictable passenger and airfreight service due to congestion. Moreover, the opportunity to correct these conditions is now – when the federal government is poised to invest in long-neglected infrastructure as a means of stimulating recovery from the global recession.

Responding to a question from the audience on the effect of caps imposed by FAA, Ms. Wylde advised that the caps will cause over $130 billion loss to the regional economy over 18 years period. She noted that 15% of economic growth in the region over the last 5 years comes from direct investments related to foreign travel. These investments are the result of foreign companies locating their operations into the area.

Addressing another question, she emphasized that with the global fiscal crisis that we currently face, any challenge that makes it difficult to travel will discourage business. The local hotels and retail establishments will suffer for reduced travel activities. New York's businesses need safe and efficient air travel that connects the New York metropolitan area with the rest of the world.

Dr. Michael C. Romanowski

Dr. Michael C. Romanowski, the Director of NextGen Integration and Implementation for the Federal Aviation Administration – an office that ensures the application, planning, programming and budgeting of the NextGen portfolio, gave the perspectives of the FAA on NextGen. He suggested the need for a clear communication of the initiatives taken by FAA because NextGen is incredibly complex. There is a need for better communication to provide a springboard for a new level of engagement with the Aviation community on NextGen equipage. This dialogue will be critical for achieving benefits and a return on investment for both the community and the government.

He restated the importance of NextGen for the economy and the environment. Over 11 million jobs related to aviation, $1.2 trillion of economic activities and approximately 5% of the country GDP.

According to Dr. Romanowski, Secretary LaHood, U.S. Department of Transportation, has indicated two priorities for the FAA: Addressing the labor issues and implementing NextGen within the next 5-8 years. Therefore, the FAA plans to invest significant resources within the next 5 years – approximately $5.6 billion of investment on NextGen. In order to fully realize the benefits of the systems, NextGen will require investment by both the government and the private sector to be successful in delivering the desired NAS performance improvements. It will be extremely difficult for either operators or the FAA to realize the NextGen without the installation of the aircraft equipage.

He also restated also that implementing NextGen, over the next 10 years will significantly enable safety, environmental, and operational improvements. NextGen will increase capacity in the system by restoring lost capacity due to weather and operational conflict at closely located airports. Analyses conducted by the FAA indicate that by 2018, nationwide total flight delays will be reduced by 35 to 40 percent, saving almost a billion gallons of fuel. This is compared to the "do nothing" case, which shows what would happen if we operate in 2018 the same way as today. The models show the delay reduction at JFK to be in the range of 55 to 60% and at Newark Liberty International in the range of 85 to 90%. The current model includes only about one-third of the proposed NextGen changes, so the results should be considered preliminary.

The current model includes only one-third of the NextGen changes. It is important to note that the modeling and simulation results are preliminary, and as the model matures, the FAA expects these benefits values will increase.

Addressing a question from the audience on deployment of the NextGen technologies, Dr. Romanowski indicated that NextGen is actually a toolbox of a variety of procedures, technologies and equipment. To be deployed, one will need the toolbox, but not necessarily all of the tools all the same time. NextGen will be built on key elements from existing programs and technology, and on new systems under development now. The FAA will begin by making the most of modern aircraft capabilities and implement elements of the system that can take advantage of them. Then, over the years, the FAA will continue a series of coordinated upgrades to the current ground infrastructure and aircraft systems. This will introduce superior technology and new procedures to enhance operational capabilities and provide numerous efficiencies to the system. He also suggested that NextGen cannot be rolled all over the country at once. The implementation and deployment will follow policies and procedures to make sure that these systems are deployed safely. The FAA will not deploy NextGen technologies uniformly over the country; rather it will look to prioritize the implementation. In order to maximize its benefits, the FAA will target certain metropolitan areas or corridors such as the nation's most congested airspace, like the metropolitan New York area.

On the cost of deployment of NextGen, Dr. Romanowski suggested that it will be significant. However, the FAA will work with the aviation community to make it affordable.

Captain John Prater

Captain John Prater, President of the Airline Pilots Association International, in his remarks, called for the need of a strong leadership at the FAA to speed the implementation of NextGen. He noted the safety and environmental improvements that will derive from the NextGen technologies. As the number of aircraft flying in the NAS continues to grow, and new types of aircraft are introduced, it will be critically important for operators and controllers not only to know precisely where an aircraft is at any given moment, but also where it's going, how fast it's moving, and how long it's going to take to reach its destination. NextGen satellite technologies will dynamically make this information available to both pilots and controllers, with levels of accuracy and precision unattainable by radar. Even though planes will be flying more closely together, the precise information provided by NextGen will significantly increase safety by allowing pilots to know exactly where their aircraft is located in relation to other aircraft

throughout all phases of flight. He called for more cooperation with the traffic controllers in the development of NextGen.

He concluded his remarks by stating the importance of NextGen on small aviation markets. According to Captain Prater, not advancing NextGen will ultimately have an impact on small communities. They will be priced out of the market or lose service altogether.

Nigel Makins

Nigel Makins, SESAR/NextGen Liaison from EUROCONTROL outlined the European program. SESAR (Single European Sky ATM Research) is the European air traffic control infrastructure modernization program. SESAR aims to develop the new generation air traffic management system capable of ensuring the safety and fluidity of air transport worldwide over the next 30 years. The SESAR program came to life with the acknowledgment that Europe's current air traffic control systems will soon be unable to cope with the growth in flight movements, the number of which will double by 2030. At the same time, environmental awareness is rising, prompting the need for more efficient operations and better technology.

The SESAR Joint Undertaking (SJU) was created under European Community law on February 27, 2007, with EUROCONTROL and the European Community as founding members, in order to manage the SESAR Development Phase. The aim of the SESAR Joint Undertaking is to ensure the modernization of the European air traffic management system by coordinating and concentrating all relevant research and development efforts in the Community.

The key figures of the SJU are:

- €2.1 billion over 7 years of development 2008-2014
- Double the throughput by 2030
- Gain 8-14 minutes on average per flight
- Fuel reduction of 650-1200 lbs on average per flight
- Average CO emission reduction of 2100 – 3100 lbs.

SESAR is performance driven with measures, deliverables, timelines accountability and expected results. SESAR aims to achieve a performance-based European ATM (Air Transport Management) System, built in partnership, to best support the ever increasing societal and States' expectations for air transport with respect to the growing mobility of both citizens and goods and all the other aviation activities, in a safe, secure and environmentally sustainable and cost-effective manner.

Mr. Makins noted the similarity in the objectives of NextGen and SESAR programs and the interaction between them through working groups. Both programs aim to expand airspace capacity, ensure safety with increasing capacity, protect the environment, and improve service for aviation customers. He mentioned that the problems faced by the aviation industry require a global interoperability solution. The technologies must be built on international standards.

Mr. Makins concluded his remarks by noting the need for human involvement in the system. He suggested that the voice of those who are operating the current system should be taken into account.

Robert D. Yaro

According to Robert Yaro, President of the Regional Plan Association (RPA)—America's oldest independent metropolitan policy, research and advocacy group—the problem is not technical or lack of funding. It is the lack of political will. There is hope with the new administration in Washington that has signaled its willingness to tackle the issues. The new administration has pledged multiple billions of dollars to transportation infrastructure projects and environmental initiatives as a stimulus to bring life back to the economy. This presents an unparalleled opportunity for the aviation community to rally together and demand for a vastly increased slice of the overall transportation budget. The local stakeholders (business, environmentalist, civic leaders, political leaders, etc.,) should mobilize, build a consensus and move ahead with the Port Authority on these issues and make it a priority.

He mentioned a study currently performed by RPA that will complement the NextGen discussions. The study, *The Future of the Region's Airports,* is a research and consensus building project designed to build an understanding on the need to make investments to improving our region's competitiveness. Also, the study will investigate what are other investments should be done—on the ground, airside, at terminals , to the rail system— to assist in reducing air delays. Along with stakeholders, including the PA, the RPA will formulate the long term vision for the future of the regional aviation system. It is time to create the capacity for growth in a way that also meets the needs of environmental and airport communities. We should utilize the energy of all stakeholders and put NextGen in the context of an essential set of investments that we need to initiate, as quickly as possible.

Responding to a question from the audience on the effect of caps imposed by FAA, Mr. Yaro remarked that the caps that will cause an excess of a $130 billion loss to the regional economy over 18 years by artificially limiting access to the New York region. It is a regulatory blunt instrument with a lot of negative impact that is damaging the long term economy of the region. The imposition of caps has been met with opposition from the business community, civic groups, and the PA.

Call to Action – Christopher O. Ward

Chris Ward, the Executive Director of the Port Authority, closed the symposium with a call to action. He restated the high costs of inaction, both to the region and the country, calling for a national commitment for the immediate implementation of NextGen.

He went on to announce the formation of the National Alliance to Advance NextGen and invited the audience to join the Alliance, which advocates for the following:

- Passage of Federal Aviation Administration Reauthorization legislation that includes NextGen initiatives;
- Full funding for NextGen initiatives in Appropriation bills;
- An expedited FAA timeline for delivering NextGen technologies and benefits;
- Technology that is compatible with Canadian, European and Asian partners;
- The FAA's prompt engagement with all partners necessary to ensure the successful implementation of NextGen technologies and procedures; and
- Immediate deployment of NextGen, starting with the nation's most congested airspace.

Visit www.panynj.gov/NextGenNow to learn more about the National Alliance to Advance NextGen.

Speaker Biographies

Anthony R. Coscia

Anthony R. Coscia was appointed Chairman of the Board of Commissioners of the Port Authority of New York and New Jersey in April 2003. As Chairman, Mr. Coscia has broad oversight responsibility in connection with the agency's various transportation businesses and $5.9 billion annual capital and operating budget. He spearheaded the agency's adoption of a $29.5 billion ten year capital plan, which provides for substantial expansion of the region's transportation facilities, including development of a new trans-Hudson rail tunnel, expanded aviation facilities and rebuilding of the World Trade Center Site.

Mr. Coscia is a Partner of Windels Marx Lane & Mittendorf, LLP, one of the New York region's oldest law firms, and holds a seat on its Executive Committee. He has specific experience in the area of corporate, financial and real estate transactions. From February 1992 to March 2003, Mr. Coscia served as Chair of the New Jersey Economic Development Authority. He serves as a trustee of the New Jersey Network Foundation, New Jersey Community Development Corporation and the Liberty Science Center Foundation, and is a member of the Partnership for New York City and the New Jersey Performing Arts Center Council of Trustees. Mr. Coscia is a graduate of the Georgetown University School of Foreign Service and received his law degree from the Rutgers University School of Law. He was awarded an honorary degree in 2007 from the New Jersey Institute of Technology. He has served on the board of public and closely held corporations in the financial services, manufacturing and real estate sectors.

William R. DeCota

Bill DeCota, Director of Aviation for the Port Authority of New York and New Jersey, oversees the management of Kennedy International, Newark Liberty International and LaGuardia airports, which along with Teterboro Airport and Stewart Airport, comprise the world's most extensive aviation system. In this capacity, he manages the largest airport improvement program in United States history.

Mr. DeCota is an active advocate for airport issues on Capitol Hill and in the business community. He is a recognized expert on managing airport congestion through prudent airport expansion, cutting-edge technologies and demand management. Through board leadership positions on major aviation trade associations, including participation in the Policy Review Committee of the Board of the American Association of Airport Executives and Airports Council International, Mr. DeCota has developed a reputation for national leadership. He holds a

Bachelor's degree in finance from the University of Mississippi and an MBA from the University of Georgia.

Susan Bass Levin

Susan Bass Levin is the Deputy Executive Director of the Port Authority of New York and New Jersey, a unique bi-state authority that owns, operates, and manages a vast transportation and trade network including the East Coast's largest seaport; all trans-Hudson bridges and tunnels between New Jersey and New York City; five airports (JFK, Newark, LaGuardia, Teterboro, and Stewart); the World Trade Center reconstruction; and one of the country's largest commuter rail networks. The agency is self supported based on revenues collected from users and tenants at Port Authority facilities.

Prior to her tenure at the Port Authority, Ms. Levin served in the Cabinet of three Governors as the Commissioner of Community Affairs. Ms. Levin, a former Mayor, is recognized for her creative approaches to economic and community development. Ms. Levin has a J.D. with Honors from George Washington Law School, where she was a member of the Law Review, and a B.A. from the University of Rochester, where she was a member of Phi Beta Kappa.

Nigel Makins

SESAR/NextGen Liaison
Joined Air Traffic Control 1978 and spent 15 years as a Tower/Approach Radar Controller with NATS UK. Mr. Makins later joined EUROCONTROL Paris in 1992 where he spent 5 years designing HMI for operational systems, including Oslo Control Tower electronic strips.

From 1997 to 1998 he supported Boeing, Seattle. During this time he visited many US facilities and did a scoping study of potential use of NASA's arrival management system into New York Tracon. He provided operational support to the team designing PRNAV approach into Teterboro. He worked with the group promoting business driven change to ATM (CAFT) headed by Russ Chew.

Mr. Makins has since been back with EUROCONTROL, advancing European Commission projects principally in the role of Validation Manager ensuring that stakeholder needs are understood and that benefits mechanisms are clearly identified.

In 2001 he provided support to the *Constraints to Growth* study of impacts of capacity constraints on cities, including migration of passengers to high speed trains.

In Febrary of 2009, he started a 2 year support assignment with the FAA in Washington, DC as the SESAR/NextGen liaison.

Robert E. Paaswell

Dr. Robert Paaswell, Distinguished professor of Civil Engineering (CCNY) currently serves as Director of the federally supported University Transportation Research Center, located at the City College of New York. A consortium of 12 major U.S. Academic Institutions, the Center asserts a significant role in the region and nationally, conducting research and projects on surface transportation, carrying out training and educational programs and actively disseminating the results of its work. Paaswell has been named Director of the City University Institute for Urban Systems, a major University -wide initiative to examine the intersection of new technology, changing institutional structure and innovative finance on the provision of infrastructure in the 21st Century.

Previously he served as Executive Director (CEO) of the Chicago Transit Authority, the nation's 2nd largest transit company. Paaswell is extremely active in Public Transportation Issues and consulting. He has reported on governance structures for U.S. Transit organizations, Public - Private issues in New York and Chicago, Labor Union/Management issues, and training for new technologies. Paaswell served as the Impartial Expert for a path breaking negotiation for NYCT to arrive at maintenance hours for core bus maintenance tasks. He is currently working on Transit Investment Strategies and Innovative Transit System Design. Paaswell recently completed a study of Drivers of Capital Cost Escalation for FTA, and an analysis of Capital Budget Issues for the NY MTA. Paaswell serves on the MTA Blue Ribbon Commission on Construction Excellence, and the MTA Blue Ribbon Commission on Workforce Development. He also serves on the Governor's Commission on Higher Education.

He served as Chairman of the Board of the Transit Standards Consortium, and on the Boards of the Transportation Research Board and the Transit Cooperative Research Program. He currently chairs the ASCE Committee on Peer Review of Public Agencies. Paaswell is a Fellow of the American Society of Civil Engineers and a recipient of the USDOT Secretary's Medal for Superior Service. Paaswell received his PhD from Rutgers and was the recipient of the Rutgers Outstanding Civil Engineering Alumnus Award. He is a Member of the New York Academy of Sciences. He has published extensively.

Captain John Prater

Capt. John Prater is the eighth president of the Air Line Pilots Association, International (ALPA). He was elected by the union's Board of Directors on Oct. 18, 2006, and began his four-year term on Jan. 1, 2007.

His election signaled a change in direction for the largest airline pilot union in the world, representing 55,000 pilots who fly for 40 U.S. and Canadian airlines. Under Prater's leadership, ALPA has taken an aggressive stance aimed at restoring strength within the union, defending the professional standards and interests of airline pilots, and reclaiming losses suffered when pilots helped to save the industry after the events of 9/11.

As ALPA's chief executive and administrative officer, Prater oversees daily operations of the Association and presides over the meetings of ALPA's governing bodies, which set policy for the organization. He is also chief spokesman for the union, advancing pilots' views before Congress, Parliament, government agencies, and the news media.

Prater's labor affiliations include membership on the Executive Council of the AFL-CIO and the Executive Committee of the Transportation Trades Department of the AFL-CIO.

He also is a member of the Air Traffic Management Advisory Committee, Air Traffic Management Steering Committee, the NGATS Institute Management Council (IMC), and the NGATS Institute Executive Committee, and is a member and co-chairman of the FAA Age 60 Aviation Rulemaking Committee (ARC).

Prater, who comes from a family background of strong union supporters, is a 31-year veteran of ALPA. He served in positions ranging from strike committee chairman to chairman of the Continental pilots' Master Executive Council (MEC), as well as vice chairman of the international Wings Alliance (now part of the Skyteam Alliance). He helped to lead union fights against such notorious airline management figures as Frank Lorenzo, Carl Icahn, and Dick Ferris.

Currently a B-767 captain, Prater has flown the B-727, DC-8, DC-10, A300, B-757, and B-777, for passenger and cargo airlines during a piloting career that spans nearly three and a half decades. Before joining Continental, he flew for a number of companies, including Buckeye, Skyway, the Wall Street Journal, United (as an instructor), and contract freight for UPS/Airborne. His experience spans several eras: He flew as a single pilot on night freight runs in WWII-era propeller airplanes and, more recently, was a member of ALPA's working group addressing the development of the B-787.A graduate of Parks College of St. Louis University with a bachelor's degree in meteorology, Prater is a resident of Edwardsville, Ill., with his wife, Michele, and daughter, Alexandra.

Michael C. Romanowski

Dr. Michael Romanowski is the Director of FAA's NextGen Integration and Implementation office. His office ensures the application, planning, programming and budgeting of FAA's Next Generation Air Transportation System (NextGen) portfolio, and manages its integration and execution across all FAA lines of business. His office is also responsible for FAA's NextGen-related engagement with industry stakeholders.

Before joining the FAA he served as Vice President of Civil Aviation at the Aerospace Industries Association (AIA), where he headed all its activities on aviation issues and policy, including the areas of research and development, aviation infrastructure, and safety and security. He also served as the Director of Product Safety, Certification and Airworthiness at Sikorsky Aircraft with responsibilities spanning Sikorsky's entire product line. Before joining Sikorsky, he held a similar role at Pratt & Whitney where his responsibilities spanned all of Pratt & Whitney's large commercial engines. He has broad experience in research, development, validation and fleet operations of jet engines.

Dr. Romanowski received his Ph.D. in Unsteady Aerodynamics and Aeroelasticity from Duke University. He also holds a Master of Science degree in Mechanical Engineering from Renssalaer Polytechnic Institute and a Bachelor of Science degree in Aerospace Engineering from Boston University.

Christopher O. Ward

Christopher O. Ward is currently the Executive Director of the Port Authority of New York and New Jersey (and President of the Port Authority's wholly owned entities: Port Authority Trans-Hudson Corporation, the Newark Legal and Communications Center Urban Renewal Corporation, and the New York and New Jersey Railroad Corporation). He was appointed on May 22, 2008. This is Mr. Ward's second tenure at the Port Authority. He previously served as Chief of Planning and External Affairs, as well as Director of Port Redevelopment from 1997 to 2002.

Immediately prior to being appointed Executive Director of the Port Authority, Mr. Ward served for over two years as Managing Director of The General Contractors Association of New York, Inc. (GCA), where he directed and managed the major trade association that represents the heavy construction industry in the City of New York.

Before joining the GCA, Mr. Ward spent a year as Chief Executive Officer of American Stevedoring, Inc., a stevedoring and port services company headquartered at the Brooklyn Port Authority Marine Terminal with major operations at the Elizabeth Port Authority Marine Terminal. Mr. Ward had previously worked at American Stevedoring in the 1990s.

Prior to leading American Stevedoring, from 2002-2005, Mr. Ward served as Commissioner of the NYC Department of Environmental Protection (DEP) for the Bloomberg Administration. There, Mr. Ward lead an agency of 6,500 people and a combined capital and operating budget of over $2 billion. During his tenure at the DEP, he oversaw the maintenance and ongoing construction of the City's water supply, distribution and wastewater system, carried out Federal Clean Water Act and Clean Air regulation, and managed all conservation programs and hazardous and asbestos material emergencies and remediation.

Before joining DEP, and his original tenure at the Port Authority, much of Mr. Ward's professional career was spent in service to the City of New York in various capacities such as Senior Vice President for Transportation and Commerce at the Economic Development Corporation, Assistant Commissioner at the Department of Telecommunications and Energy and as Director of Research at the Department of Consumer Affairs.

Mr. Ward holds a Bachelor of Arts from Macalester College and a Master of Theological Studies from Harvard University's Divinity School. Mr. Ward has also served as an Adjunct Professor at the School of International and Public Affairs at Columbia University.

Kathryn S. Wylde

Kathryn Wylde is President and CEO of the Partnership for New York City, a nonprofit organization of the city's business leaders, established by David Rockefeller in 1979. The Partnership is dedicated to maintaining New York City as a center of world commerce, finance and innovation. Its public policy focus is on issues in the areas of education, infrastructure and the economy.

The Partnership's economic development arm is the New York City Investment Fund. Wylde served as founding President and CEO of this $110 million civic fund, which was established in 1996 under the leadership of Henry R. Kravis.

Wylde was also founding President and CEO of the Housing Partnership, serving from 1982-96. In that capacity, she was instrumental in creation of a number of pioneering initiatives in affordable housing at the local, state and national levels. Under her leadership, more than $2 billion in private funds were invested in public-private partnerships that produced affordable housing and commercial developments in economically distressed communities across the city.

An internationally known expert in housing, economic development and urban policy, Wylde serves on a number of boards and advisory groups, including the New York State Commission to Modernize the Regulation of Financial Services, the Mayor's Sustainability Advisory Board, NYC Economic Development Corporation, NYC Leadership Academy, the Research Alliance for NYC Public Schools, the Manhattan Institute, the Biomedical Research Alliance of New York, Lutheran Medical Center and the Special Commission on the Future of NYS Courts. She has authored numerous articles and policy papers and has been recognized for leadership by dozens of educational, professional and nonprofit institutions.

Wylde resides in Brooklyn and has a second home in Puerto Rico. She is a native of Madison, Wisconsin, and a graduate of St. Olaf College,'68.

Robert D. Yaro

Robert D. Yaro is the President of Regional Plan Association, America's oldest independent metropolitan policy, research and advocacy group. Based in Manhattan, RPA promotes plans, policies and investments needed to improve the quality of life and competitiveness of the New York Metropolitan Region, America's largest urban area. Mr. Yaro Co-chairs the Empire State Transportation Alliance and the Friends of Moynihan Station, and is Vice President of the Forum for Urban Design. He serves on Mayor Bloomberg's Sustainability Advisory Board, which helped prepare PlaNYC 2030, New York City's new long-range sustainability plan.

Since 2001 Mr. Yaro has been Professor of Practice in City and Regional Planning at the University of Pennsylvania. He also taught at Harvard University and the University of Massachusetts.

He holds a Masters Degree in City and Regional Planning from Harvard University and a Bachelors Degree in Urban Studies from Wesleyan University.

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