

# Airport Infrastructure/Aviation Security

## Overview

The Airport Infrastructure and Aviation Security markets continue to grow due to a number of factors. Rebounding air traffic growth across all regions, post-9/11 security concerns, and an expected doubling or tripling of air traffic over the next 20 years are major contributors to this upward trend. Worldwide airport capital expenditures are expected to have grown from \$34.6 billion in 2009 to \$38.5 billion in 2010 (for upgrades and expansions, not entirely new airports).<sup>1</sup> Although constrained by regulations at multiple levels, airport authorities will need to expand capacity to keep up with current and future demand. Moreover, evolving security needs both within the U.S. and throughout the world will ensure long-term viability of the market for aviation security technologies.

## U.S. Infrastructure Manufacturers

<b>Airport Infrastructure</b>		<b>Aviation Security</b>	
L-3 Communications	Parsons Transportation Group	Battelle	SRA International/
Harris Corporation	ESRI	GE Security	Galaxy Security
Daktronics, Inc.	URS Corporation	TransCore	SecureScan
Elgin Sweeper Company	Alion Science	SRS Technologies, Inc.	ARINC (Verified Identity Pass/Clear)
Penta Corporation	TYMCO	Nabco, Inc.	Matrix Systems, Inc.
Vidtronix	Unimark, Inc.	URS Corporation	Zortek Systems
FMC Technologies, Inc.	Trident Computer Corp.	Honeywell Aerospace	UTC
ARINC	Unisys	MITRE/CAASD	AS&E
Zortek Systems	NBP Corporation	I.D. Systems, Inc.	TransSecure, Inc.
Oshkosh Truck Corporation	Bradford Airport Logistics	Pure Tech Systems	DefenderTech
Global Ground Support, LLC	Airports Seating Alliance	Rapiscan Systems	Privaris
Rockwell Collins	All Weather Inc.	Raytheon/McNeil Security	L-3 Communications
		CSC	ICx Technologies/ FLIR Systems
			NCR

## Analysis and Trends

While the economic downturn led to reduced traffic flows and capital expenditure delays, both industry and government analysts predict and are preparing for significant increases in demands on the commercial air transportation system. Through the auspices of the Joint Planning and Development Office (JPDO)<sup>2</sup>, a multiagency organization that manages a public/private partnership responsible for bringing the Next Generation Air Transportation System (NextGen) online, the USG is working to develop and implement policy and technology improvements that will support up to a tripling of air traffic by 2025. Privately owned airports and aviation

<sup>1</sup> Airports Council International. "New Release: ACI Airport Economics Survey 2010." Press Release. December 17, 2010.

<sup>2</sup> The JPDO was established through the enactment of the 2003 VISION 100 — Century of Aviation Reauthorization Act [P.L. 108-176] in order to oversee the development of NextGen. The JPDO coordinates the specialized efforts of the Departments of Transportation, Commerce, Homeland Security, Defense, FAA, NASA, and the White House Office of Science and Technology Policy.

infrastructure manufacturers are participating in this effort, both independently and in partnership with the JPDO through the NextGen Institute.<sup>3</sup> These efforts are being mirrored around the globe, most notably by the European Union through the Single European Sky ATM Research (SESAR) Joint Undertaking (SJU) as well as similar (though less well-developed) initiatives in China and Japan. NextGen and other such initiatives seek to improve air transportation by increasing system efficiency, reducing environmental impact, augmenting safety efforts, enhancing security, and helping communities make better use of their airports to attract new jobs and expand businesses.<sup>4</sup>

### Airport Infrastructure

Large-scale expansion of existing airport capacity around the world, as well as a high number of new airports throughout the Middle East and Asia, are either planned or under construction to accommodate [current and future] global air traffic, with some analysts expecting China alone to build up to 80 new airports by the year 2020.<sup>5</sup> Leading airports in the Middle East, for example, are aggressively expanding capacity (with plans to invest in excess of \$33 billion by 2012).<sup>6</sup> Similarly, India is seeking to increase its commercial airports from 80 to over 500 in ten years—with a concurrent \$40 billion investment in airport infrastructure—to create a system capable of handling up to four times its current capacity.<sup>7</sup>

That said, the global economic recession caused a number of projects at airports around the world to be delayed, staggered, or put on hold.<sup>8</sup> The \$34.6 billion invested in airport upgrades in 2009 was 20 percent lower than had been predicted previously.<sup>9</sup> Even so, a majority of projects already underway continued as planned, given that existing airports must renovate and expand in order to handle future increases in passenger and cargo traffic as well as larger aircraft such as the Airbus A380.<sup>10</sup> The JPDO and U.S. airports continue to develop plans for new construction, airport expansion, and modernization initiatives that will create numerous opportunities for manufacturers of airport infrastructure equipment and technologies. From landside passenger services (e.g., check-in and baggage handling) to cargo operations (such as inter-modal transfers and just-in-time delivery to runways) to basic infrastructure (passenger terminal facilities, access control, information displays, and boarding bridges), the global business of building, maintaining, and operating airports already represents significant economic activity (approximately \$185 billion in 2009).<sup>11</sup>

The need for new and/or expanded airport capacity as well as current and potential job growth have been tempered by the effects of the global economic downturn. The steep declines in both

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<sup>3</sup> The NextGen Institute is the mechanism through which the JPDO accesses private sector expertise, tools, and facilities for application to NextGen activities and tasks (including planning, research, analysis, assessment, architecture, functional requirements setting, prototyping, simulation, and demonstrating future system attributes).

<sup>4</sup> FAA's NextGen Implementation Plan, March 2011. Available on the web at:

[http://www.faa.gov/nextgen/media/ng2011\\_implementation\\_plan.pdf](http://www.faa.gov/nextgen/media/ng2011_implementation_plan.pdf)

<sup>5</sup> Vinayak Khera and Harris Miller. "Going Global—A Primer to Entering Overseas Aviation Markets." *Airport Consulting*. Winter 2010/11.

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*

<sup>8</sup> Airports Council International. "New Release: ACI Airport Economics Report 2009." Press Release. December 22, 2009.

<sup>9</sup> Airports Council International. "New Release: ACI Airport Economics Survey 2010." Press Release. December 17, 2010.

<sup>10</sup> *Ibid.*

<sup>11</sup> Airports Council International. "ACI Airport Economics Survey." December 2010.

global air passenger traffic and global air freight shipments in 2008 into 2009 reversed in 2010. Global passenger traffic rose by 6.3 percent in 2010 compared to 2009, and freight rose by 15.2 percent in the same period.<sup>12</sup> Although employment levels at airports declined in relation to traffic, airports continue to be significant centers of job creation. Even with the downturn in passenger and freight traffic in 2008, according to ACI, 3.975 million persons were employed on airport sites worldwide.<sup>13</sup> Furthermore, the Air Transport Action Group estimates that around 8 million jobs worldwide are dependent on airport activity.<sup>14</sup>

This effect is further multiplied by the evolution of the “aerotropolis” in which international airports increasingly serve as magnets for commercial development and combine office, retail, entertainment facilities, and even some housing with airports to create “airport cities”.<sup>15</sup> Airports worldwide derived approximately 46.5 percent of their revenue from non-aeronautical sources, such as shopping areas, restaurants, advertising, and parking facilities.<sup>16</sup> This aerotropolis concept was reinforced in the House version of the latest FAA reauthorization bill, which calls for development of multimodal transportation networks to support economic activities surrounding major airports.<sup>17</sup>

Existing airports will need to build new capacity both to meet the expected growth in passenger and cargo traffic and to maintain economic momentum. To do so, airports, airport infrastructure manufacturers, and government entities such as the JPDO are working to remove regulatory and political obstacles to building new capacity. This effort is necessary to avoid severe congestion that could restrict the economic dynamism of airports by suppressing trade, investment, and traffic flows.<sup>18</sup>

### Aviation Security

Security concerns have become an essential part of airport and aviation operations. The Transportation Security Administration produced a number of plans to address various aspects of transportation security, culminating in the drafting of the National Strategy for Aviation Security (NSAS).<sup>19</sup> Within the NSAS, a supporting plan regarding the Aviation Transportation Security System was created to help manage the development and implementation of new and improved security measures throughout U.S. airports and the National Air Space (NAS). The Airports and Aviation Security Working Groups of the JPDO partnered with industry and the governmental agencies involved in crafting the NSAS to ensure that costs, efficiencies, economic impact, and the changing nature of air transportation (e.g., the expected increases in air traffic) were

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<sup>12</sup> Airports Council International. “Preliminary World Airport Traffic 2010.” Press Release. March 15, 2011.

<sup>13</sup> Airports Council International. “New Airport Economics 2008 Report.” Press Release. December 23, 2008.

<sup>14</sup> *Ibid.*

<sup>15</sup> Urban Land Institute. “Will the ‘Aerotropolis’ Replace the Metropolis? In Today’s Real Estate Environment, Easy In-Easy Out is Key Factor.” November 7, 2002. Available on the web at <http://www.uli.org/AM/Template.cfm?Section=Home&CONTENTID=21387&TEMPLATE=/CM/ContentDisplay.cfm>

<sup>16</sup> Airports Council International. “ACI Airport Economics Survey.” December 2010.

<sup>17</sup> HR 658 RH SEC. 132. AEROTROPOLIS TRANSPORTATION SYSTEMS. *Section 47101(g) is amended by adding at the end the following: “(4) AEROTROPOLIS TRANSPORTATION SYSTEMS.—Encourage the development of aerotropolis transportation systems, which are planned and coordinated multimodal freight and passenger transportation networks that, as determined by the Secretary, provide efficient, cost-effective, sustainable, and intermodal connectivity to a defined region of economic significance centered around a major airport.”*

<sup>18</sup> Airports Council International. “Airports Stimulate Employment and Economic Growth.” Press Release. April 11, 2006.

<sup>19</sup> National Security Presidential Directive 47/Homeland Security Presidential Directive 16 (NSPD-47/HSPD-16). Available on the web at [http://www.dhs.gov/xprevprot/laws/gc\\_1173113497603.shtm](http://www.dhs.gov/xprevprot/laws/gc_1173113497603.shtm)

considered and reflected in the Strategy. The NextGen aviation security model calls for a layered, adaptive security system that utilizes risk assessment and management to identify, prioritize, and assess homeland security needs.<sup>20</sup> This model adjusts resources to defeat evolving threats without unduly limiting mobility or making unwarranted intrusions on civil liberties while minimizing impacts to airline operations or aviation economics.<sup>21</sup>

Further, NextGen and Department of Homeland Security (DHS)/Transportation Security Administration (TSA) planning acknowledges that aviation security is a global issue that requires a high level of cooperation among trading partners. Along with collaborative policies and procedures, NextGen technologies must be interoperable to ensure that critical information reaches appropriate security and air traffic management authorities.<sup>22</sup>

The aviation security industry has moved forward with a number of possible solutions and technologies. The market for these technologies has significantly expanded; indeed, the global airport security equipment market is projected to reach \$289 billion by 2015.<sup>23</sup> These new technologies will address both security concerns and the need to reduce congestion (and thus not interfere with the business of airports and aviation transportation). The constantly evolving array of threats has forced airport operators and security technology manufacturers to test and deploy various identification and screening technologies, such as biometrics, radio frequency identification (RFID), and prototype explosives/baggage screening devices. The attempted Christmas Day 2009 bombing, for instance, prompted DHS to request \$433 million to purchase and install hundreds of advanced imaging technology (AIT) machines at airport checkpoints across the United States and an additional \$60 million for several hundred portable explosives detectors for the Department's 2011 budget.<sup>24</sup>

### Future Market

The market for airport infrastructure and aviation security products will continue to expand in the foreseeable future as plans for implementing the Next Generation Air Transportation System and enhancing aviation security go forward. The 2011 FAA budget proposal includes \$1.14 billion for NextGen—a 32 percent increase from fiscal year 2010.<sup>25</sup> ACI World reports that the 6 percent growth rate for global passenger traffic in 2010 takes the industry well beyond the steep declines experienced by the industry in 2009 in the aftermath of the global financial crisis.<sup>26</sup> Moreover, TSA has proposed accelerating the requirement for 100 percent screening of inbound international cargo on passenger aircraft from 2013 to the end of 2011. The expected growth in air traffic, the economic catalyst effect of large airports, and the demands of air travelers will pressure airports and vendors of infrastructure and security technologies to pursue greater efficiency.

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<sup>20</sup> FAQ: What are NextGen's key capabilities? Available on the web at <http://www.jpdo.gov/faq.asp>

<sup>21</sup> *Ibid.*

<sup>22</sup> JPDO "Snap Shot" Series: Securing America's Air Transportation System". Available on the web at [http://www.jpdo.gov/library/snapshot/JPDO%20Snap%20Shot\\_Securing.pdf](http://www.jpdo.gov/library/snapshot/JPDO%20Snap%20Shot_Securing.pdf)

<sup>23</sup> "Aviation security market to reach \$289 billion by 2015." *Homeland Security Newswire*. November 8, 2010.

<sup>24</sup> Bruce Kennedy. "Flying High: U.S. Aviation Security Costs Keep Rising." *Daily Finance*. April 11, 2010. Available on the web at <http://www.dailyfinance.com/story/when-the-cost-of-flying-safely-keeps-rising-who-pays/19433821/>

<sup>25</sup> "2011 Budget Proposes \$3.515 Billion for AIP." *Airport Magazine*. February/March 2010. Available on the web at <http://airportmagazine.net/>

<sup>26</sup> Airports Council International. "ACI World Report: February 2011." February 2011. Available on the web at: <http://www.airports.org/aci/aci/file/World%20Report/2011/ACIWorldReportFebruary2011.pdf>

U.S. providers of aviation security technology hold a leading position in the market. For example, the two leading manufacturers of AIT devices, L-3 Communications and Rapiscan Systems, are U.S.-based. Almost all U.S. aviation security technologies are used internationally. DHS laboratories such as the Transportation Security Laboratory (TSL) continue to be primary centers of security research, testing, and certification for products and technologies. The TSL is internationally recognized for its role in the development of standards, protocols and test articles necessary for detection technology assessments.<sup>27</sup>

Manufacturers of aviation security equipment are working to create next generation technologies that will be smaller, faster, lighter, and able to detect a greater array of threats. These new systems will be more user-friendly and attempt to allay civil liberties concerns. These new systems and technologies also will be more adaptable to the airports in which they will be placed. Harmonized security requirements will allow cohesive systems of passenger management, baggage handling, and cargo shipments to be built around available and future technologies, such as backscatter and millimeter wave technologies that are capable of both full body passenger screening as well as mobile cargo scanning applications.

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<sup>27</sup> Available on the web at [http://www.dhs.gov/files/labs/editorial\\_0903.shtm](http://www.dhs.gov/files/labs/editorial_0903.shtm).