Innovating the Future of Aviation Security Workshop Topics

**Cybersecurity** | Cybersecurity Requirements; Technical Solutions

**Innovation** | Operational Improvements; New Technologies; Innovation Task Force (ITF)

**System Architecture** | Update on Implementation of OSC System Architecture; Priorities for Fiscal Year 2017; TSE Connectivity

**Deployment & Logistics** | Planning Guidelines and Design; Checkpoint Design Guide

**Checked Baggage** | Recap and Acquisition Plans

The Office of Security Capabilities safeguards our nation’s transportation systems through the qualification and delivery of innovative security capabilities and solutions.

**Alignment to Strategic Five-Year Technology Investment Plan Themes:**

1. Enhancing Core Mission Delivery by Focusing on System-of-Systems
2. Integrating Principles of Risk-Based Security in Capabilities, Processes, and Technologies
3. Streamlining Acquisitions, Requirements, and Test and Evaluation Processes
4. Increasing Transparency in Engagement with Stakeholders to Enable Innovation

**Standards & Security** | Updates to Detection Standards

**Passenger Screening** | LCCE Revision Updates; Passenger Screening Experience

**Test & Evaluation** | New Qualification Process; Third Party Testing Update
OSC is building a culture of innovation and developing a system-of-systems approach to support next generation curb-to-gate solutions and allow for the rapid demonstration and deployment of emerging technologies to improve passenger satisfaction, enhance detection, and increase efficiencies.
TSA/OSC is developing a set of cybersecurity capabilities for endpoint devices and the network to mitigate known cybersecurity risks and allow authorizing officials to weigh against compliance requirements, enabling a risk mitigation approach to TSE cybersecurity.

**Initiatives**

- Credential Authentication Technology (CAT) Cybersecurity Remediation
- Johns Hopkins University Applied Physics Lab (JHU/APL) Study – Perform Developmental Test & Evaluation (DT&E) of the STIP system and conduct assessments of cyber threats to checkpoint operations and equipment (e.g., CAT)
- Cybersecurity Market Research – Identify solutions for potential proofs of concepts (PoC) to allow TSEs to reconnect to TSANet

**Impact**

- Assessments will enhance TSA cybersecurity through identification of potential cybersecurity threats, providing TSA with an increased level of awareness of the threat environment to support risk-based security initiatives
- Identifying enterprise-level cybersecurity solutions will allow OSC to buy-down risk and conduct comprehensive security solution assessments

**DHS Cybersecurity Requirements**

2. OS Hardening
3. Anti-Virus (AV) Updates
4. Personal Identity Verification (PIV) Compatibility
5. Security Scanning Support
6. Technical Obsolescence
7. Security Operations Center (SOC) Monitoring
8. Plan of Action & Milestones (POA&M) Support
9. Vendor Information System Security Officer (ISSO) Designation
Innovation Task Force

In the upcoming year, TSA is investing in people, process, and technology innovation through the Innovation Task Force. In coordination with industry, airports, airlines, and other stakeholders, the long-term goal of these innovation initiatives is to increase operational effectiveness and efficiency.

**Initiatives**

Current initiatives leading to increased technology effectiveness and efficiency are the following:

- DHS S&T Screening at Speed
- Emerging Technology Demonstrations
- Executable Strategic Plan for Innovation Initiatives

**Impact**

- A vision for a future screening experience that includes higher throughput, increased detection, and passenger experience
- Next-generation technology that increases TSA and aviation partners’ range of possibilities, rather than bounding that range
- An innovative environment that fosters emerging capabilities and collaboration across stakeholders

People solutions, process improvements, and technology advancements support OSC’s innovation initiatives and enable a future screening experience for passengers.
Atlanta International Airport (ATL) is the pilot innovation lane, allowing TSA to refine the process to establish and operate an innovation lane. TSA continues to develop and refine the broader ITF program based on the ATL pilot.

ATL Overview

- Partnering with Delta, MacDonald Humfrey, Rapiscan, and Atlanta Airport Authority
- Assessing MacDonald Humfrey Automated Screening Lane, commonly referred to as a bin return system
- Cross-TSA IPT developing processes to execute ATL innovation lane

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<th>March</th>
<th>April</th>
<th>May</th>
<th>2016</th>
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ATL Wins

- Identified critical path to expedite delivery in less than 9 weeks
- Kicked off IPT and enabled coordination across TSA and external stakeholders
- Developed processes and documentation to drive future ITF site stand-ups and installations

Go-Live 2016
The OSC System Architecture program supports the integration of technology, data, and processes to enable expanded implementation of risk-based security through the development of an integrated and modularized security screening system.
OSC’s Deployment and Logistics Division (DLD) provides airports with efficient and effective security capabilities for checked baggage and checkpoint screening options, communicates with internal and external stakeholders to coordinate deployment, and maintains all fielded TSE throughout its lifecycle.

**Initiatives**

- Provide guidance for **checkpoint redesign efforts** at airports to prepare checkpoints for next generation technologies and capability demonstrations
- Create and maintain **checkpoint design guides** through DLD that allow for integration of new TSE
- Maintain the **Deployment Interactive Viewer of Equipment** (DIVE)

**Impact**

- Checkpoint design guides can **emphasize best practices for designing screening system layouts** that allow the integration of future capabilities
- DIVE enables TSA to **view current deployments and incorporate future capabilities** into airport planning, easing the path to system integration for new TSE
The OSC Checked Baggage Technologies Division (CBTD) has outlined a path forward in order to meet TSA’s goal to improve security effectiveness through a system-of-systems technological approach. By establishing agreed-upon pathways, interdependencies, and supporting roles, CBTD is working to achieve targeted future state objectives.

Initiatives

- Develop and deploy enhanced threat detection algorithms
- Develop and deploy CT80DR+ Upgrade Kit
- Enhance alarm resolution capabilities
- Upgrade networks and enhance focus on IT security
- Develop Threat Image Projection
- Maintain the Planning Guidelines and Design Standards (PGDS) through cooperation between CBTD and DLD

Impact

- TSA will procure and deploy TSE (EDS and ETD units) to maintain 100% screening compliance
- Current projects with executed Letters of Intent or Other Transactional Agreements will be fulfilled
- Upgraded networks will enhance IT security, allowing for STIP enablement
OSC’s Test and Evaluation Division (TED) provides test and evaluation and lifecycle matrix support services to the OSC program offices, TSA field elements, and other TSA/DHS stakeholders. TSA is improving TSE acquisitions by engaging with the Original Equipment Manufacturer (OEM) earlier in the development process, resulting in more mature TSE.

**Initiatives**

- **System Qualification Process Enhancements**
  - Earlier and more frequent involvement with the OEM during Design and Development of TSE
  - Third Party Testing Program
- **Engineering Requirements Review Board (ERRB) Development**

**Impact**

- System Qualification Process Enhancements could **decrease failures, delays, and costs** resulting from the iterative cycle of test, fix, and retest
- E RRB will provide a forum for key stakeholders to **review and approve functional requirements** prior to finalizing relevant acquisition documentation
The Checkpoint Solutions and Integration Division (CSID) Passenger Screening Program (PSP) LCCE document provides a structured accounting of all associated checkpoint TSE cost elements. The LCCE accounts for all PSP activities and helps prioritize maintenance and improvements to currently deployed TSE based on the establishment of future programs.

PSP LCCE Overview

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<th>Relative Funding Trends</th>
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<tr>
<td>PSP (Legacy TSE) PC&amp;I</td>
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<tr>
<td>Sustain, maintain, and improve deployed capabilities (including recapitalization) through FY20</td>
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<tr>
<td>PSP (Legacy TSE) O&amp;M</td>
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<td>Operate and maintain fielded equipment</td>
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As TSA moves towards full implementation of System Architecture, activities for deployed systems will decrease while funding and resources will be increasingly focused on future capabilities.
Due to constantly evolving security threats facing multiple DHS components, TSA is reviewing requirements and detection standards and updating processes to protect against threats facing the nation while enabling enhanced future technologies.

**Initiatives**

- Aligning testing processes to allow technology and algorithms to be submitted for certification in addition to qualification
- Revising detection standards and requirements for Advanced Technology/Automated Personnel Security System, Explosives Detection System, Explosives Trace Detector, Bottled Liquids Scanner, Advanced Imaging Technology (AIT), and Enhanced Metal Detector to provide security against an adaptive and improvising adversary
- Enhancing checkpoint design recommendations

**Impact**

- Certified technology and algorithms can be submitted to ITF for demonstration and will encourage mature TSE and technical capability
- Revised detection standards will require technologies to be recertified in order to be deployed
- Industry will need to consistently innovate through development of algorithms and technologies to meet new standards
- Updated checkpoint design recommendations allow for demonstration of enhanced future capabilities
**OSC High-Level Initiative Timeline**

### Short-term (6-12 months)

**Deploy vetted technologies and improve existing processes**

- Define and initiate system architecture projects
- Finalize requirements for next-generation technologies
- Finalize checkpoint technologies LCCE
- Deploy additional AIT machines
- Recap ETD machines
- Deploy CAT
- Conduct cybersecurity proof-of-concept and market research
- Establish new qualification processes
- Align program regimens
- Implement ITF with 4 airlines in 10+ airports

### Mid-term (1-2 years)

**Develop innovative solutions and capabilities**

- Partner with DHS S&T Screening at Speed
- Invest in emerging technologies
- Enhance algorithms for ultra false acceptance rates
- Implement IT security requirements
- Network TSE through STIP
- Integrate RBS with checked baggage
- Define common standards for TSE and interfaces
- Assess OSC’s future operating model

### Long-term (2-10 years)

**Create a holistic curb-to-gate screening approach**

- Implement system architecture
- Deploy walk-through, standoff trace detection, next-generation X-Ray, and high resolution trace detection
- Fully implement biometrics
- Deploy dynamic and risk management algorithms
- Fully integrate risk in passenger and baggage screening
- Create a seamless passenger experience
- Enhance screening and detection through stream of commerce and improvised threat characterization
- Demonstrate future concepts