Capital Investment Plan

FY 2022–FY 2026

December 3, 2021

Fiscal Year 2021 Report to Congress

Homeland Security

Transportation Security Administration

Message from the Administrator

December 3, 2021

I am pleased to present the following "Capital Investment Plan" (CIP) for Fiscal Year (FY) 2022–FY 2026, which has been prepared by the Transportation Security Administration (TSA).

TSA compiled the CIP according to reporting requirements in Section 222 of the FY 2021 Department of Homeland Security (DHS) Appropriations Act (P.L. 116-260) and its accompanying Joint Explanatory Statement, in Senate Report 115-283 accompanying the FY 2019 DHS Appropriations Act (P.L. 116-6), and in the Transportation Security Acquisition Reform Act (P.L. 113-245). This single, annual report presents TSA's plan for continuous and sustained investments in new, and the replacement of aged, transportation security equipment (TSE) and other capital investments.

As TSA's risk landscape evolves, TSA must continue to invest in, acquire, and field new technologies to strengthen transportation security, partnering with other DHS Components and industry partners in aviation and surface transportation to drive innovation and modernization. The CIP provides a cohesive view of transportation security investments necessary to achieve TSA's strategic priorities within the context of its operational environment and threat landscape. The CIP serves as TSA's guide when determining and prioritizing future investments to fulfill critical missions.

Pursuant to Congressional requirements, this report is provided to the following Members of Congress:

The Honorable Rosa L. DeLauro
Chair, House Committee on Appropriations

The Honorable Kay Granger
Ranking Member, House Committee on Appropriations

The Honorable Patrick J. Leahy
Chairman, Senate Committee on Appropriations

The Honorable Richard C. Shelby
Vice Chairman, Senate Committee on Appropriations

The Honorable Bennie G. Thompson
Chairman, House Committee on Homeland Security

The Honorable John Katko
Ranking Member, House Committee on Homeland Security

The Honorable Maria Cantwell
Chair, Senate Committee on Commerce, Science, and Transportation

The Honorable Roger F. Wicker
Ranking Member, Senate Committee on Commerce, Science, and Transportation

If I may be of further assistance, please do not hesitate to contact me at (571) 227-2801.

Sincerely,

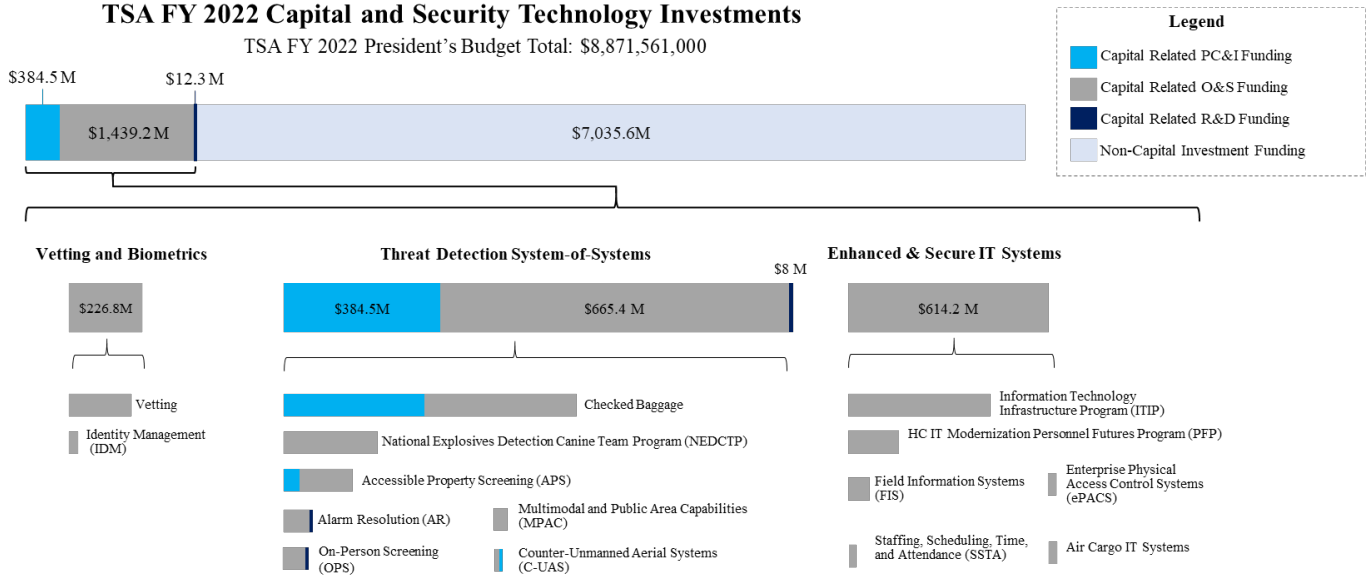
David P. Pekoske
Administrator

Executive Summary

The CIP for FY 2022–FY 2026 outlines TSA's strategy for continuous and sustained investment in new, and the replacement of obsolete TSE and other transportation security solutions. The CIP demonstrates how TSA continues to advance its strategic priorities given the dynamic threats facing transportation security through combined investment in security solutions, policy and process improvements, and partnerships. TSA will continue to invest in, acquire, and field new technologies and enhanced secure information technology (IT) systems to strengthen security effectiveness and efficiency.

Figure 1 shows the percentage of capital-related investment in TSA's total budget.

Figure 1: TSA's Capital-Related Investment



Continuous and Sustained Investment

As the transportation security risk landscape evolves in response to new threats, TSA continues to invest in, acquire, and field new, sustainable solutions that strengthen the security of the transportation system, enhance the passenger experience, support movement of commerce, and advance the TSA workforce. The CIP, which covers the next 5 fiscal years' planned obligations, based on the Future Years Homeland Security Plan's (FYHSP) authorized levels,[1] provides a cohesive overview of the capital investments required to: achieve TSA's strategic priorities; adapt to disruptions in the transportation ecosystem, like the Coronavirus Disease 2019 (COVID-

[1] Throughout a given fiscal year, requirements may be reprioritized based on changes in the threat environment, operational needs, programmatic reviews, leadership priorities, or other circumstances. Resource levels in the FYHSP do not shift in line with the TSA's changing priorities through the annual budget process.

19) pandemic; and address the complex challenges of the future within the FYHSP. **Figure 1** outlines TSA's FY 2022 budget request.

Figure 2: TSA Budget Request FY 2022

TSA Budget Request FY 2022 (Dollars in Thousands)								
	2020 Enacted		2021 Enacted		2022 PB		2021 - 2022 Total Changes	
	FTE	$0	FTE	$0	FTE	$0	FTE	$0
Operations and Support	56,159	$7,680,565	56,210	$7,793,715	54,764	$8,094,787	(1,446)	$301,072
Procurement, Construction, and Improvements	0	$110,100	0	$134,492	0	$134,492	0	$0
Research and Development	0	$22,902	0	$29,524	0	$35,532	0	$6,008
Appropriated Funds	**56,159**	**$7,813,567**	**56,210**	**$7,957,731**	**54,764**	**$8,264,811**	**(1,446)**	**$307,080**
Vetting Fees - Discretionary	249	$231,714	334	$232,200	386	$350,750	52	$118,550
Mandatory Fees	17	$255,200	19	$253,900	19	$256,000	0	$2,100
Total Budget Authority	**56,425**	**$8,300,481**	**56,563**	**$8,443,831**	**55,169**	**$8,871,561**	**(1,394)**	**$427,730**
Less Mandatory Fees	0	($255,200)	0	($253,900)	0	($256,000)	0	($2,100)
Gross Discretionary	**56,425**	**$8,045,281**	**56,563**	**$8,189,931**	**55,169**	**$8,615,561**	**(1,394)**	**$425,630**
Appropriated Funds	**56,159**	**$7,813,567**	**56,210**	**$7,957,731**	**54,764**	**$8,264,811**	**(1,446)**	**$307,080**
9/11 Passenger Security Fee Offset *	0	($2,830,000)	0	($212,243)	0	($2,368,503)	0	($2,156,260)
Net Discretionary	**56,159**	**$4,983,567**	**56,210**	**$7,745,488**	**54,764**	**$5,896,308**	**(1,446)**	**($1,849,180)**

**FY 2021 Passenger Security Fees are based on budget estimates from July 2020 reflecting reduced fee revenue because of COVID-19 Impacts.*

Strategic Alignment

The CIP represents the output of TSA's efforts to plan for strategically and to enable continuous improvement in security, specifically with capital investments, building off the TSA Strategy, Administrator's Intent 2.0, Implementation Plans, and Strategic Priorities and Planning Guidance. The FY 2022 – FY 2026 CIP follows priorities set by TSA's FY 2023 – FY 2027 requirement prioritization process, which uses TSA risk and strategy documents in its quantified weighting and scoring approach. This approach considers how each priority addresses validated capability needs; enterprise, mission, and programmatic risks; and other enterprise strategies.

To achieve TSA's strategic vision, TSA aligns its capital investments with the following three pillars:

- Vetting and Biometrics
- Threat Detection System-of-Systems
- Enhanced and Secure IT Systems

The Need for Future Investment

The transportation system will always be a target for adversaries and therefore require protection. TSA continues to evolve and adapt mission execution by advancing security solutions and policies and processes that optimize those solutions to deter or defeat attacks and to adapt to a changing transportation ecosystem. Looking to the future, TSA requires productive and diverse partnerships and will seek to collaborate effectively and consistently with industry, government, and academia stakeholders. These partnerships are essential to improving security effectiveness, operational efficiency, the passenger experience, and workforce capabilities. Two focus areas that highlight the importance of partnerships in advancing TSA's capabilities are open architecture initiatives and research and development (R&D).

Open Architecture: TSA's introduction of open system architecture elements into TSE is a pivotal investment in advancing TSA toward the future state. Through open architecture, TSA provides more pathways for new collaborators, enhancing innovation through broadening the market of possible partnerships and allowing for greater options to identify best solutions to outmatch constantly changing threat environments. Open architecture also increases efficiency and interoperability across TSE and screening systems, advances risk-based security objectives, enables modularity, reduces costs, and expedites delivery of capabilities.

R&D: TSA's mission success depends on simultaneous robust investment in capital assets and continued investment in R&D, including applied research, development, testing, and evaluation activities that advance innovative technology solutions and support TSA's security infrastructure. TSA continues to benefit from partnerships with other federal government departments and agencies such as the DHS Science and Technology Directorate and the U.S. Department of Defense. TSA works with these organizations and private industry to ensure that efforts are not duplicative and that they support successful transition of technologies and solutions to the operational environment. The planned distribution of the FY 2022 R&D funds is shown in **Figure 3**.

Figure 3: R&D Investment FY 2022

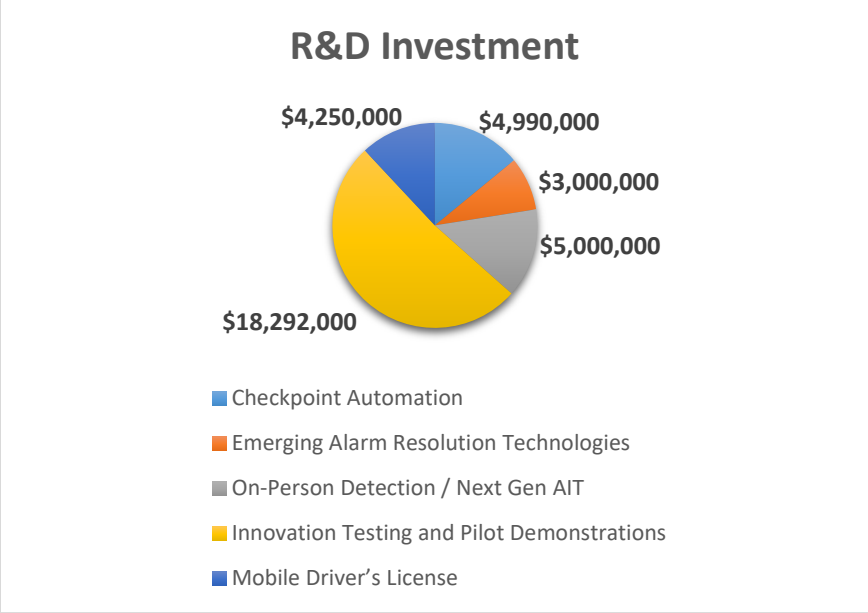


Figure 4 shows a summary of all capital investments discussed in detail in this document.

Figure 4: CIP Summary Table FY 2022–FY 2026

CIP - FY 2022 President's Budget (PB)-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
A. Vetting and Biometrics						
I. Vetting	$196.8	$193.4	$197.1	$201.5	$205.2	**$994.0**
II. Identity Management	$30.0	$26.7	$26.7	$27.3	$27.6	**$138.3**
A. Vetting and Biometrics Subtotal	**$226.8**	**$220.1**	**$223.8**	**$228.8**	**$232.8**	**$1,132.3**
B. Threat Detection System-of-Systems						
I. Accessible Property Screening	$214.8	$150.4	$156.2	$163.5	$166.5	**$851.4**
II. Alarm Resolution	$56.0	$74.9	$84.2	$90.3	$92.1	**$397.5**
III. On-Person Screening	$48.4	$58.7	$57.8	$57.4	$58.5	**$280.8**
IV. Checked Baggage	$539.3	$532.6	$536.3	$546.0	$547.1	**$2,701.3**
V. Multimodal and Public Area Capabilities	$18.6	$18.6	$18.6	$18.6	$18.6	**$93.0**
VI. Counter-Unmanned Aerial Systems	$10.7	$11.8	$11.9	$12.1	$12.2	**$58.7**
VII. National Explosives Detection Canine Team Program	$170.2	$173.0	$175.7	$178.5	$186.5	**$883.9**
B. Threat Detection System-of-Systems Subtotal	**$1,058.0**	**$1,020.0**	**$1,040.7**	**$1,066.4**	**$1,081.5**	**$5,266.6**
C. Enhanced and Secure IT Systems						
I. IT Infrastructure Program	$389.2	$389.0	$394.8	$401.1	$407.5	**$1,981.5**
II. Field Information Systems	$31.6	$26.3	$31.0	$31.7	$32.9	**$153.5**
III. Enterprise Physical Access Control System	$14.4	$14.7	$14.9	$15.1	$15.3	**$74.4**
IV. Human Capital IT Modernization Personnel Futures Program	$154.0	$146.4	$143.0	$149.1	$155.3	**$747.8**
V. Staffing, Scheduling, Time, and Attendance System	$11.9	$12.1	$12.3	$12.5	$12.7	**$61.5**
VI. Air Cargo IT Systems	$13.1	$13.3	$13.3	$13.3	$13.3	**$66.3**
C. Enhanced and Secure IT Systems Subtotal	**$614.2**	**$601.8**	**$609.3**	**$622.8**	**$637.0**	**$3,085.1**
Total	**$1,899.0**	**$1,841.9**	**$1,873.8**	**$1,918.0**	**$1,951.3**	**$9,484.0**
FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.						

Capital Investment Plan
FY 2022–FY 2026

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I. Legislative Language

This report addresses reporting requirements in Section 222 of the Fiscal Year (FY) 2021 Department of Homeland Security (DHS) Appropriations Act (P.L. 116-260) and its accompanying Joint Explanatory Statement; Senate Report 115-283 accompanying the FY 2019 DHS Appropriations Act (P.L. 116-6); and the Transportation Security Acquisition Reform Act (P.L. 113-245).

P.L. 116-260 states the following:

> **SEC. 222.** Not later than 30 days after the submission of the President's budget proposal, the Administrator of the Transportation Security Administration shall submit to the Committees on Appropriations and Commerce, Science, and Transportation of the Senate and the Committees on Appropriations and Homeland Security in the House of Representatives a single report that fulfills the following requirements:
>
> (1) a Capital Investment Plan that includes a plan for continuous and sustained capital investment in new, and the replacement of aged, transportation security equipment;
>
> (2) the 5-year technology investment plan as required by section 1611 of title XVI of the Homeland Security Act of 2002, as amended by section 3 of the Transportation Security Acquisition Reform Act (Public Law 113–245); and
>
> (3) the Advanced Integrated Passenger Screening Technologies report as required by the Senate Report accompanying the Department of Homeland Security Appropriations Act, 2019 (Senate Report 115–283).

The Joint Explanatory Statement includes the following provision:

> **Section 222.** The agreement continues a provision requiring TSA to provide a report that includes the Capital Investment Plan, the five-year technology investment plan, and information on Advanced Integrated Passenger Screening Technologies.

Senate Report 115–283 provides:

> Advanced Integrated Screening Technologies. —TSA is directed to submit a detailed report on passenger and baggage screening technologies not later than 180 days after the date of enactment of this act. The report shall include a useful description of existing and emerging technologies capable of detecting threats concealed on passengers and in baggage, as well as projected funding levels for each technology identified in the report for the next five fiscal years.

The Transportation Security Acquisition Reform Act (P.L. 113-245) provides further guidance:

SEC. 1611. 5-YEAR TECHNOLOGY INVESTMENT PLAN.

(a) IN GENERAL. —The Administrator shall—

(1) not later than 180 days after the date of the enactment of the Transportation Security Acquisition Reform Act, develop and submit to Congress a strategic 5-year technology investment plan, that may include a classified addendum to report sensitive transportation security risks, technology vulnerabilities, or other sensitive security information; and

(2) to the extent possible, publish the Plan in an unclassified format in the public domain.

(b) CONSULTATION. —The Administrator shall develop the Plan in consultation with—

(1) the Under Secretary for Management;

(2) the Under Secretary for Science and Technology;

(3) the Chief Information Officer; and

(4) the aviation industry stakeholder advisory committee established by the Administrator.

(c) APPROVAL. —The Administrator may not publish the Plan under subsection (a)(2) until it has been approved by the Secretary.

(d) CONTENTS OF PLAN. —The Plan shall include—

(1) an analysis of transportation security risks and the associated capability gaps that would be best addressed by security-related technology, including consideration of the most recent quadrennial homeland security review under section 707;

(2) a set of security-related technology acquisition needs that—

(A) is prioritized based on risk and associated capability gaps identified under paragraph (1); and

(B) includes planned technology programs and projects with defined objectives, goals, timelines, and measures;

(3) an analysis of current and forecast trends in domestic and international passenger travel;

(4) an identification of currently deployed security-related technologies that are at or near the end of their lifecycles;

(5) an identification of test, evaluation, modeling, and simulation capabilities, including target methodologies, rationales, and timelines necessary to support the acquisition of the security-related technologies expected to meet the needs under paragraph (2);

(6) an identification of opportunities for public-private partnerships, small and disadvantaged company participation, intragovernment collaboration, university centers of excellence, and national laboratory technology transfer;

(7) an identification of the Administration's acquisition workforce needs for the management of planned security related technology acquisitions, including consideration of leveraging acquisition expertise of other Federal agencies;

(8) an identification of the security resources, including information security resources, that will be required to protect security-related technology from physical or cyber-enabled theft, diversion, sabotage, or attack;

(9) an identification of initiatives to streamline the Administration's acquisition process and provide greater predictability and clarity to small, medium, and large businesses, including the timeline for testing and evaluation;

(10) an assessment of the impact to commercial aviation passengers;

(11) a strategy for consulting airport management, air carrier representatives, and Federal security directors whenever an acquisition will lead to the removal of equipment at airports, and how the strategy for consulting with such officials of the relevant airports will address potential negative impacts on commercial passengers or airport operations; and

(12) in consultation with the National Institutes of Standards and Technology, an identification of security-related technology interface standards, in existence or if implemented, that could promote more interoperable passenger, baggage, and cargo screening systems.

(e) LEVERAGING THE PRIVATE SECTOR. —To the extent possible, and in a manner that is consistent with fair and equitable practices, the Plan shall—

(1) leverage emerging technology trends and research and development investment trends within the public and private sectors;

(2) incorporate private sector input, including from the aviation industry stakeholder advisory committee established by the Administrator, through requests for information, industry days, and other innovative means consistent with the Federal Acquisition Regulation; and

(3) in consultation with the Under Secretary for Science and Technology, identify technologies in existence or in development that, with or without adaptation, are expected to be suitable to meeting mission needs.

(f) DISCLOSURE. —The Administrator shall include with the Plan a list of nongovernment persons that contributed to the writing of the Plan.

(g) UPDATE AND REPORT. —Beginning 2 years after the date the Plan is submitted to Congress under subsection (a), and biennially thereafter, the Administrator shall submit to Congress—

(1) an update of the Plan; and

(2) a report on the extent to which each security-related technology acquired by the Administration since the last issuance or update of the Plan is consistent with the planned technology programs and projects identified under subsection (d)(2) for that security-related technology.

II. Plan Overview

The mission of the Transportation Security Administration (TSA) is to protect the Nation's transportation systems and to ensure freedom of movement for people and commerce. For TSA to be well-equipped to execute its mission and sustain and modernize operations, it must consider the overall transportation environment, current and future risks and threats, opportunities for partnership with industry, and policy and process innovation.

The Capital Investment Plan (CIP) summarizes the output of TSA's efforts to plan strategically and continuously improve transportation security, specifically security solutions like transportation security equipment (TSE), information technology (IT) infrastructure, and other capital investments. Capital investments summarized in the CIP will transform TSA's execution of transportation security coupled with risk-based policy changes, process improvements, and strategic partnerships. Funding includes amounts for procurement, construction, and improvements (PC&I); operations and sustainment (O&S); and research and development (R&D), as requested in the FY 2022 President's Budget (PB) and outyear requirements in the Future Years Homeland Security Plan (FYHSP).

III. Strategic Priorities to Drive Transformation

TSA has three mutually reinforcing guidance documents that advance its strategic vision:

- The TSA Strategy,[2] which articulates the shared vision, goals, and priorities for TSA through 2026.
- Administrator's Intent 2.0,[3] which identifies near-term activities to advance the strategy.
- The FY 2023 – FY 2027 Strategic Priorities and Planning Guidance, which is the culmination of the Planning phase within the Planning, Programming, Budgeting, and Execution – Strategy (PPBE-S) process and which guides resource allocation decisions in subsequent outyear programming, budgeting, and execution phases.

Throughout the FY 2023 – FY 2027 requirements prioritization process, TSA considered the TSA Strategy and Administrator's Intent 2.0 and received briefs on mission/operational risk processes and capabilities. Using a quantitative weighting and scoring approach, TSA considered how each requirement addresses validated capability needs; enterprise, mission, and programmatic risks; and other enterprise strategies. Priorities focus primarily on advancing aviation security and screening, progressing TSA's workforce and human capital systems, executing IT modernization, improving identity management (IDM) capabilities, and enhancing insider threat detection, deterrence, and mitigation. The CIP outlines capital investments that drive these priorities, advancing TSA's mission and strategic vision.

[2] TSA Strategy, 2018–2026 <https://www.tsa.gov/sites/default/files/tsa_strategy.pdf>
[3] TSA Administrator's Intent 2.0 2020 < https://www.tsa.gov/sites/default/files/tsa-administrators-intent-2.0.pdf>

IV. Transforming Mission Execution

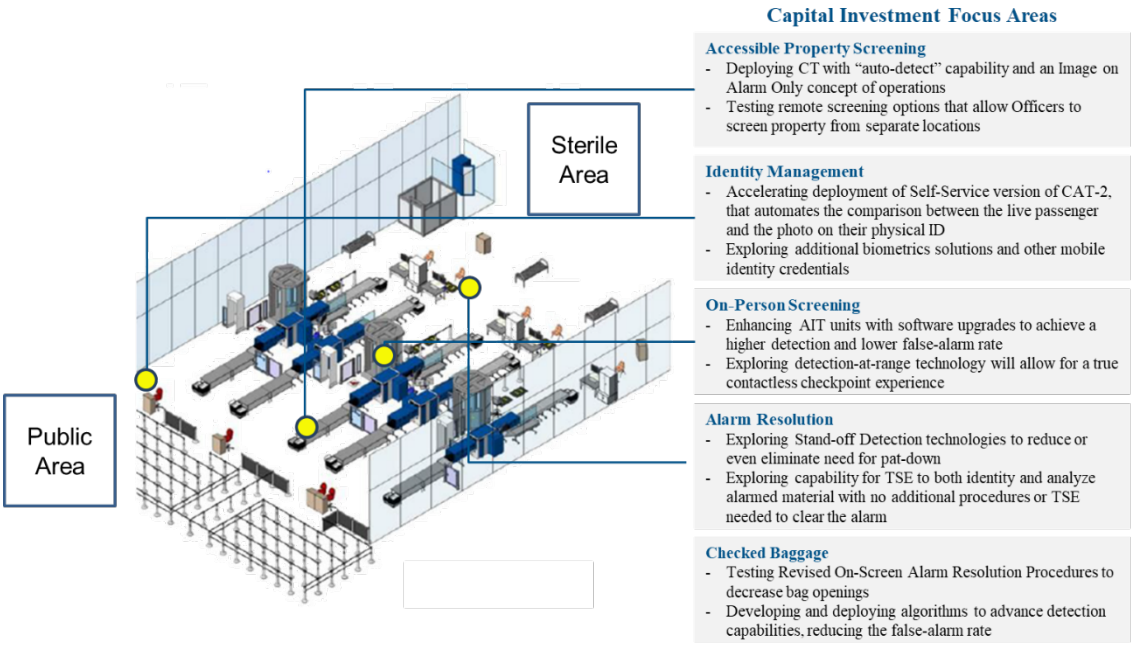
The transportation ecosystem continues to evolve with new and dynamic threats and other unpredictable disruptions, including the Coronavirus Disease 2019 (COVID-19) pandemic. Reflective of such, TSA must adapt to change and transform mission execution to: raise the baseline for effective and efficient security, modernize IT, invest in its workforce, and improve the passenger screening experience. To transform mission execution, TSA creates a security infrastructure comprised of capital investments and complementary policies, processes (for example, capability management), and strategic partnerships that collectively optimize security solutions, advance TSA's priorities, and strengthen transportation security.

The COVID-19 pandemic was a major disruption to all forms of transportation, but specifically the aviation ecosystem, which required drastic and rapid changes to the operational environment of the security checkpoint. TSA responded by accelerating existing plans to transform checkpoints and to enhance security, prioritizing contactless and remote screening, both to ensure the integrity of aviation security and the safety of the traveling public and TSA's field officers. The pandemic heightened the already-existing need for TSA to evolve its approach to security screening, checkpoint design, and airport operations to reduce contact, create a more seamless interconnected checkpoint experience, and improve security measures.

To meet those needs, in combination with supporting policies, processes, and partnerships, TSA focused on technologies that increase detection capability and reduce false alarm rates. Such advancements would reduce the need for secondary screening that result in high-contact rates between transportation security officers (TSO) and passengers.

For example, TSA leveraged credential authentication technology (CAT), which validates passenger identity and vetting status, to develop Second Generation CAT (CAT-2), a self-service version of CAT with camera (CAT-C). Similarly, TSA has improved its screening of accessible property through the deployment of computed tomography (CT) and Checkpoint Property Screening System (CPSS) with "auto-detect" capability and an 'Image on Alarm Only' concept of operations. Finally, TSA has integrated advanced detection algorithms into Advanced Imaging Technology (AIT)'s on-person screening capabilities. **Figure 5** depicts how these investments and others within the airport environment are creating the checkpoint of the future.

Figure 5: Capital Investment Focus Areas within the Airport Environment



To realize the full potential of checkpoint technologies, TSA also invests in IT systems including the Security Technology Integration Program (STIP), which pushes system wide detection software updates more rapidly than current manual processes that are implemented machine-by-machine. TSA also is modernizing mission support systems to manage changes in staffing operations of its 50,000 TSOs to allow for more automation and agility.

Continued transition to a capability management operating model is an important process shift that enables TSA to both transform transportation security and identify the investments needed to do so. This operating model designates a single capability manager (CM) to build the future state roadmap for a capability, to improve integration, and to take a more comprehensive approach to security solutions. CMs further integrate technologies into the field by considering the nonmaterial aspects of solutions (procedures, training, etc.), driving seamless connections of their capability to other TSE, identifying solutions that reduce contact in screening, improving the passenger experience, and advancing TSA toward a mature screening system-of-systems. Current CMs support TSA's fielded capabilities and include most of TSA's capital investment programs.

The investments needed to execute and transform the mission are spread across the following pillars: 1) Vetting and Biometrics, 2) Threat Detection System-of-Systems, and 3) Enhanced and Secure IT Systems. To advance these pillars, TSA invests in R&D; engages with partners across government, industry, and the traveling public; and identifies policy and process improvements to optimize investments.

A. Executing Our Mission

Vetting and Biometrics

At TSA, vetting is the process of determining whether individuals seeking access to the transportation environment are potential threats by screening them according to their risk status. Vetting is a critical part of identity management (IDM) and works in tandem with identity proofing and identity verification to ensure that TSA enables the right persons to be granted the right access or credential based on their biographic and biometric information.

Prior to arrival at a checkpoint, the Secure Flight program enhances security by identifying low- and high-risk passengers before they arrive at the airport by matching names against trusted traveler lists and watchlists. This also minimizes misidentification of individuals. Currently, Secure Flight operates with CAT, through the connection with STIP, to identify occurrences in which the name screened by Secure Flight does not match the boarding pass and/or passenger identity or travel document presented. It also verifies a passenger's vetting status against the Secure Flight database in near real-time so that the passenger receives the appropriate screening based on TSA's assessed risk. This maturation of the system and operations will include a built-in, two-way communication capability between Secure Flight and CAT, enabling near real-time assessments that will drive operational planning and responses and also provide feedback to the intelligence community.

In addition to maturing the Secure Flight program, TSA continues to enhance its use of biometrics. TSA published its Biometrics Roadmap in 2018 and is developing one for identity management to detail the agency's plan to evolve IDM into a more formalized and integrated capability across the enterprise. For example, TSA is developing the self-service version of CAT with the CAT-2 solution that builds on the existing CAT infrastructure, leverages the biometrically enabled CAT-C prototype, and includes a self-service passenger-facing user interface. The camera functionality increases security effectiveness by automating the comparison between the live passenger and the photo on their physical identification document (ID), which eliminates vulnerabilities associated with social engineering and cognitive fatigue and thereby allows officers to focus their training and contextual judgment on anomalies rather than visual facial comparisons.

In addition, with the increased need to shift to contactless and automated screening because of COVID-19, CAT-2 is designed to automate existing high-touch actions. TSA also is piloting and testing a facial identification solution using a back-end repository to compare a live-image capture of consenting eligible travelers to a gallery of enrolled facial reference images and is exploring the use of digital identify capabilities.

TSA is working closely with its vendor base, commercial aviation stakeholders, and interagency partners at DHS, including U.S. Customs and Border Protection and the Office of Biometric Identity Management, to ensure TSA's identity solutions are standards-based, user-friendly, and scalable, without technical bias, to address TSA mission needs while protecting passengers' privacy and civil rights and liberties. Fostering communication, transparency, and input

regarding the development of biometric solutions from stakeholders remains a key part of TSA's overall strategy.

TSA continues to mature its risk-based approach to increase the use of biometrics screening, to improve confidence in security verification, and to minimize the risk of adversary manipulation through priority investments in the IDM portfolio focused on: CAT-2, digital identity technology, identity proofing and enrollment, and facial recognition technology. Implementation of IDM capabilities requires R&D for systems integration, biometric system improvements, data analytics and algorithm development, cybersecurity, and standardization and requirements. These activities are investments in IDM capabilities that will ensure a safe and secure TSA checkpoint as technology continues advancing and adversaries find new methods of attack.

Figure 6 shows the funding aligned to vetting and biometrics projects and programs from the FY 2022 Congressional Justification and TSA's FY 2022–FY 2026 FYHSP. Security-related technology (SRT)[4] programs are noted for traceability requirements in the 5-year technology investment plan requirements.

Figure 6: Vetting and Biometrics FY 2022–FY 2026

Figure 6: A. Vetting and Biometrics – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Vetting & Credentialing System	$71.79	$72.93	$74.10	$75.29	$76.49	$370.60
Secure Flight	$125.03	$120.42	$123.00	$126.21	$128.69	$623.35
Total Vetting	**$196.82**	**$193.35**	**$197.10**	**$201.50**	**$205.18**	**$993.95**
Credential Authentication Technology	$23.24	$21.24	$21.40	$21.92	$22.22	$110.02
Identity Investment	$2.00	$5.00	$5.00	$5.00	$5.00	$22.00
Boarding Pass Scanner	$0.49	$0.51	$0.34	$0.36	$0.36	$2.06
Subtotal O&S	**$25.73**	**$26.75**	**$26.74**	**$27.28**	**$27.58**	**$134.08**
Credential Authentication Technology	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subtotal PC&I	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Mobile Driver's License	$4.25	$0.00	$0.00	$0.00	$0.00	$4.25
Subtotal R&D	**$4.25**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$4.25**
Total Identity Management	**$29.98**	**$26.75**	**$26.74**	**$27.28**	**$27.58**	**$138.33**
Total Vetting and Biometrics	**$226.80**	**$220.10**	**$223.84**	**$228.78**	**$232.76**	**$1,132.28**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

[4] SRT is defined as any technology or related engineering services to deployed technology that assists the Administration in the prevention of, or defense against, threats to U.S. transportation systems, including threats to people, property, and information. Engineering services are defined further as services that would result in new capabilities, enhancements of existing capabilities, or otherwise would upgrade an existing operational SRT. This definition does not include SRT that is procured for the purpose of demonstrations, prototype SRT, or SRT used for R&D purposes.

Threat Detection System-of-Systems

The checkpoint system addresses emerging and evolving terrorist threats to commercial aviation security. TSA must invest in new technologies and processes as well as in automation, integration, and connection. These investments will create a mature aviation screening system-of-systems that strengthens TSA's security posture, creates efficiencies, improves the passenger experience, protects the workforce, and dynamically responds to threats and disruptions.

TSA continues to mature the accessible property screening capability by deploying CT systems with sophisticated algorithms. These systems offer an enhanced imaging platform with three-dimensional images compared to legacy two-dimensional Advanced Technology X-rays and can detect a broader range of threats. TSA implemented the CPSS Acquisition Program in 2019 to deploy a long-term CT solution incrementally with enhanced threat detection algorithms, ingress/egress, and networking capabilities.

TSA's mid-term goal is to employ an "auto-detect" capability for explosive threats and non-explosives prohibited items, such as firearms, firearm components, and knives. TSA intends to introduce an 'Image on Alarm Only' concept of operations that ultimately will improve checkpoint efficiency, reduce staffing requirements, and decrease the number of bags that require review/secondary screening, thus limiting the touch rate between TSOs and passengers' property.

In addition, TSA is focused on enhancing AIT, the on-person screening capability technology. These enhancements will improve the passenger experience and advance security by achieving a higher detection and lower false-alarm rate. As a result, TSA's move to contactless screening will be accelerated as the need for physical pat-downs decreases while extending AIT to all airports to the maximum extent possible. TSA is updating AIT units with advanced algorithms, including high definition-AIT, to achieve these milestones. Within the on-person screening capability, TSA continues exploring detection-at-range capabilities that focus on screening at speed and at distance to reduce contact, improve integration, and enhance the passenger experience.

TSA also is responsible for investing in technologies and other solutions to protect the multimodal and public areas from persistent threats, including unmanned aerial systems (UAS). TSA focuses on combatting growing UAS threats by investing in multiple test beds to assess technologies for counter-UAS (C-UAS). No marketplace systems have been tested comprehensively in a complex civilian, metropolitan airport environment. Many airport authorities are acquiring UAS detection, tracking, and identification systems independently because of recent negative impacts of UAS to commercial aviation and the lack of federal capabilities. The lack of centralized federal guidance, however, poses risks at airports and results in operational and procurement inefficiencies with the deployment of disparate systems.

Figure 7 shows the funding aligned to enhanced threat detection projects and programs from the FY 2022 Congressional Justification and TSA's FY 2022–FY 2026 FYHSP.

Figure 7: Threat Detection System-of-Systems FY 2022 –FY 2026

Threat Detection System-Of-Systems – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Accessible Property Screening	$110.28	$121.37	$127.24	$134.47	$137.51	$630.87
Alarm Resolution	$52.99	$61.09	$79.36	$85.49	$87.26	$366.19
On-Person Screening	$43.44	$46.01	$47.93	$49.94	$51.05	$238.37
Checked Baggage	$259.27	$282.62	$286.28	$295.99	$297.07	$1,421.23
Multimodal and Public Area Capabilities	$18.55	$18.55	$18.55	$18.55	$18.55	$92.75
Counter-Unmanned Aerial Systems	$10.67	$11.83	$11.95	$12.06	$12.18	$58.69
National Explosives Detection Canine Team Program	$170.19	$173.00	$175.74	$178.50	$186.52	$883.95
Subtotal O&S	**$665.39**	**$714.47**	**$747.05**	**$775.00**	**$790.14**	**$3,692.05**
Checkpoint Property Screening System PC&I	$104.49	$29.00	$29.00	$29.00	$29.00	$220.49
Advanced Technology PC&I	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Checked Baggage - Electronic Baggage Screening Program - Investment	$30.00	$0.00	$0.00	$0.00	$0.00	$30.00
Aviation Security Capital Fund - Electronic Baggage Screening Program - Investment	$250.00	$250.00	$250.00	$250.00	$250.00	$1,250.00
Mission Support Assets and Infrastructure End Items	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subtotal PC&I	**$384.49**	**$279.00**	**$279.00**	**$279.00**	**$279.00**	**$1,500.49**
Emerging Alarm Resolution Technologies	$3.00	$13.77	$4.85	$4.85	$4.85	$31.32
On-Person Detection/Next-Gen Advanced Imaging Technology	$5.00	$12.67	$9.82	$7.47	$7.47	$42.43
Subtotal R&D	**$8.00**	**$26.44**	**$14.67**	**$12.32**	**$12.32**	**$73.75**
Total Threat Detection System-Of-Systems	**$1,057.88**	**$1,019.91**	**$1,040.72**	**$1,066.32**	**$1,081.46**	**$5,266.29**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

TSA continues to protect the confidentiality, integrity, and availability of its systems, data, and information by staying ahead of cybersecurity threats, modernizing IT systems, and increasing connectivity between TSE. IT systems enhance existing and future procedures, operations, and technology, allowing TSA to ensure optimal security effectiveness and efficiency.

TSA's current system has limited capabilities for rapidly transferring and standardizing information in support of operational decision-making. Capital investment in the Information Technology Infrastructure Program (ITIP) will provide modern IT services to enhance TSA's ability to collect, process, and analyze data, and to transfer voice, video, or digital information. Additionally, the STIP will connect TSE to a single network and enable enhanced security effectiveness, information sharing, and data management and analyses.

To optimize operational efficiency, TSA seeks to invest in modernizing existing mission support functions. The COVID-19 pandemic rapidly changed operational and staffing needs in the field, accelerating the need to modernize IT support functions. Modernizing human capital and scheduling infrastructure like the Mission and Scheduling Notification System and the Staffing, Scheduling, Time, and Attendance system would allow TSA to adapt and respond better to major disruptions and automate critical day-to-day operations.

As TSA looks to the future, it will continue to focus on the transparent management of IT modernization, cloud computing, real-time data analytics, artificial intelligence, and cybersecurity.

Figure 8 shows the funding aligned to IT Systems Enhancement projects and programs from the FY 2022 Congressional Justification and TSA's FY 2022–FY 2026 FYHSP.

Figure 8: Enhanced and Secure IT Systems FY 2022–FY 2026

Enhanced and Secure IT Systems – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
IT Infrastructure Program	$389.17	$388.98	$394.78	$401.09	$407.49	$1,981.51
Field Information Systems	$31.59	$26.33	$31.02	$31.69	$32.95	$153.58
Enterprise Physical Access Control System	$14.45	$14.68	$14.89	$15.11	$15.31	$74.44
Human Capital IT Modernization Personnel Futures Program	$154.02	$146.37	$143.05	$149.08	$155.27	$747.79
Staffing, Scheduling, Time, and Attendance System	$11.95	$12.14	$12.33	$12.53	$12.73	$61.68
Air Cargo IT Systems	$13.11	$13.26	$13.26	$13.26	$13.26	$66.15
Total Enhanced and Secure IT Systems	**$614.29**	**$601.76**	**$609.33**	**$622.76**	**$637.01**	**$3,085.15**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

B. Identifying and Prioritizing Threats, Risks, and Capability Needs and Gaps

TSA first identifies and assesses threats, risks, and capability needs and gaps to determine the capital investments required to advance TSA's strategic priorities and to execute the mission. Using intelligence reporting and analysis, modeling, and simulation capabilities, TSA calculates, ranks, and compares risks to the transportation sector, and provides TSA leadership with a comprehensive understanding of the transportation sector's terrorism and other risk landscapes. TSA's ability to identify and prioritize risks and capability gaps are informed by the following:

Transportation Sector Security Risk Assessment (TSSRA): TSSRA is an enterprise-level, crossmodal assessment that evaluates high-level attack scenarios to produce a comprehensive comparative risk landscape across all TSA mission areas. For each scenario, TSSRA uses modeling and subject matter expert input to assess threat, vulnerability, and consequences, while considering adversary intent and capability, countermeasures and their effectiveness, and the potential human, economic, and mission impacts of successful attacks. TSSRA's scenarios and overarching risk landscape support TSA decision-makers across a variety of resourcing, security, and policy considerations, and contribute to the Transportation Security Capability Analysis Process (TSCAP) (described below), the PPBE-S process, congressional reports, and other uses.

Risk and Trade Space Portfolio Analysis (RTSPA): RTSPA provides TSA with a detailed assessment of TSA's main security systems in domestic passenger aviation, including vetting, checkpoint, and checked baggage security capabilities. RTSPA's detailed scenarios include specific intelligence-driven adversaries, threat materials, tactics, pathways, and concealments. It uses detailed laboratory and covert-testing results as inputs, and intelligence community elicitations on adversary characteristics and preferences. It identifies and prioritizes system vulnerabilities; informs strategic, data-driven decisions; and determines impacts of potential system enhancements against emerging threats. RTSPA is a key input for policy and procedural decisions, equipment characteristic and allocation decisions, the TSCAP, and the PPBE-S processes.

International Risk Framework (IRF): IRF evaluates the relative risk of a terrorist attack onboard an international flight in-bound to the United States from a last-point-of-departure (LPD) airport. IRF evaluates the risk components of threat, vulnerability, and consequence at each LPD, such as an LPD's U.S. inbound flight data, countermeasure effectiveness, implementation effectiveness, known or suspected terrorist traffic, and corruption and threat information. These assessments inform policy decisions and allocation of inspection and assistance resources.

TSCAP: TSCAP captures mission essential capability needs, evaluates current performance against those needs, prioritizes capability gaps, and analyzes potential courses of action for closing the gaps. TSCAP supports the DHS Joint Requirements Integration and Management System process for obtaining DHS validation of TSA's mission need, the associated capability gap, and the recommended course(s) of action. The DHS validation provides significant support to TSA in justifying investments. Thus, TSCAP's conducted analysis

rigor is critical in supporting TSA's decisions to pursue matériel or nonmatériel solutions, providing key inputs to TSA's PPBE-S process.

After threats, risks, and capability gaps and needs are identified and prioritized, TSA's CMs lead efforts to address needs, and direct the execution of capability analysis, requirements generation and management, and capability sustainment across TSA. CMs support the capabilities listed below, all of which align with the three priority capital investment areas:

- **Vetting and Biometrics**
  - *IDM and Vetting*: Ensuring the effective and efficient integration of identity-related activities and prioritization of resources including enrollment, validation, vetting, authentication, and verification processes throughout the enterprise
- **Threat Detection System-of-Systems**
  - *Accessible Property:* Enhancing the security effectiveness and operational efficiency of TSA's accessible property screening through automation, integration, and connection
  - *Alarm Resolution:* Advancing matériel and nonmatériel capabilities to identify, analyze, and resolve alarms accurately within the TSA security ecosystem
  - *On-Person Screening:* Improving TSA's on-person screening capabilities, including AIT, walk-through metal detectors, pat-down procedures, and other emerging capabilities
  - *Checked Baggage:* Advancing effective and efficient matériel and nonmatériel solutions in the checked baggage space
  - *Multimodal:* Providing security technology recommendations and solutions for air cargo, public transportation areas, and critical infrastructure (e.g., pipelines) by evaluating existing security technologies, by developing requirements for new technologies, and by stimulating the technology marketplace.
  - *C-UAS:* Coordinating with the DHS Science and Technology Directorate (S&T) and the Federal Aviation Administration in the execution of capability analysis, requirements generation and management, capability and technology assessments, and capability sustainment for UAS/C-UAS across TSA.
- **Enhanced and Secure IT Systems**
  - *Field Information Systems (FIS):* Collaborating with field security operations stakeholders to innovate and advance FISs that support security information gathering and information sharing among DHS, TSA, law enforcement, and intelligence community stakeholders.

TSA will continue to expand the support system of CMs and institutionalize capability management within TSA. This should ensure better coordination between CMs, TSA stakeholders, interagency partners, and industry vendors.

C. Defining a Future State

The transportation system will always be a target for adversaries and therefore require protection. TSA will continue to invest in solutions to deter or defeat attacks and adapt to disruptions in the transportation security ecosystem.

Along with policy, process, and partnership enhancements that optimize its capital investments, TSA will continue prioritizing emerging and interconnected technologies and developing solutions that seamlessly connect the cyber-physical space. TSA's technology enhancements will also be informed by COVID-19 impacts on transportations systems, particularly in accelerating the need for investments in contactless and remote screening capabilities.

Technologies enabling these capability improvements include biometrics, machine learning, cloud computing, and use of a variety of new sensors or improvements to existing systems. Investments in these areas and achieving economies of scale by connecting TSE to more efficient centralized security functions will allow for long-term improvements in TSA's overall performance.

Checkpoint Automation (CPAM) Initiative
The CPAM initiative seeks to define and develop an integrated countermeasures architecture and automated screening functions with modular systems. These systems will improve TSA's security effectiveness and efficiency, creating an ability to serve increased passenger flows while rapidly responding to emerging threats. The CPAM initiative will support common workstation development to standardize physical and graphical user interfaces across baggage scanners (legacy X-ray scanners and new CT scanners) and stream-of-commerce data collection that documents stream-of-commerce images and associated meta-data. Open architecture, detailed below, is also a critical aspect of the CPAM initiative.

Open Architecture
TSA's introduction of open system architecture elements into TSE through the CPAM initiative is a pivotal priority in advancing TSA toward the future state. Open architecture provides more pathways for new collaborators, enhances innovation through broadening the market of possible partnerships and allows for greater options to identify the best solutions to outmatch the constantly changing threat environment.

TSA defines "Open Data" and "Standardization" as the key pillars of the CPAM initiative to guide open architecture initiatives and to enable original equipment manufacturer and third-party implementation of best-of-breed solutions to address challenges rapidly. The CPAM initiative will lead the incremental implementation of open architecture solutions to: advance risk-based security objectives, enable modularity, increase efficiency and interoperability across TSE, reduce costs, enhance innovation through a diversified market, and expedite the delivery of capabilities domestically and internationally.

Acknowledging the benefits of open architecture, TSA, along with international partners, endorsed the *Open Architecture for Airport Security Systems*[5] document. This document details broad guidelines for how airport security systems can share data and how airports can work with partners to provide a path forward for new innovative software developers to help defeat threats.

[5] Open Architecture for Airport Security Systems <Open Architecture for Airport Security Systems (aci-europe.org)>

D. Research and Development

TSA depends on sustained and coordinated investment in research, development, testing, and evaluation to achieve its vision for the future state and respond to known or emerging threats with timely solutions.

TSA benefits from R&D work supported by DHS S&T, U.S. Department of Energy, U.S. Department of Defense, U.S. Department of Justice, and other federal departments and agencies. Alongside these partners, TSA coordinates relevant R&D activities across organizations to eliminate duplication and to maximize the adoption of applicable technologies. As an operational agency, TSA focuses its limited R&D funds on capability developments through enhancements across people, processes, and technology with the greatest mission impact.

TSA works with DHS S&T to shape capability development throughout the acquisition process by identifying capability gaps, defining requirements, and testing and evaluation as well as through systems engineering expertise and operational analysis. Collaboration with S&T encompasses R&D at many stages from basic research to technology development, scouting, and demonstration, and includes topics as varied as homemade explosive characterization to advanced detection algorithm development.

TSA facilitates R&D activities and infrastructure protection across the Nation's other transportation modes (mass transit and passenger rail, freight rail, pipeline, maritime terminals, transportation public areas) by evaluating and communicating a technology's effectiveness. This approach helps stimulate the marketplace, spark innovation, and streamline end-user access to advanced and proven capabilities.

TSA's R&D priorities for the next 5 years align to the following focus areas:

- Enhanced threat detection for aviation and multimodal screening systems: Investing in operationally feasible primary and secondary screening systems with higher levels of detection across a broader range of threat types
- Improved systems and processes for screening performance, passenger experience, and officer safety: Driving forward advances in emerging technologies and applying them to transportation security use cases to foster a safer, more seamless traveling experience; creating a more connected, interoperable systems architecture, and unlocking cost efficiencies and greater detection performance
- Expansion of R&D partnerships across the public and private sector: Fostering a broader network of close partners across the public and private sector who are committed to helping TSA advance domestic and global security standards

E. Partnering to Accelerate Action

TSA requires productive and diverse partnerships to achieve its mission and constantly seeks to collaborate more effectively with industry, government, and academic stakeholders. Examples of these initiatives are detailed below:

International Collaboration: TSA establishes international relationships to exchange information and to share lessons learned, both through international organizations such as the International Civil Aviation Organization, and through direct relationships with specific states or member groups. Open dialogue helps build and enforce joint standards, align R&D efforts, and test emerging capabilities to improve the global security landscape.

Expanding and Integrating Risk-Based Security: TSA's security measures begin with vetting travelers against government watchlists to ensure that passengers, accessible property, and checked baggage are screened at the appropriate level. Security measures can be more tailored to the specific individual with more information about the traveling public via expanded TSA PreCheck® enrollment.

Developing New and Improving Current Capabilities: TSA collaborates with academia, industry, interagency, and international partners to identify and integrate technology and to process advancements into existing security systems to enhance security effectiveness and improve operational efficiency. Working with vendors, airports, and airlines, TSA continues identifying emerging technologies that improve security, the passenger experience, and efficiency, and piloting them in live field environments.

Support Threat Signature Characterization: TSA partners with external stakeholders to develop reliable, cost-effective system components (both hardware and algorithms) that meet system goals. TSA continues working with vendors, academia, national laboratories, and interagency partners to develop advanced algorithms that enhance performance of TSEs. These new algorithms use machine-learning approaches to discriminate between threats and benign objects, making the screening process more effective and efficient.

Technology and Process Demonstrations: TSA's Innovation Task Force (ITF) is a collaboration among TSA, manufacturers, and airports to demonstrate emerging technological, automated, ergonomic, environmental, or aesthetic improvements for checkpoint and checked baggage areas. The ITF provides an avenue to work with industry to demonstrate flexible, mature, and standardized "curb-to-gate" security solutions and techniques for transportation infrastructure. After a successful validation through such projects, TSA will consider prototypes for potential transition to acquisition and deployment, qualification for regulated air cargo use, or introduction as products that users can procure through grants programs or purchase with confidence.

Multimodal Transportation Technology: In partnership with surface transportation and air cargo asset operators and industry manufacturers, the Multimodal and Public Areas Capability program evaluates advanced technologies and facilitates industry awareness to address identified surface transportation and air cargo security capability gaps. Through formal memoranda of agreement, multimodal partners with representative and higher threat transportation venues are invited to test and evaluate next generation and emerging technologies in operational transportation conditions and air cargo environments.

Surface Security Technology: This group serves as a forum for surface-based transportation operators and stakeholders to identify, discuss, and publish security capability gaps within the

surface transportation sector. In addition, the Surface Transportation Security Advisory Committee Risk Working Group, comprised of surface transportation industry representatives and other agencies, was formed to gather inputs and feedback from industry stakeholders nationwide, to respond to identified challenges, and to measure and reduce risk by publishing the Security Risk Methodology Catalog to support the purchase of effective security solutions that enhance risk management efforts.

Capability Acceptance Process (CAP): TSA formalized the CAP in 2019 to facilitate receiving capabilities such as TSE and other technologies from industry stakeholders and partners (i.e., federalized airports and air carriers). The formalized CAP provides an objective and repeatable process to evaluate, accept, and implement requests to offer capabilities. The requests outline the intent of stakeholders and partners to procure, and ultimately to transfer or convey, the capability or TSE to TSA. This process is an option for airport and stakeholders and air carriers who may benefit from accelerating procurement and deployment timelines, recapitalizing TSE, and/or enhancing security and the passenger experience.

Since FY 2019, TSA has accepted or bailed from airline and airport stakeholders more than 90 TSE and 3K Automated Screening Lanes (ASL) antimicrobial bins and has transitioned more than 60 urgent operational need ASLs for a total donation amount of more than $55 million through FY 2021. TSA currently is executing the CAP with seven donors and is anticipating two additional donation projects in FYs 2022-2023.[6]

Aviation Security Advisory Committee: The Aviation Security Advisory Committee provides advice to the TSA Administrator on aviation security matters, including the development, refinement, and implementation of policies, programs, rulemaking, and security directives pertaining to aviation security. The committee is composed of individual members representing private-sector organizations affected by aviation security requirements. It is focused on recommendations for improvements to aviation security within the four subcommittees of air cargo security, general aviation, perimeter and access control, and security technology.

[6] Current donors are George Bush Intercontinental Airport/United, Denver International Airport, Orlando International Airport/Greater Orlando Aviation Authority, LaGuardia Airport/Delta, Newark Liberty International Airport/Port Authority of New York and New Jersey, Los Angeles International Airport/Alaska, and Charlotte Douglas International Airport, with screening technologies that include AIT (14), ASL (16), and CPSS (34).

V. Conclusion

TSA has a clear vision for the future that it can achieve through investments, partnerships, innovation, and R&D. This future focuses on interconnected aviation security, continued investment in the workforce, improved passenger experience, and an elevated security baseline. The COVID-19 pandemic accelerated TSA's shift to contactless and remote screening while IT systems modernization will enable integration, automation, and operational efficiency, and a focus by international leadership on LPD airports and one-stop security pilots to facilitate international travel.

The investments identified in the CIP, along with policy, process, and partnership enhancements, are designed to position TSA to meet the challenges of an evolving threat and transportation landscape. The CIP provides a guide to TSA's investment approach that will advance strategic priorities while informing trade-offs between maintaining current operations and investing in acquiring and fielding new technologies. By considering the overall transportation environment, the current and future risks and threats that it faces, and opportunities for collaboration with industry, the CIP helps to ensure that TSA is equipped better to identify capital requirements necessary to address identified challenges and risks to transportation security.

Appendix

I. Capital Investment Programs

A. Vetting and Biometrics

I. Vetting

Vetting Capability Overview: At the Transportation Security Administration (TSA), vetting is the process of determining whether individuals seeking access to the transportation environment are potential threats by screening them according to their risk status. TSA vets passengers and credential holders (e.g., airport, airline, flight crew, air cargo, maritime, Transportation Worker Identification Credential (TWIC®), Hazardous Materials Endorsement (HME), and TSA PreCheck® populations) through a configuration of immigration, criminal history, and terrorism checks, depending on the level of access needed. TSA uses evidence-based decision making and intelligence-driven strategy to understand and address risks posed to the transportation system and to make comprehensive vetting determinations. This approach allows TSA to provide expedited screening for trusted travelers and to focus resources on high-risk and unknown passengers.

Vetting is a critical part of identity management (IDM) and works in tandem with identity proofing and identity verification to ensure that TSA only enables the right person to be granted the right access or a credential based on their biographic and biometric information. Partnerships, resources, and enhanced vetting operations give TSA the ability to ensure the safety and security of people and information in transportation spaces, even as the threat landscape evolves.

Figure A1: Vetting Capability Funding Profile

Vetting Capability - Fiscal Year (FY) 2022 President's Budget (PB)-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Vetting and Credentialing System (VCS)	$71.8	$72.9	$74.1	$75.3	$76.5	**$370.6**
Secure Flight	$125.0	$120.4	$123.0	$126.2	$128.7	**$623.3**
Total Vetting Capability	**$196.8**	**$193.3**	**$197.1**	**$201.5**	**$205.2**	**$993.9**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

i. Vetting and Credentialing System

Overview: VCS represents the target architecture that will consolidate TSA's vetting and credentialing systems to serve the mission and stakeholders better. VCS today consists of three Federal Information Security Management Act (FISMA) system boundaries, which include Technology Infrastructure Modernization (TIM), Transportation Vetting System (TVS), and Screening Gateway (SG). VCS will re-use existing services and capabilities from TVS, SG, and TIM while improving efficiencies and reducing lifecycle costs.

These three FISMA systems safeguard the Nation's critical modes of transportation and related infrastructure through advanced enrollment, vetting, and credentialing technology, while improving the transportation system user experience. The TIM system processes Security Threat Assessments in support of TWIC® and TSA PreCheck® programs, which are managed by the TSA Enrollment Services and Vetting Programs Office. They represent more than 70 percent of TSA's customer populations. The TVS improves our Nation's defense against terrorism by matching biographic data to terrorist-related information. The SG system processes individuals who enroll for a benefit of HME, Alien Flight Student Program, and Aviation populations.

Future State: In the future, VCS will integrate TIM, TVS, and SG into a single FISMA boundary by consolidating gateways, services, and other capabilities while implementing best practices. The consolidation of TIM, TVS, and SG to form VCS identifies the necessary steps for improving and simplifying lifecycle costs by leveraging previous investments, consolidation of contracts to support development and operations, implementation of agile best practices, and other proven solutions based on lessons learned. VCS operational efficiency and effectiveness also will improve through the maximized use of open-source technology, reduction of commercial off-the-shelf technology, and reuse of existing modernized infrastructure and capabilities.

Figure A2: VCS Funding Profile

Vetting and Credentialing System – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Technology Infrastructure Modernization	$71.79	$72.93	$74.10	$75.29	$76.49	$370.60
Consolidated SG Program Operations and Maintenance	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total VCS	**$71.79**	**$72.93**	**$74.10**	**$75.29**	**$76.49**	**$370.60**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. Secure Flight Program

Overview: Secure Flight identifies the appropriate level of physical screening for all passengers and minimizes misidentification of individuals. It operates a threat-based watch list and Trusted Traveler-matching capabilities to enhance the security of domestic and international commercial air travel into, out of, within, and overflying the United States, as well as for all U.S.-flagged carriers anywhere in the world. The system matching uses the Federal Bureau of Investigation's Terrorist Screening Database to identify known or suspected threats to aviation security. Secure Flight partners with the TSA PreCheck® team to identify program participants and with U.S. Customs and Border Protection (CBP) to identify other Trusted Travelers. It also partners with other TSA and Department of Homeland Security (DHS) entities to apply risk-based rules and to identify potential threats to aviation security that are not listed in the Terrorist Screening Database.

Secure Flight reduces the potential security vulnerability of known or suspected terrorists circumventing TSA's vetting processes, enhances vetting analytics and modeling, conducts flight-by-flight risk analysis to inform and drive field operations and planning, improves matching capabilities to address variations in passenger data compared to watch-list information, increases automation to identify potential higher risk passengers, and informs operations and resource planning.

Future State: In the future, Secure Flight will operate with credential authentication technology (CAT) to identify occurrences in which the name screened by Secure Flight does not match the boarding pass and/or passenger identity or travel document presented at checkpoints; and to verify a passenger's vetting status against the Secure Flight database in near real-time so that the passenger receives the appropriate screening based on TSA's assessed risk. Secure Flight also will be instrumental in dynamic screening concepts, by allowing for risk-based differentiation to be implemented within the security screening equipment. Further vetting and preflight risk analysis to drive risk differentiation and operational activities (including Federal Air Marshal information sharing) will increase screening effectiveness for higher risk passengers.

The program will continue to improve name-matching algorithms and vetting adjustments to incorporate additional risk factors beyond direct watch list and Trusted Traveler matching. These changes will result in a more automated engine that improves high-risk passenger rules and watch-list matches while significantly decreasing false positives and minimizing the risk for potential false negatives. This maturation of the system and operations will include built-in, real-time data analytics capability to drive operational planning and responses and to provide feedback to the intelligence community. It also would provide a platform for real-time reporting and metrics of passenger information across the aviation system.

Figure A3: Secure Flight Funding Profile

Secure Flight – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Secure Flight	$122.66	$118.01	$120.51	$123.63	$126.05	$610.86
Traveler Redress Inquiry Program	$2.38	$2.41	$2.49	$2.58	$2.64	$12.50
Total	**$125.04**	**$120.42**	**$123.00**	**$126.21**	**$128.69**	**$623.36**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the Vetting Capability: TSA is publishing a strategic IDM Roadmap that outlines goals and objectives for exploring additional research and development (R&D) activities to enhance standards and its risk management framework, to enable systems connectivity, to evaluate existing and available data sources, to improve system accessibility, and to expand collaboration efforts across the U.S. Government. TSA aims to make technological and functional process improvements to the speed and accuracy of vetting results and to understand and assess better the risks posed to the transportation system.

II. Identity Management

IDM Capability Overview: In April 2018, CBP and TSA signed the Joint TSA-CBP Policy on Use of Biometrics, committing to exploring the use of biometric facial recognition technology. In October 2018, TSA published its Biometrics Roadmap to outline four strategic goals that it will pursue to deploy biometric facial recognition technology in the field:

- Partner with CBP on the use of biometric identification technology for international travelers at TSA security screening checkpoints
- Operationalize biometrics for identity verification for TSA PreCheck® travelers
- Expand biometric identification technology to additional domestic travelers
- Develop supporting infrastructure for biometric solutions

Since publishing the Biometrics Roadmap, TSA continues evolving and building its perspective on IDM into a more formalized and integrated capability across the enterprise, with the addition of the Identify Management Roadmap. IDM at TSA is in the process of confirming a person's identity during enrollment or reservation and maintaining confidence in that identity throughout the evaluation (vetting) processes to ensure that the person does not pose any risk to transportation infrastructure, and in ongoing identity verification at access points.

Identity proofing and enrollment is the act of confirming that someone is who he or she claims to be per identity-assurance leading practices. As TSA continues to mature its approach to IDM, it evaluates and aligns its identity-proofing practices confirming a trusted identity. The advent of digital identities provides TSA with an opportunity to assess how technology can support TSA's identity-proofing and enrollment capabilities while informing its vetting and verification processes. Moreover, as TSA prepares to enforce REAL ID, it will need to examine

technology's potential to provide an alternate means of verifying a person's identity. As TSA implements new proofing solutions, it will need to invest in technologies and tools that support its efforts to perform identity proofing across various airport touchpoints and populations.

TSA's current capabilities to verify the identity and to obtain the risk level of travelers at the TSA checkpoint are limited. IDM will invest in the following opportunities to create the checkpoint of the future:

- Biometrics technology through enhancements to CAT and other systems and collection of biometrics to verify identity at the checkpoint
- R&D to develop back-end architecture to enable biometric data
- Remote, self-enrolled digital identity standards and solutions to enable touchless identity enrollment and proofing that can be trusted for transportation security purposes, and
- Digital identity solutions that allow digital identities and mobile driver's licenses (mDL) to be accepted at the checkpoint

Figure A4: IDM Funding Profile

Identity Management – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Credential Authentication Technology	$23.24	$21.24	$21.40	$21.92	$22.22	$110.02
Identity Investment	$2.00	$5.00	$5.00	$5.00	$5.00	$22.00
Boarding Pass Scanner (BPS)	$0.49	$0.51	$0.34	$0.36	$0.36	$2.06
Subtotal Operations and Sustainment (O&S)	**$25.73**	**$26.75**	**$26.74**	**$27.28**	**$27.58**	**$134.08**
Credential Authentication Technology	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subtotal Procurement, Construction, and Improvements (PC&I)	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Mobile Driver's License	$4.25	$0.00	$0.00	$0.00	$0.00	$4.25
Subtotal R&D	**$4.25**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$4.25**
Total	**$29.98**	**$26.75**	**$26.74**	**$27.28**	**$27.58**	**$138.33**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

The following transportation security equipment (TSE) solutions are funded for TSA's IDM capabilities. TSA also is investing in additional capabilities to advance the use of IDM in the future.

i. Credential Authentication Technology

Figure A5: CAT

Overview: CAT provides a primary means for authenticating identification document (ID) security features that passengers present to transportation security officers (TSO) before they enter the passenger screening checkpoint, and for determining their Secure Flight vetting status.

CAT closes current security gaps and enhances the passenger screening process at the checkpoint by improving the inspection of IDs and confirming passengers' vetting status. The CAT program enhances TSA's ability to verify the accuracy of a passenger's ID, flight reservation status, and Secure Flight screening status. The fleet consists of approximately 927 CAT systems (as of December 2020) operating across 119 facilities (airports/training and testing centers). The CAT program is working to reach full operational capability (FOC) of 1,520 units deployed.

Future State: The future of CAT includes upgrading the system to verify a driver's license as REAL ID-compliant to support full enforcement of the REAL ID Act and regulations, which take effect on May 3, 2023, and new configurations allowing for reduced passenger contact because of Coronavirus Disease 2019 (COVID-19). CAT also is receiving an enhancement called 2-Way Communications. This feedback mechanism allows CAT to return transactional data to Secure Flight for analytical purposes to help improve data processes and to ensure matching information. Lastly, CAT is in Phase I of a successful pilot demonstrating a wireless connection in a test environment, and TSA is working to develop a permanent solution.

Figure A6: CAT Funding Profile

CAT – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Credential Authentication Technology	$23.24	$21.24	$21.40	$21.92	$22.22	$110.02
Total CAT	**$23.24**	**$21.24**	**$21.40**	**$21.92**	**$22.22**	**$110.02**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. Boarding Pass Scanner

Overview: A BPS reads a passenger's boarding pass and displays the passenger's name, flight information, and risk status to the Travel Document Checker (TDC). The TDC uses this information to ensure that passengers are routed appropriately in the security screening checkpoint. BPS units are part of the Passenger Screening Program (PSP) Legacy Program.

BPSs will continue to be the primary screening system for passengers without identification as IDM develops a strategy for proofing/enrollment, vetting, and identity verification. The BPS also will be the primary screening system when CAT is unavailable for use. Approximately 2,913 BPSs are available for use (as of December 2020).

Figure A7: BPS

Future State: The future of BPS includes procuring new units to support airport expansion, and the transition and integration of BPS with CAT.

Figure A8: BPS Funding Profile

BPS Funding Profile – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Boarding Pass Scanner	$0.49	$0.51	$0.34	$0.36	$0.36	$2.06
Total	**$0.49**	**$0.51**	**$0.34**	**$0.36**	**$0.36**	**$2.06**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the IDM Capability: To continue to advance the IDM capability, TSA is prioritizing investments for Second Generation CAT (CAT-2), digital identities technology, identity proofing and enrollment, and facial recognition technology. The implementation of identity management capabilities will require R&D for systems integration, biometric system improvements, data analytics and algorithm development, cybersecurity, and standardization and requirements. These investments in IDM capabilities are detailed below:

CAT-2: To achieve the goals laid out in the Biometrics Roadmap, TSA is developing the self-service version of CAT with camera, CAT-2, solution which builds on the existing CAT infrastructure, leverages the biometrically enabled CAT-C prototype, and includes a self-service passenger-facing user interface. The camera functionality increases security effectiveness by automating the comparison between the live passengers and the photos on their physical IDs. This automation eliminates vulnerabilities associated with social engineering and cognitive fatigue, allowing the officers to focus their training and contextual judgment to anomalies rather than to visual facial comparisons. In line with the increased need to shift to more contactless and automated screening because of COVID-19, CAT-2 automates existing high-touch actions at the TDC. In 2020, TSA began piloting the new self-service technology. The pilot evaluated how CAT-2 performs in an operational environment to refine necessary modifications before solution deployment to the field. As part of the CAT-2 solution, TSA also is examining the applicability of digital identity and digital credentials to its operations due to advances in the identity marketplace and demand signals from industry partners. TSA is developing a hardware addition to the CAT-2 unit that will enable the acceptance of digital identities and mDLs at the checkpoint.

Facial Identification Solution: The Joint TSA/CBP Policy on the Use of Biometric Technology enabled the execution of a series of biometric technology pilots to automate identity verification at the TSA checkpoint through the integration of TSA and CBP's infrastructure. These pilots focus on testing a facial identification solution that utilizes a back-end repository to compare a live-image capture of consenting eligible travelers to a gallery of enrolled facial reference images at the TDC. To continue this development effort, TSA has begun a pilot to test the use of CBP's Traveler Verification Service at TSA checkpoints with the trusted traveler population (TSA PreCheck ®or Global Entry) departing on domestic flights. The pilot leverages the TSA PreCheck® Innovation and Piloting Environment on the Security Threat Assessment Mission Platform General Support System to retrieve the traveler's vetting status from Secure Flight and process match requests and results to and from the Traveler Verification Service. Other pilot programs will help TSA to develop processes to test requirements for noncheckpoint biometric capabilities owned by third parties.

Digital Identity: States, Departments of Motor Vehicles, federal agencies, foreign governments, and even private-sector entities (such as banks, airlines, airports, etc.) are developing a wide and growing variety of mobile digital identity credentials for their citizen or customer use cases. TSA stands to benefit from the transition from paper or plastic credentials to digital credentials that will result in enhanced security effectiveness, potential operational efficiencies, and improved user experience. TSA's ability to "trust but verify" digital identities must mature to keep pace with industry and interagency developments. In the future, TSA will help to shape the digital identity market to ensure that aviation security needs are prioritized and met. Through a repeatable, standards-based methodology, TSA will be able to achieve high identity assurance and interoperability with the CAT-2 fleet and future enrollment platforms.

Figure A9: mDL Funding Profile

Mobile Driver's License – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Mobile Driver's License	$4.25	$0	0	0	0	$4.25
Subtotal R&D	**$4.25**	**$0**	**$0**	**$0**	**$0**	**$4.25**
Total	**$4.25**	**$0**	**$0**	**$0**	**$0**	**$4.25**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

B. Threat Detection System-Of-Systems

I. Accessible Property Screening (APS)

APS Capability Overview: The APS capability enhances the security effectiveness and operational efficiency of TSA's APS functions through automation, integration, and connection.

APS highlights several functional areas that allow TSA to mature the capability and to meet developmental objectives at security checkpoints nationwide. The APS Capability Maturation Roadmap guides the maturation of these functional areas depicting current and future efforts required to strengthen carry-on screening detection capabilities. Through the implementation of the Checkpoint Property Screening System (CPSS) program, TSA seeks to develop, acquire, and implement dynamic matériel and nonmatériel-based solutions to enhance further checkpoint and aviation security.

APS functional areas include:

- **Move:** Improving divestiture experience for passengers and reducing physical burden for TSOs transporting bins.
- **Detect:** Enhancing detection capabilities with the introduction of prohibited items algorithms and advanced explosives algorithms, allowing additional items (such as water bottles) through the checkpoint.
- **Display:** Streamlining system usability with the use of standardized scanner displays and optimizing operational efficiency with a planned 'Image on Alarm Only' concept of operations.
- **Connect:** Empowering risk-based screening through connecting passenger data with accessible property screening.

Figure A10: APS Capability Funding Profile

Accessible Property Screening – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Checkpoint Property Screening System O&S	$41.00	$62.61	$71.74	$74.00	$76.84	$326.19
Advanced Technology (AT)/Computed Tomography (CT)	$69.28	$58.75	$55.50	$60.46	$60.68	$304.67
Subtotal O&S	**$110.28**	**$121.36**	**$127.24**	**$134.46**	**$137.52**	**$630.86**
Checkpoint Property Screening System PC&I	$104.49	$29.00	$29.00	$29.00	$29.00	$220.49
Advanced Technology PC&I	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Subtotal PC&I	**$104.49**	**$29.00**	**$29.00**	**$29.00**	**$29.00**	**$220.49**
Total APS	**$214.77**	**$150.36**	**$156.24**	**$163.46**	**$166.52**	**$851.35**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

TSA is developing the following TSE solutions to evolve APS capabilities and to create the checkpoint of the future:

i. Computed Tomography

Overview: To address TSA's current presented challenges and evolving threats, previous DHS R&D efforts, and 22 years of using CT technology to screen checked baggage effectively and efficiently have suggested that the most impactful technology available today is the CT systems at airport checkpoints. CT technology automates explosive items detection by eliminating the variability introduced by human screeners and enables stronger threat detection by providing three-dimensional (3D), high-resolution, X-ray images for automated threat recognition algorithms. The deployment of CT systems provides an enhanced imaging platform for screening carry-on bags and other accessible property at security checkpoints and enables the detection of a broader range of threats.

TSA procured 300 AT/CT units as a project under the AT Program. As of December 11, 2020, TSA completed 272 CT installations at airports across the United States for explosives detection, and certified and assessed enhanced threat detection capabilities offered by Level 0 algorithms under the Accessible Property Screening System v6.2 Detection Standard across five CT original equipment manufacturers (Analogic, IDSS, Leidos, Smiths Detection, and Rapiscan), as well as the Level 1 algorithm with IDSS.

Figure A11: CT

Future State: Looking forward, TSA seeks to develop smaller checkpoint CTs to increase deployment flexibility for future acquisitions. TSA expects to develop, release, and award a small CT contract for use in checkpoint screening lanes that are unable to accommodate the current dimensions of a standard CT scanner. As of September 30, 2021, two of the four equipment vendors had completed certification under Accessible Property Screening System v6.2 Level 1. We expect the remaining two vendors to achieve this certification as well by the second quarter of FY 2022.

Figure A12: AT/CT Funding Profile

AT/CT – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Advanced Technology/ Computed Tomography	$69.28	$58.76	$55.50	$60.46	$60.68	$304.68
Total APS	**$69.28**	**$58.76**	**$55.50**	**$60.46**	**$60.68**	**$304.68**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. Checkpoint Property Screening System

Overview: TSA stood up the CPSS Acquisition Program in 2019 to deploy incrementally a long-term CT solution with enhanced threat detection algorithms, ingress/egress, and networking capabilities. This approach allows TSA to deploy an initial capability and to expand functionality progressively until FOC is realized. The primary objective of CPSS is to deploy and integrate successful screening solutions for accessible property with existing security screening processes and technologies to outpace emerging threats, to enhance security efficiency, and to improve the passenger experience.

The FOC quantity for CPSS technologies is 2,263 systems, which assumes a one-for-one replacement of existing AT systems. The fleet consists of approximately 272 AT/CT systems (as of December 2020).

Future State: TSA plans on purchasing and sustaining four CPSS configurations: AT/CT, CPSS base, CPSS mid-size, and CPSS full-size. TSA's long-term goal is to use these technologies with "auto-detect" capability for explosive threats and non-explosives prohibited items (PI), such as firearms, firearm components, and knives. TSA already has completed the first incremental milestone of enabling PI detection of sharp and blunt objects. For future PI efforts, TSA intends to complete TSA Systems Integration Facility evaluation and operational testing of firearms and grenades, to integrate prohibited items detection (3D-printed firearms, blunts, and sharps) through data fusion, and to introduce an 'Image on Alarm Only' concept of operations that ultimately will improve operational efficiency. Furthermore, 'Image on Alarm Only' capabilities will help to reduce the number of bags that require review/secondary screening and to limit the touch rate between TSOs and travelers' property. TSA demonstrated these PI detection capabilities at select field sites at the end of FY 2021.

TSA will use an incremental acquisition strategy to deploy capability enhancements in block upgrades that support rapid acquisitions and increase operational efficiency. CPSS has three major milestones to be executed between FY 2020 and FY 2025, the first of which TSA largely has completed already:

1) **Deploy AT/CT systems:** Deploy the AT/CT systems to high-risk airports in FY 2020, and upgrade the system algorithm to an advanced threat detection standard.
2) **CPSS Increment 1 (FY 2020-FY 2022):** Procure and deploy CPSS configurations (base, mid- and full-size) with an advanced threat detection standard, and Security Technology Integrated Program (STIP) compatibility. CPSS base systems are CT scanner-equipped with gravity rollers, ingress/egress conveyors, Primary Viewing Station (PVS), Auxiliary Viewing Station (AVS), a threat detection algorithm, and STIP Client Compatibility. Mid-size configurations will have ingress/egress with an automated diverter. CPSS full-size systems are CT scanners equipped with operator-initiated auto-divert capabilities, automated bin conveyance system with parallel divestiture and recomposure, automated bin return, high-threat containment box, PVS, AVS, a threat detection algorithm, and STIP compatibility.

3) **CPSS Increment 2 (FY 2023-FY 2025):** Procure and deploy CPSS configurations with an advanced threat detection standard and STIP connection (networked).

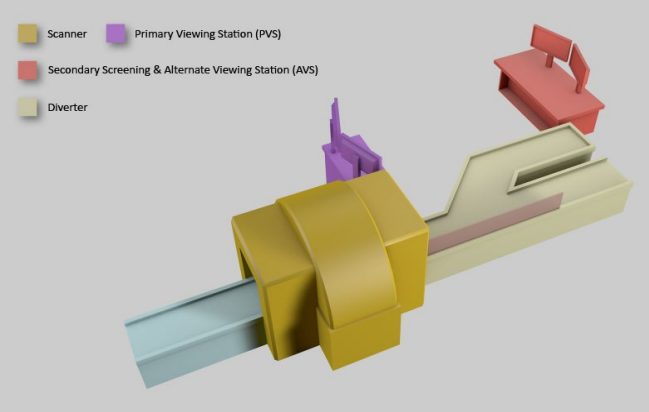


Figure A13: CPSS Mid-Size

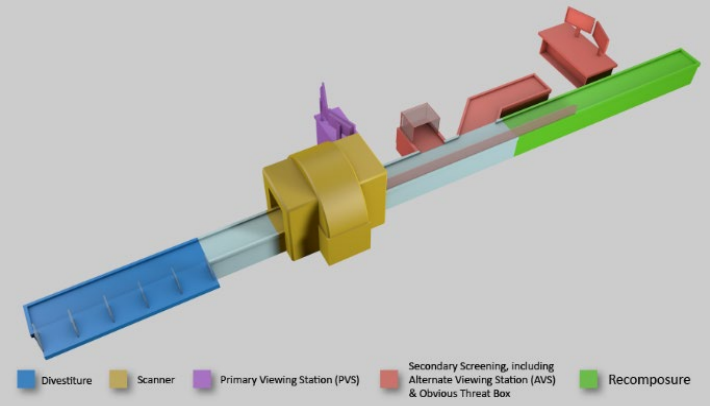


Figure A14: CPSS Full-Size

Figure A15: CPSS Funding Profile

CPSS – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Checkpoint Property Screening System O&S	$41.00	$62.61	$71.75	$74.01	$76.84	$326.21
Checkpoint Property Screening System PC&I	$104.49	$29.00	$29.00	$29.00	$29.00	$220.49
Total CPSS	**$145.49**	**$91.61**	**$100.75**	**$103.01**	**$105.84**	**$546.70**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

iii. Advanced Technology X-rays

Overview: AT systems identify and detect threats concealed in passengers' accessible property upon entrance to the screening checkpoint. Automated Screening Lanes (ASL) are a property-handling system integrated into an existing AT to mitigate checkpoint security vulnerabilities, to improve checkpoint efficiency and throughput, and to reduce the number of misdirected bags identified for additional screening. TSA partners with airlines and airports to install ASL units at high-traffic security screening checkpoints and to connect them to existing AT systems. The fleet consists of 1,743 standalone systems and 222 AT systems integrated with ASLs (as of 12/7/2020). The program has reached FOC.

Future State: Over the coming fiscal years, TSA will replace most of these AT units on a one-for-one basis with newly procured CT units. TSA will continue to deploy enhanced algorithm capabilities for the remaining AT units as well.

Figure A16: AT

Figure A17: AT/CT Funding Profile

AT/CT – FY 2022 PB - FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Advanced Technology/Computed Tomography	$69.28	$58.76	$55.50	$60.46	$60.68	$304.68
Total APS	**$69.28**	**$58.76**	**$55.50**	**$60.46**	**$60.68**	**$304.68**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the APS Capability (APS 2.0): TSA seeks to expedite the development and implementation of enhanced screening detection algorithms for explosives and non-explosive PI for both AT and CT systems. TSA also seeks to employ X-ray diffraction, which has the potential to increase the performance standard greatly for detecting challenging homemade explosives for CT systems. Moreover, TSA is supporting R&D efforts to enable the development of CT systems with the same detection capability at a reduced footprint and weight distribution to ease installation into airport checkpoints with space constraints.

As a result of the COVID-19 pandemic, TSA seeks to integrate ultraviolet light solutions that reduce the transmission of pathogens presented with checkpoint property screening and antimicrobial bins to prevent microbial growth on bins. Further, the planned migration to 'Image on Alarm Only' operations within the CPSS program will help to reduce the number of bags that require secondary screening, limiting the touch rate between TSOs and travelers' property.

II. Alarm Resolution (AR)

AR Capability Overview: TSA uses primary and secondary screening countermeasures at airport checkpoints and for checked baggage. When primary screening devices detect a potential threat, an alarm is generated. In secondary screening, checkpoint and checked baggage include AR and Advanced Alarm Resolution (AAR) operations to determine whether the person or property can be allowed into the secure area of the airport. The current focus of AR is to advance AR capabilities for checkpoint APS, and where possible, use AR countermeasures to detect the alarmed material without requiring further AAR procedures or devices to resolve the alarm fully.

Figure A18: AR Capability Funding Profile

Alarm Resolution – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Explosives Trace Detection (ETD)	$44.64	$45.43	$45.76	$45.91	$46.55	$228.29
Bottled Liquid Scanner (BLS)	$8.35	$8.72	$8.43	$8.75	$8.90	$43.15
Alarm Resolution (O&S, Screening Technology Maintenance)	$0.00	$6.93	$25.17	$30.83	$31.80	$94.73
Subtotal O&S	**$52.99**	**$61.08**	**$79.36**	**$85.49**	**$87.25**	**$366.17**
Emerging Alarm Resolution Technologies	$3.00	$13.77	$4.85	$4.85	$4.85	$31.32
Subtotal R&D	**$3.00**	**$13.77**	**$4.85**	**$4.85**	**$4.85**	**$31.32**
Total Alarm Resolution	**$55.99**	**$74.85**	**$84.21**	**$90.34**	**$92.10**	**$397.49**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

TSA is developing the following TSE solutions to evolve AR capabilities and to create the checkpoint of the future:

i. Explosives Trace Detection

Overview: ETD is TSA's most used AR capability. The high sensitivity of ETD systems enables TSOs to perform fast and accurate screening of trace explosive quantities from a wide range of explosive threats on a variety of surfaces. ETD units screen for these quantities on passengers, their accessible property, and checked baggage.

Figure A19: ETD

The ETD fleet consists of 5,721 units (as of December 2020) and has reached FOC. Software and hardware component upgrades to address evolving threats are being executed for fielded ETD systems. These enhancements will continue as new AR technologies are developed to replace the ETD fleet, including the 6.3 detection standard upgrade. Purchases of current ETD system models are focused on airport growth, expansion, and maintaining safety stock levels.

Future State: The current ETD fleet technology is based on ion mobility spectrometry. Potential examples of future ETD technologies include mass spectrometry, standoff backscattered infrared, and capillary zone electrophoresis.

Figure A20: ETD Funding Profile

ETD – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Explosives Trace Detection	$44.64	$45.43	$45.76	$45.91	$46.55	$228.29
Total ETD	**$44.64**	**$45.43**	**$45.76**	**$45.91**	**$46.55**	**$228.29**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. Bottled Liquid Scanner

Overview: A BLS differentiates dangerous liquids and compounds from common, benign substances carried in clear bottles by passengers during the checkpoint screening process. Approximately 1,621 BLSs (as of December 2020) are deployed to the field. BLSs are part of the PSP Legacy.

Figure A21: BLS

Future State: BLSs are being procured to meet airport expansion needs. In support of the AR Program, future BLS systems will be required to meet Detection Standard 3.0 and other possible detection standards and bottle types.

Figure A22: BLS Funding Profile

BLS – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Bottled Liquid Scanner	$8.35	$8.72	$8.43	$8.75	$8.90	$43.15
Total Alarm Resolution	**$8.35**	**$8.72**	**$8.43**	**$8.75**	**$8.90**	**$43.15**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the AR Capability: The future of AR is outlined by the AR Roadmap highlighting the technologies, process, and capabilities required to take AR from the current state to the next-generation capability. AR will look to advance screening methods to identify and discriminate alarmed items in containers or concealments that do not allow access for sampling. Contactless AR is a desired capability in which TSE identifies and analyzes alarmed material with no additional procedures or TSE needed to clear the alarm. To increase efficiencies, AR will seek to implement automation, to reduce labor-intensive processes, and to simplify operations. AR also will look to demonstrate networking capabilities, using open architecture where possible, to facilitate real-time detection algorithm switching, software updates, and the timely sharing of AR data through STIP to provide TSA Headquarters timely insight on primary screening false alarm rates, to improve screening effectiveness, and to lower the false-alarm rate via machine learning and artificial intelligence. AR initially will demonstrate the capability to share resolution data

directly with technologies that are part of the CPSS program to inform improvements in primary screen false alarm rates and will support adding AR TSE to the Digital Imaging and Communications in Security v3.0 standard.

III. On-Person Screening (OPS)

OPS Capability Overview: TSA's OPS capability ensures the safety of commercial aviation by screening airline passengers and aviation workers. OPS focuses on improving AIT systems, walk-through metal detectors, pat-down procedures, and other emerging OPS capabilities. AIT systems are TSA's best OPS detection technology; however, many have been deployed for almost a decade and take up significant space in the checkpoint. The AIT program aims to achieve increased throughput and enhanced detection standards to eliminate most checkpoint bottlenecks associated with passenger screening. To enable AIT screening of a larger share of passengers, TSA will conduct R&D and will work with vendors to develop and acquire faster and smaller next-generation AITs. In the meantime, opportunities to improve security effectiveness through enhanced capability include retrofitting AIT units to enhance detection performance, to reduce false alarms, to extend useful life, and to conduct R&D activities for potential next-generation AIT alternatives.

TSA will invest in new technology that can increase passenger throughput, can enhance detection standards, and can connect to a secure network. TSA also will invest in R&D for next-generation OPS technologies that can screen passengers automatically at speed, can detect reduced threat masses, can discriminate between different materials, and can promote a more socially distanced checkpoint.

Figure A23: OPS Capability Funding Profile

On-Person Screening – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Advanced Imaging Technology (AIT)	$37.22	$39.17	$40.54	$42.26	$43.24	$202.43
PSP Legacy Enhanced Metal Detector (EMD)	$6.22	$6.84	$7.39	$7.68	$7.81	$35.94
On-Person Detection/Next-Gen AIT (O&S, Screening Technology Maintenance)	$0.00	$25.03	$55.88	$60.02	$61.92	$202.85
Subtotal O&S	**$43.44**	**$71.04**	**$103.81**	**$109.96**	**$112.97**	**$441.22**
On-Person Detection/Next-Gen AIT	$5.00	$12.67	$9.82	$7.47	$7.47	$42.43
Subtotal R&D	**$5.00**	**$12.67**	**$9.82**	**$7.47**	**$7.47**	**$42.43**
Total OPS	**$48.44**	**$83.71**	**$113.63**	**$117.33**	**$120.44**	**$483.65**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

TSA is developing the following TSE solutions to evolve OPS capabilities and to create the checkpoint of the future:

i. Advanced Imaging Technology

Overview: AIT systems use millimeter wave technology to detect undivested items on travelers. This OPS technology increases detection capability of metallic and nonmetallic threats and reduces physical pat-downs at security checkpoints.

Figure A24: AIT

The goal of the AIT program is to enhance the travelers' experience while improving security by achieving a higher detection and lower false-alarm system with a gender-neutral algorithm. AIT has four primary planned milestones between FY 2022 and FY 2026, dependent on availability of funds:

- AIT-1 & AIT-2 Enhancement Package deployment (FY 2021)
- Enhanced algorithm and wideband retrofit of current fleet (FY 2021 - FY 2023)
- Next-generation OPS technology development (FY 2021 - FY 2024)
- Next-generation OPS technology testing (FY 2024 - FY 2026)

Currently, the AIT fleet includes ProVision Automatic Target Detection (AIT-1) units and ProVision 2 (AIT-2) units. Although new requirements are pushing AIT to the end of its technical limitations and the program ends in FY 2023, it will continue to be a key component of passenger screening and is undergoing development efforts. In late FY 2019, TSA procured 100 AIT units and as of December 11, 2020, 78 of the 100 units have been installed.

Future State: TSA continues exploring the ability to conduct risk-based security by immediately changing detection algorithms and by using wideband algorithm integration to improve image processing and to address a variety of threats. For example, TSA is in the testing and deployment stage for Enhancement Packages for AIT-1 and AIT-2. The capabilities in these packages include sensitive area box, targeted threat algorithm, clear queuing, and dynamic switching. They provide a more focused threat detection capability while providing the operator with tools to maintain throughput. Phase 1 of the AIT-1 enhancement package has been deployed, and deployment for the AIT-2 enhancement package is undergoing operational testing. Deployment depends on funding.

TSA is conducting formal testing to connect these units to a secure network. Connectivity will provide a vehicle for obtaining metrics from the AIT and eventually will allow centrally controlled configuration. This configuration will provide increased data accuracy and availability, reduced manual effort, and faster and less costly deployment of software configuration changes.

TSA and the DHS Science and Technology Directorate (S&T) are exploring algorithm integration and wideband development to advance the detection capabilities of current and future AIT systems. The next generation of passenger screening technology will offer enhanced image

resolution by using a wider frequency bandwidth that supports more advanced algorithms for automated threat recognition detection. Other R&D initiatives include:

- Retrofit AIT units to enhance detection performance: After completing the testing phase, TSA has received delegation of authority to retrofit the existing AIT fleet with government-owned enhanced algorithms that increase detection capability, lower false alarm rates, reduce the need for pat-downs, and enable gender-neutral screening. TSA also is exploring high-definition (HD)AIT, an ongoing S&T National Labs project to realize next-generation AIT capabilities and to improve millimeter technology.
- Explore next-generation alternatives: Detection-at-range capabilities have the potential use for primary screening, secondary screening, and insider threat detection. These capabilities will increase throughput and detection, will reduce false alarms and the contact rate between TSOs and passengers, and will improve the overall passenger experience.

Figure A25: AIT Funding Profile

AIT – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Advanced Imaging Technology (O&S)	$37.22	$39.17	$40.54	$42.26	$43.24	$202.43
On-Person Detection/Next-Gen AIT (R&D)	$5.00	$12.67	$9.82	$7.47	$7.47	$42.43
Total AIT	**$42.22**	**$51.84**	**$50.36**	**$49.73**	**50.71**	**$244.86**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. PSP Legacy Enhanced Metal Detector

Overview: EMDs detect potentially dangerous metallic threats to aviation security and promote high passenger throughput capabilities, allowing for rapid inspection of passengers in transit while maintaining compliance with strict standard requirements.

Figure A26: EMD

EMDs provide a screening method for travelers enrolled in one of the DHS Trusted Traveler Programs or for those persons unable to complete AIT screening. The EMD is used at airports where a checkpoint lane does not yet have an AIT and when there is a need to manage AIT lane over-utilization where the EMD is co-located. Approximately 1,383 EMDs are in use (as of December 2020).

Future State: The systems within the legacy program will continue to provide primary and secondary screening capabilities for the checkpoint while new technologies are being developed to detect ever-evolving threats better. The key milestone planned for EMD is to procure new units in support of airport expansion.

Figure A27: PSP Legacy EMD Funding Profile

EMD – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
PSP Legacy Enhanced Metal Detector	$6.22	$6.84	$7.39	$7.68	$7.81	$35.94
Total EMD	**$6.22**	**$6.84**	**$7.39**	**$7.68**	**$7.81**	**$35.94**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the OPS Capability: The future state of the OPS capability focuses on detecting more threats with fewer false alarms, moving people through the checkpoint seamlessly, displaying information consistently across checkpoint technologies, and increasing secure network connectivity. TSA prioritizes investments in the following OPS R&D efforts:

- Complete deployment of enhancement packages for AIT-1 and AIT-2
- Complete HD-AIT Phase 1, a retrofit of the current AIT fleet with enhanced algorithms
- Complete HD-AIT Phase 2, a retrofit of the current AIT fleet with wideband technology
- Conduct R&D for detection-at-range capabilities
- Conduct R&D for next-generation OPS solutions

TSA envisions people advancing through the checkpoint seamlessly while achieving unparalleled security effectiveness using next-generation screening solutions.

IV. Checked Baggage

Checked Baggage Capability Overview: TSA is congressionally mandated and responsible for the security screening of 100 percent of checked baggage. Checked baggage includes property tendered by or on behalf of a passenger and accepted by an aircraft operator for transport, which is inaccessible to passengers during the flight.

To improve the performance and capability of its checked baggage screening systems, TSA will continue to seek enhancements to its Explosive Detection Systems (EDS) capabilities to guide the maturation of the Checked Baggage Capability across the agency. Ultimately, the end-state is characterized by an increased ability to detect an expanded set of threat materials at higher detection rates, lower false-alarm rates, and lower lifecycle costs.

Figure A28: Checked Baggage Capability Funding Profile

Checked Baggage – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Screening Technology Maintenance - Electronic Baggage Screening Program (EBSP) - Investment	$259.27	$282.62	$286.28	$295.99	$297.07	$1,421.23
Subtotal O&S	**$259.27**	**$282.62**	**$286.28**	**$295.99**	**$297.07**	**$1,421.23**
Checked Baggage - EBSP - Investment	$30.00	$0.00	$0.00	$0.00	$0.00	$30.00
Aviation Security Capital Fund (ASCF) - EBSP - Investment (Mandatory)	$250.00	$250.00	$250.00	$250.00	$250.00	$1,250.00
Subtotal PC&I	**$280.00**	**$250.00**	**$250.00**	**$250.00**	**$250.00**	**$1,280.00**
Total Checked Baggage	**$539.27**	**$532.62**	**$536.28**	**$545.99**	**$547.07**	**$2,701.23**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

TSA is developing the following TSE solutions to evolve the Checked Baggage capability:

i. Electronic Baggage Screening Program

Overview: The Aviation and Transportation Security Act of 2001 mandates that 100 percent of aviation checked baggage be screened by electronic or other approved means. To meet the mandate continually that the EBSP conducts activities to test, procure, deploy, integrate, upgrade, and maintain technology to screen checked baggage for concealed explosives, TSA is focusing on developing and deploying enhanced detection capabilities to improve security effectiveness and to support operational need.

Figure A29: EDS

The Checked Baggage fleet consists of approximately 1,689 EDS. These systems are used as a primary screening device and consist of both Type 1 (inline) and Type 2 (standalone) systems, which are deployed based on baggage volume. The fleet also has approximately 2,638 ETD devices used predominately as an alarm resolution tool. However, they also are used for primary screening where baggage volume or infrastructure limitations do not support EDS operations.

Future State: EDSs are a robust and mature technology with a long useful life and the potential for capability expansion. EBSP is a mixed lifecycle program that manages the useful life and technical obsolescence of the EDS closely with an emphasis on improving the fleet's performance through capability enhancements of legacy systems versus full-scale system replacement. TSA continues to develop the necessary technical advances under EBSP to address threat vulnerabilities across hundreds of federalized airports. Planned technology enhancements include the following:

- Developing and deploying EDS algorithms to advance detection capabilities by the expanding the systems' threat detection library
- Reducing the amount of detectable threat mass and the false-alarm rate
- Focusing detection on adversarial threat preference
- Implementing X-ray diffraction and differential phase contrast technologies to improve material recognition and threat identification
- Defining and managing cybersecurity compliance
- Improving network monitoring and reliability and on-screen alarm resolution in the checked-baggage resolution area
- Standardizing image format data mining, and common graphical user interface on EDS
- Recapitalizing technically obsolete EDS machines

Figure A30: EBSP Funding Profile

Electronic Baggage Screening Program – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Screening Technology Maintenance - EBSP - Investment	$259.27	$282.62	$286.28	$295.99	$297.07	$1,421.23
Subtotal O&S	**$259.27**	**$282.62**	**$286.28**	**$295.99**	**$297.07**	**$1,421.23**
Checked Baggage - EBSP - Investment	$30.00	$0.00	$0.00	$0.00	$0.00	$30.00
ASCF - EBSP - Investment (Mandatory)	$250.00	$250.00	$250.00	$250.00	$250.00	$1,250.00
Subtotal PC&I	**$280.00**	**$250.00**	**$250.00**	**$250.00**	**$250.00**	**$1,280.00**
Total Checked Baggage	**$539.27**	**$532.62**	**$536.28**	**$545.99**	**$547.07**	**$2,701.23**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the Checked Baggage Capability: The future outlook of Checked Baggage is divided into three functional areas: detect, connect, and enable.

- **Detect:** Employing technology to determine if threats are present in checked baggage, ensuring the highest probability of detection with the lowest probability of false alarm, while maintaining baggage throughput.
- **Connect:** Leveraging IT systems to allow for near real-time (NRT) data capture. As such, NRT data capture can enable and empower data-driven decision-making at TSA to inform and optimize the allocation of airport resources. The future state of Checked Baggage is to enable secure and remote data transmission to derive meaningful and data-driven insights in NRT as well as to operationalize threat assessments.
- **Enable:** Implementing efforts that facilitate future enhancements of existing and emerging technology. Checked Baggage plans to leverage an open architecture concept and to move toward enhanced capabilities including dynamic screening, common workstation, remote data transmission, and threat image projection. Dynamic screening

entails routing a passenger's baggage according to the passenger's risk level. Additionally, a common workstation will increase TSO deployment flexibility and will optimize TSO training and remote data transmission between international partners, which will decrease duplicative baggage screening. Further, threat image projection will help to monitor screener performance by presenting fictional threat images to TSOs in an operational setting.

Ultimately, Checked Baggage will leverage R&D investments for screening to expedite the development of state-of-the-art and automated high-speed, high-performance EDS with improved throughput and material discrimination/identification, as well as reduced operational and maintenance costs for TSA acquisition.

V. Multimodal and Public Area Capabilities (MPAC)

MPAC Overview: MPAC provides security technology recommendations and solutions for air cargo, public transportation areas, and critical infrastructure (such as pipelines).

Various multimodal capabilities align to TSA's mission and focus area. Surface Security Technology (SST) evaluates advanced technologies and facilitates industry awareness to address identified capability gaps in surface transportation security. Airport Infrastructure Protection (AIP) identifies capability gaps to provide airports with robust infrastructure protection to improve airport security and situational awareness. The Air Cargo Security Program collaborates with industry to develop requirements and to qualify technologies to address identified capability gaps in air cargo screening security.

Figure A31: MPAC Funding Profile

Multimodal and Public Area Capabilities – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Surface Security Technology	$7.85	$7.85	$7.85	$7.85	$7.85	$39.25
Air Cargo Security Technology Program	$10.70	$10.70	$10.70	$10.70	$10.70	$53.50
Airport Infrastructure Protection	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Automated Exit Lanes	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Public Areas	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Critical Infrastructure	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Chemical/Biological	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total MPAC	**$18.55**	**$18.55**	**$18.55**	**$18.55**	**$18.55**	**$92.75**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

SST and the Air Cargo Security Program are the only capital investment within the MPAC portfolio; however, MPAC is also responsible for the following mission-focus areas:

i. SST

Overview: TSA has extensive experience working with transportation operators and industry manufacturers to implement, assess, and refine late-stage high technology-readiness level mature security technologies. SST test beds provide a critical capability for evaluating the operational performance and suitability of candidate technologies in surface transportation environments. TSA has active test bed agreements with 18 surface transportation entities and MPAC currently manages installation, evaluation, and testing in more than 25 sites across the United States and throughout all surface transportation modes.

Test bed evaluations offer system partners extended access to and use of promising technologies preceding any procurement decisions. Evaluated technologies then are placed in the annual Surface Security Technology Catalog. Representation in the Surface Security Technology Catalog does not indicate endorsement for a technology's capabilities or performance but provides an unbiased representation of the results of the complete scope of standardized security technology assessments and industry engagement efforts.

Future State: Current and upcoming TSA initiatives include: handheld/standoff explosive detection testing; lab and field testing of next-generation detection-at-range passenger, baggage, and vehicle screening systems; rail undercarriage screening system pilots; ongoing evaluation of emerging intrusion detection technologies; and chemical detection software integration.

Figure A32: SST Funding Profile

Surface Security Technology – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Surface Security Technology	$7.85	$7.85	$7.85	$7.85	$7.85	$39.25
Total SST	**$7.85**	**$7.85**	**$7.85**	**$7.85**	**$7.85**	**$39.25**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. Air Cargo Security Technology Program

Overview: The MPAC Air Cargo Security Technology Program supports the dynamic application of terrorism countermeasures by regulating industry use of screening technologies and by using allocated resources efficiently for cargo modality risk mitigation. Air Cargo evaluates and qualifies technologies that detect explosive threats being transported on passenger aircraft, assesses security solutions for all cargo carriers, maintains a qualified list of cargo screening technologies, and explores emerging counterterrorism capabilities. Air Cargo mission areas are directed by P.L. 110-53 (9/11 Act), requiring that all air cargo uploaded on passenger aircraft be screened at a security level equal with that of passenger checked baggage. In addition, the Air Cargo Program is directed by the 100-percent Air Cargo Screening Requirement. This requirement states that 100 percent of cargo to be loaded on a passenger

aircraft in the United States must be screened following TSA-approved processes and procedures.

Future State: The Air Cargo Security Program seeks to continue evaluating next-generation technologies to improve security effectiveness and operational efficiency in the air cargo environment. The current Air Cargo Program test and evaluation pipeline consists of more than 20 devices with new submissions being received on a rolling basis in response to the continually open request for information. In addition, TSA successfully completed the high-priority EDS field assessment and also is preparing a guide on best practices for operator training, message handling systems configuration, installation, and commissioning. These efforts are setting the stage for the potential future use of next-generation EDS in air cargo and increased EDS use is expected by screening facilities that use conveyor systems. These emerging technologies would replace existing capabilities to meet new TSA standards. TSA also plans to refresh the ETD test bed, which consists of 200 devices across more than 60 sites, with next-generation technology capable of detecting new threats in the air cargo security landscape.

Figure A33: Air Cargo Security Technology Program Funding Profile

Air Cargo Security Technology Program – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Air Cargo Security Technology Program	$10.70	$10.70	$10.70	$10.70	$10.70	$53.50
Total Air Cargo Security Technology Program	**$10.70**	**$10.70**	**$10.70**	**$10.70**	**$10.70**	**$53.50**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Other mission focus areas within MPAC that do not include capital investment, but which are important to TSA's overall security mission, include the following:

iii. AIP

Overview: AIP provides airports with robust infrastructure protection to maintain airport security and situational awareness by using security technology to support identification, management, and mitigation of terrorist and other aviation security threats. AIP uses a sophisticated combination of cameras and analytics sensors to increase significantly overall operational and situational awareness and detect intrusions and other unauthorized events.

Other transactional agreements (OTA) are an important tool to meet mission needs with local airport authorities. Through the use of OTAs, TSA has managed nearly $300 million for closed circuit television (CCTV) enhancement projects since 2006 with nearly 120 airports. In 2018, AIP funding for CCTV OTAs was eliminated, removing TSA's ability to provide CCTV security enhancements. TSA is focused on closing out CCTV OTAs with four airports.

Future State: The FY 2018 DHS Appropriations Act allocated up to $10 million for TSA to develop "a multi-year plan to analyze and test perimeter intrusion detection and deterrence technologies in partnership with airports." Through risk-based methodologies, TSA selected one CAT X and one CAT I airport through OTAs to test and analyze perimeter security technologies. As of February 2021, the airports have begun the bidding and award phase to choose their installation vendors. Once installation is complete, TSA will collect data for up to 2 years to help highlight the vulnerabilities at the airport perimeter.

iv. Automated Exit Lanes

Overview: Less than 10 percent of federalized airports have automated exit lanes deployed; most airport exit lanes are manned by TSOs during peak airport hours. The FAA Reauthorization Act authorized $15 million per year from FY 2019 to FY 2021 for TSA to test exit lane technologies. Since these funds have not been appropriated, TSA conducted a limited assessment of exit lane technologies to analyze automated technology, to collect feedback on airports' use of the technology, and to identify variables to consider when assessing the financial feasibility of installing automated exit lanes. In September 2020, TSA developed a congressionally mandated report to highlight the cost benefits of installing automated exit lane technologies.

Future State: As part of the limited data collection at the airport, TSA research did not identify any TSA-approved exit lane technologies or detailed technical requirements. Since there is no current funding for exit lanes, TSA continues to leverage its existing relationships with industry technical experts and vendors to analyze further the benefits of installing exit lane technologies to safeguard the traveling public. If granted future exit lane funding, TSA would visit additional sites to collect operational data on automated exit lanes installed to test further and to recommend technologies to airport stakeholders.

v. Public Areas

Overview: Public areas are a subset of freight rail, mass transit, highway motor carrier, pipeline, airport infrastructure, and maritime modes of transportation. In public areas, traditional security screening procedures that require divestment of articles from travelers and an intrusive and slow search process are unrealistic. To address the complex security needs of mass transit stakeholders, TSA assesses the value of detection-at-range technologies as part of a sophisticated layered approach for adequate protection, while ensuring freedom of movement for the travelling public.

Future State: TSA is continuing to work with detection-at-range technology vendors to test new iterations of their products and to provide operator feedback for improving product capabilities. These systems enable the screening of a subset of the traveling population "on the move" and provide real-time information about a traveler's potential threat to the local population and environment, enabling TSOs to make well-informed decisions about initiating an escalation of security protocols. These systems will continue to enhance screening by layering technologies using combinations of sensors and analytics systems to increase overall operational awareness significantly and to detect anomalies and other suspicious behavior.

vi. Critical Infrastructure

Overview: Critical infrastructure refers to vital systems and assets, whether physical or virtual, whose incapacity or destruction may have a debilitating impact on the security, economy, public health or safety, environment, or any combination of those matters, across any federal, state, regional, territorial, or local jurisdiction. TSA supports public and private critical infrastructure owners and operators to manage risks by identifying, deterring, detecting, disrupting, and preparing for threats and hazards; by reducing vulnerabilities of critical assets, systems, and networks; and by mitigating potential consequences should incidents occur.

Future State: TSA will continue to identify, test, and evaluate layered technologies for sophisticated infrastructure protection using combinations of sensors and analytics systems to increase overall operational awareness significantly and to detect intrusions and other unauthorized events.

vii. Chemical/Biological

Overview: TSA leverages technical and analytical support from National Laboratories and collaborates with DHS S&T and the Countering Weapons of Mass Destruction Office in chemical and biological protection, particularly in surface transportation venues. The purpose of the support is to provide prevention, timely detection/identification, situational awareness, and efficient mitigation and response. TSA collaborates with DHS S&T's Chemical/Biological Defense Division to evaluate reliable and robust chemical sensing technologies to enhance multimodal transportation security. Transportation systems use chemical detection for:

- Layered defense for full system protection
- Automated alarms in tandem with other sensors
- Confident threat determination with minimal false alarms
- Force multiplier with minimal impact to operations (autonomous systems)
- Modular and robust solution that can be extended to other sites/venues

TSA participates in and follows S&T biodefense activities but does not have sufficient resources to participate in activities beyond representing TSA needs, gaps, and requirements. Due to mass transit venues being more concerned with chemical and flammables threats, introduction of biosensing into standing test beds is limited. Mass transit, passenger rail, and airport authorities, however, do collaborate extensively with and participate in the DHS Office of Health Affairs biodefense programs and pilot testing.

Future State: Continued and future test-bed activities include:

- Evaluate standoff chemical vapor detectors where the objectives are to: evaluate the performance of current systems, characterize backgrounds, and perform modeling and simulation as well as algorithm development
- Leverage previous DHS S&T Chemical/Biological Defense Division investments in detector development and operational test beds to bridge the gap between chemical detection security requirements for mass transit and technology manufacturers products

- Support development of algorithms to prevent, detect, and alert authorities more accurately to chemical spills in mass transit environments
- Use installed initial chemical detection capabilities at mass transit venues to identify technology gaps and to socialize concept of chemical detection

Future of MPAC: TSA intends to continue enhanced threat detection for multimodal screening systems by continuing to invest in primary and secondary screening across the multimodal transportation infrastructure. TSA's goal is to increase detection capability for known threats, to increase ability to detect smaller threat masses, and to increase the number of advanced multimodal screening technologies. MPAC's priority investments include continued evaluation of next-generation technologies to improve security effectiveness and operational efficiency in the air cargo environment and continued support of operational test beds for different modes of transportation, (mass transit, highway motor carrier, pipeline, freight rail, maritime, public areas, critical infrastructure protection, and airport perimeters).

TSA evaluations and investments drive multimodal technology vendors to develop and enhance their equipment and systems by facilitating operational improvements to technologies that increase multimodal security.

VI. Counter-Unmanned Aerial Systems (C-UAS)

C-UAS Capability Overview: TSA leads an interagency effort to develop a unified plan for responding to a persistent disruption of air traffic operations caused by unauthorized UAS (unmanned aerial systems).[7] TSA developed the Unified National Level Response to persistent UAS disruption of operations at Core 30 airports concept of operations[8] in October 2019, which was renewed for 1 year, effective January 2021. Deputies from 15 U.S. Government departments and agencies approved the concept of operations, which designates TSA as the lead federal agency for a unified national-level response to a persistent UAS disruption at a Core 30 airport.

TSA is identifying technology systems that detect, identify, track, and, eventually, mitigate UAS threats in the airport environment. To verify and validate UAS equipment most suitable for use in an airport environment, TSA leads efforts to establish UAS technology test beds. These test beds allow TSA to test detection equipment (and eventually test C-UAS equipment) to keep up with the rapidly evolving technology marketplace and emerging threats.

TSA has no fielded C-UAS technology as no marketplace systems, including detection, tracking, and identification technologies in place with DHS S&T, have been tested comprehensively in a complex metropolitan airport environment. As a result, TSA plans to establish UAS detection, tracking, and identification technology test beds in operational environments to validate and verify the technologies' effectiveness.

[7] Pursuant to C-UAS authorities granted to DHS as part of the *Preventing Emerging Threats Act of 2018.*
[8] The Core 30 Airports are major United States airports as defined by the Federal Aviation Authority (FAA), available at https://aspmhelp.faa.gov/index.php/Core_30.html

Future State: As the designated lead federal agency for responding to persistent UAS-related incidents at airports, TSA must remain ahead of the adversary by understanding threats, vulnerabilities, and potential countermeasure systems clearly. The number of encounters with UAS around airports and with civil aircraft has increased over the years as UASs proliferate.

Additionally, the capabilities of UASs continue to advance rapidly—they fly longer, faster, with heavier payloads, across farther distances, and more independently—and will continue to pose an increased risk to the aviation domain. With the recent negative impacts to commercial aviation and lack of federal capabilities, many airport authorities independently acquire their own UAS detection and mitigation systems. Without centralized federal guidance, this potentially poses more danger at airports and results in operational and procurement inefficiencies with the deployment of disparate systems.

TSA seeks R&D to advance the breadth and effectiveness of countermeasures, such as radar, electro-optical/infrared cameras, acoustic sensors, radio frequency receivers and emitters, and artificial intelligence technology that can detect, track, and identify UAS technologies in and around airport perimeters and surface transportation venues. TSA also is considering multiple types of UAS detection, tracking, and identification system categories, including fixed/semi-fixed systems, dismounted/handheld systems, mounted/mobile systems, and command and control systems.

Figure A34: C-UAS Funding Profile

Counter-Unmanned Aerial Systems – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Aviation Screening Operations	$4.22	$4.22	$4.22	$4.22	$4.22	$21.10
Mission Support	$0.78	$1.09	$1.11	$1.12	$1.14	$5.24
Other Operations and Enforcement	$5.67	$6.51	$6.62	$6.71	$6.82	$32.33
Total C-UAS	**$10.67**	**$11.82**	**$11.95**	**$12.05**	**$12.18**	**$58.67**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

VII. National Explosives Detection Canine Team Program (NEDCTP)

Overview: The NEDCTP trains and deploys certified explosives detection canine teams to deter and detect the introduction of explosive devices into the transportation system. Explosives detection canine teams are proven and reliable resources in detecting explosives and are a key component in a balanced counterterrorism program.

TSA has two types of canine teams: passenger screening canine (PSC) and explosive detection canines (EDC). PSC teams are trained to detect explosives concealed on the body or artfully concealed in a passenger's accessible property while the passenger is crossing through the security checkpoint. The PSCs are able to work in close proximity to people without being invasive, and combined with canine enhanced screening, PSCs provide a higher deterrence and similar rate of nonmetallic explosives threat detection while offering slightly higher checkpoint capacity, slightly reduced average wait times, and significantly lower intrusive search rates. TSA's EDC teams are partnerships between TSA and state and local law enforcement agencies within the aviation, mass transit, and maritime sectors and are trained to target stationary objects.

Figure A35: NEDCTP Canine

Program scope includes 1,097 authorized explosives detection canine teams at more than 100 of the Nation's airports, mass transit, and maritime systems. State and local law enforcement partners lead 675 teams; TSA handlers lead 422.

Future State: TSA continues to partner with DHS S&T for R&D activities that may advance or validate canine explosives detection capabilities based on DHS S&T's responsibility as the central focal point for DHS canine research, development, test, and evaluation. DHS S&T focuses on developing and testing canine training aids that can be used to improve and test canine ability to detect new threats. This includes independent operational test and evaluation capability for detection canines and canine R&D structure and function to improve operational efficiencies and training methods. TSA has partnered with a number of federal organizations and nongovernmental organizations to develop safer, cost-effective aids to improve routine training with homemade explosives.

Figure A36: NEDCTP Funding Profile

NEDCTP – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
National Explosives Detection Canine Team Program	$132.69	$135.41	$138.11	$140.83	$148.80	$695.84
Canines - K-9 System - Investment	$2.66	$2.76	$2.80	$2.85	$2.89	$13.96
Subtotal Canines without State & Local Law Enforcement	**$135.35**	**$138.17**	**$140.91**	**$143.68**	**$151.69**	**$709.80**
State and Local Law Enforcement Explosives Detection Canine Teams	$34.83	$34.83	$34.83	$34.83	$34.83	$174.15
Total Canines	**$170.18**	**$173.00**	**$175.74**	**$178.51**	**$186.52**	**$883.95**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

C. Enhanced and Secure IT Systems

I. Information Technology Infrastructure Program (ITIP)

Overview: ITIP provides TSA with secure, reliable information technology (IT) and communications across a broad spectrum to include personal computers, phones, system applications, local and wide area networks, data-hosting centers, cloud services, operational support centers, help desk services, telecommunications, mobile communications, and information security. ITIP is comprised of 31 FISMA-approved systems that include all IT elements related to applications, platforms, management and monitoring, and services that provide the core IT for all of TSA (for example hardware, software, operations and maintenance (O&M, and cybersecurity). The ITIP is critical to provide a foundation in which information can be shared across TSA operations including external customers and intelligence partners, in a secure, cost-effective, and efficient manner.

ITIP manages the O&M of IT Infrastructure to ensure uninterrupted operational availability of IT services required for all business and mission needs at more than 600 sites. TSA executes a standard annual refresh for IT infrastructure, allowing for the retirement or updating of outdated hardware on a regular schedule.

ITIP provides technical support and enhancements to the IT capabilities required by TSA's domestic and international workforce. TSA requires IT services and associated infrastructure to maintain and meet the basic computing and communications needs (including mobile) for the TSA user community. This basic requirement has expanded because of the ever-changing threat landscape. TSA IT has been able to streamline the acquisition process through major initiatives such as agile development processes, blanket purchase agreements, DHS-approved best-in-class vehicles, streamlined acquisition plans, and Acquisition Planning Forecast System entries.

ITIP supports 198 operational applications and 58 applications in the cloud, including support of an integrated test environment and a development test environment. These environments are used to develop, integrate, test, and validate IT system and network equipment, and security and software releases before deployment to the operational user base. As new technologies are introduced into the TSA enterprise, ITIP uses program-funded field regional managers to deploy these technologies at airports and field sites.

Future State: Future investments will enable TSA to continue providing IT equipment and services across TSA. ITIP will continue prioritizing investment in the following four initiatives to advance the program closer to the desired future state:

- **Cybersecurity:** ITIP will continue pursuing cybersecurity support for emerging programs without delaying the current cybersecurity support provided to TSA's 70+ FISMA systems. ITIP will support the planning, design, testing, and implementation of two-factor authentication using the personal identity verification card to ensure that robust authentication and credentialing technology is implemented throughout the enterprise.

- **Cloud:** ITIP will advance TSA's capability to expand cloud offering, providing an ecosystem of cloud targets to support the modernization of TSA's infrastructure and applications. TSA will continue onboarding applications into cloud services by executing integrations between the current enterprise and cloud services to include infrastructure-as-a-service, platform-as-a-service, and software-as-a-service, and the transitions of cloud services and solutions to O&M.
- **IT Lifecycle Management:** ITIP will continue pursuing a modernized and efficient IT infrastructure through increasingly predictable standard hardware and software capital refreshment cycles for all equipment remaining after cloud migration. A standard annual refresh cycle provides TSA with a planned approach to addressing IT obsolescence. This ensures that hardware and software baselines meet end-user and application capability requirements and prevents security vulnerabilities associated with end-of-life assets.
- **O&M:** TSA seeks to fund future O&M support to cover all necessary requirements for maintaining the enterprise services provided under ITIP. These investments include a wide range of IT professional services supporting a large and diverse technological environment to support hardware, software, and network infrastructure used to meet a host of agency-required capabilities.

Figure A37: ITIP Funding Profile

IT Infrastructure Program – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Information Technology Infrastructure Program	$389.17	$388.96	$394.78	$401.09	$407.49	$1,981.49
Total ITIP	$389.17	$388.96	$394.78	$401.09	$407.49	**$1,981.49**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

II. Field Information Systems (FIS)

FIS Capability Overview: FIS collaborates with field security operations stakeholders to innovate and advance FISs that support security information gathering and information sharing among DHS, TSA, law enforcement, and intelligence community stakeholders.

FIS has categorized its capabilities into four areas: Asset Management, Mission Management, Operations Support, and Personnel Management. More than 32 systems are at various stages in the system lifecycle of innovation to introduce new capabilities, to modernize to support process efficiencies and information sharing, and to conduct O&M for legacy systems.

Figure A38: FIS Capability Funding Profile

Field Information Systems – FY 2022 PB–FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Security Technology Integrated Program	$14.31	$11.18	$15.63	$16.06	$17.07	$74.25
Mission & Scheduling Notification System (MSNS) Modernization	$17.28	$15.14	$15.39	$15.63	$15.88	$79.32
Total FIS	**$31.59**	**$26.32**	**$31.02**	**$31.69**	**$32.95**	**$153.57**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Investments within FIS include:

i. Security Technology Integrated Program

Overview: STIP provides a dynamic and adaptable communications infrastructure to facilitate the transfer of data between TSE and TSA. This automated support system enables centralized management and monitoring of TSE and provides the ability to respond to a rapidly changing threat environment in an agile manner. This results in improvements to efficiency and effectiveness of screening operations, threat detection, and risk analysis. STIP facilitates the collection and distribution of operational information from security equipment to a centralized server to perform data analytics, remote updating, and other system integrations.

Future State: TSA's path forward is to provide support for TSE to allow for the integration of security screening technologies while handling communication with an accelerated number of TSE without any latency. Enhancements to the STIP platform will support new capabilities that are demonstrated or deployed to the field. These capabilities include emerging biometrics technology, remote maintenance, and/or support of current and future cybersecurity posture without disruptions to airport operations.

TSA must address the need for updated computing and data architecture elements as it develops and deploys machine-learning algorithms and advanced system data analytics and visualization capabilities. TSA will develop and test an updated computing and data architecture that addresses physical security and cybersecurity requirements. Further, the computing and data processing approaches will support the use of system performance data visualization and other system-level data analytics. STIP will support multimodal transportation screening operations, will provide uninterrupted support at checkpoints and checked baggage sites, and will be aligned to support self-service passenger-screening technologies when they are defined.

Figure A39: STIP Funding Profile

STIP – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Security Technology Integrated Program	$14.31	$11.18	$15.63	$16.06	$17.07	$74.25
Total STIP	**$14.31**	**$11.18**	**$15.63**	**$16.06**	**$17.07**	**$74.25**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

ii. Mission & Scheduling Notification System Modernization

Overview: MSNS facilitates coordination of air marshal availability and communication of mission assignments with the Federal Air Marshal Service (FAMS) field offices and air marshals, providing mission-planning capabilities for FAMS Flight Operations personnel. MSNS assigns air marshals to flights according to TSA's risk-based security strategy, books airline and hotel reservations, and tracks mission execution.

MSNS uses a total of nine systems, with a core legacy application exclusively designed for airline crew management that gradually has left a gap in software capability as FAMS expands mission-planning requirements to consider threat information and to respond to the evolving global terrorist threat. The resulting gap in data access and real-time is filled by numerous manual processes that protect sensitive information, respond to critical intelligence, and meet increased schedule coordination requirements. Current scheduling technology cannot be configured to meet TSA's risk-based security and counterterrorism objectives. As a result, mission planners must make significant manual interventions to meet requirements.

Future State: A modern MSNS will facilitate the redistribution of personnel to streamlined automated processes that reduce personnel requirements and decrease calendar time required to publish a FAMS mission roster. Scheduling modernization also increases the number of possible missions the FAMS will be able to fly, providing mission planners with greater flexibility.

Figure A40: MSNS Funding Profile

MSNS – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Mission & Scheduling Notification System Modernization	$17.28	$15.14	$15.39	$15.63	$15.88	$79.32
Total MSNS Modernization	**$17.28**	**$15.14**	**$15.39**	**$15.63**	**$15.88**	**$79.32**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

Future of the FIS Capability: In partnership with stakeholders across TSA, DHS components, and industry, FIS engages in initiatives to modernize systems with broader access to scalable solutions, to integrate and standardize data and information, and to ensure that cybersecurity challenges are identified early in the requirements development lifecycle.

Key focus areas include developing the aviation security architecture, sponsoring a capability analysis review of the field data opportunities of TSE and field information systems, and developing mobile information management capabilities to support the checkpoint operating environment for TSOs and law enforcement/FAMS.

To unlock the full potential of FIS innovation and modernization, future R&D focuses on new capabilities to support machine learning, dynamic security threat management, and data as a service.

III. Enterprise Physical Access Control System (ePACS)

Overview: Providing reliable, robust physical security for facilities and buildings affects a variety of users accessing federally controlled facilities every day. Physical Access Control System (PACS) is an automated system that manages the passage of people or assets through openings in a secure perimeter based on successful authentication and associated authorization rules. TSA seeks to achieve a modernized PACS at the enterprise level to offer cost savings from enterprise software licenses, decreases in redundant collection and management of user identity data, and improved security through increased consistency.

Figure A40: ePACS

TSA relies on standalone configured PACS that only operate at the local site level for each TSA location. The local TSA end-users must add, remove, and adjust personnel roles and accesses in their PACS manually. The TSA Office of Physical Security is implementing a nationwide end-to-end Homeland Security Presidential Directive 12-compliant ePACS solution for all its field offices called the Field Security Network (FSN). This enterprise solution will integrate with TSA's existing nationwide local area network/wide area network (TSANet) to communicate with the already established Federal Bridge Certification Authority. Several ePACS servers will be located strategically throughout the Nation, and each field location will be equipped with an ePACS workstation. FSN offers the ability to manage centrally the physical access to TSA entry points at the various TSA sites.

Future State: TSA conducted a pilot implementation to expose a small subset of its user base to the ePACS solution to evaluate the solution's operations against real-world requirements. TSA deployed the ePACS solution on its FSN network infrastructure and began controlling access to facilities. TSA's Information Assurance and Cybersecurity Division performed a security assessment on the FSN ePACS during this pilot. The TSA Chief Information Officer issued an Authority to Operate to operate the information system in its existing environment. The ePACS

system migration schedule will continue and eventually will scale to the rest of the TSA locations nationwide.

Figure A41: ePACS Funding Profile

Enterprise Physical Access Control System – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Enterprise Physical Access Control System	$14.45	$14.68	$14.89	$15.11	$15.31	$74.44
Total ePACS	**$14.45**	**$14.68**	**$14.89**	**$15.11**	**$15.31**	**$74.44**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

IV. Human Capital (HC) IT Modernization Personnel Futures Program (PFP)

Overview: PFP provides end-to-end HC services, covering the entire lifecycle of the TSA employee, including recruitment, assessments, hiring, personnel, and payroll and benefits processing. TSA HC systems are undergoing the HC Modernization effort to update outdated legacy systems, to maximize automation, and to bring the storage and processing of sensitive personally identifiable information for candidates and employees into secure cloud computing environments.

HC Modernization is implementing a hybrid solution, consisting of both on-premises and cloud technology. Specifically, the strategy upgrades the current 13-year-old systems into a more secure, low-risk, and cost-effective, high-productivity environment. The modernization will maximize efficiency through the use of software-as-a-service, robotic process automation, and machine learning.

By FY 2023, PFP expects leveraged technologies to show trends of realized operational efficiencies. Employee/Manager Self-Service and artificial intelligence automation will improve quality and will reduce times to process candidate forms and personnel transactions. HC Modernization will continue to support an innovative workforce through the Candidate Portal, providing live updates of application status; the Careers Website, providing clear and transparent information about career opportunities; the UI Path, providing automated reviews of Electronic Questionnaires for Investigations Processing; and cloud computing, providing security for a mobile and remote workforce.

Future State: By FY 2025, the modernization is on track to continue enhancement of operational processes and to improve the overall customer experience. The commercially available customer relationship management platform and applications implemented into the environment in FY 2021 will be used further to expand self-service capabilities, to integrate with other hiring process partners, to transform performance management, and to extend personnel process automation to payroll and benefits transactions, delivering state-of-the-art capabilities across the enterprise.

Figure A42: HC IT Modernization Funding Profile

HC IT Modernization Personnel Futures Program – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Personnel Futures Program - Mission Support	$131.80	$126.81	$123.74	$129.09	$134.58	$646.02
Screener Training and Other - Personnel Futures - Investment	$22.22	$19.56	$19.31	$19.99	$20.69	$101.77
Total Personnel Futures Program	**$154.02**	**$146.37**	**$143.05**	**$149.08**	**$155.27**	**$747.79**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

V. Staffing, Scheduling, Time, and Attendance (SSTA) System

Overview: The SSTA system standardizes scheduling across all airports using automated workflows and direct processing from the Advanced Scheduling Tool to the electronic Time, Attendance, and Scheduling tool (eTAS), giving TSOs more time at checkpoints. SSTA alleviates the use of multiple nonstandard tools to manage scheduling at airports. The SSTA architecture supports airport operations and the Administrator's desire to reduce the amount of time that TSOs spend on administrative activities.

TSA is testing a completed SSTA product for the Leave Bid functionality, and the application is awaiting security scans. Training sessions for the schedulers and support staff members also are in progress and will be recorded for future reference.

Future State: SSTA provides a standardized system for scheduling across all airports, allowing seamless data exchange and an automated workflow. The goal is to use the Salesforce tool to provide an effective and quick path to production capability. SSTA will integrate the following systems: Advanced Scheduling Tool, eTAS, the Enhanced Staffing Model, and Plan of Day under a single workflow process. It will manage staff and resource requirements in the near-term based on resource availability and predicted changes in travel patterns. It will allow TSOs access to SSTA from their personal mobile devices. SSTA will provide new Kronos Clocks, replacing current clocks that are at end-of-life, and will increase visibility and management of resources and operations at airports.

Figure A43: SSTA Funding Profile

SSTA System – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Electronic Time & Attendance System (eTAS) - Investment	$3.73	$3.79	$3.85	$3.91	$3.97	$19.25
SSTA - Mission Support - Enterprise Services	$8.22	$8.35	$8.49	$8.62	$8.76	$42.44
Advanced Scheduling Tool - Investment	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Staffing, Scheduling, Time, and Attendance (SSTA) System	**$11.95**	**$12.14**	**$12.34**	**$12.53**	**$12.73**	**$61.69**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

VI. Air Cargo IT Systems

Overview: The IT systems within the Air Cargo portfolio, three major and two minor applications, include the following: Indirect Air Carrier Management System, Freight Assessment System, Known Shipper Management System, Certified Cargo Screening Facility Tool, and Security Threat Assessment Tool. These systems work to confirm identity, to verify business legitimacy, and to assess the risk of companies shipping goods on passenger aircraft; to vet individuals in security sensitive positions to reduce the risk from insider threats; to ensure that entities transporting and screening air cargo employ appropriate security procedures; to provide historical cargo reporting data; and to facilitate air cargo data-sharing across TSA.

The Air Cargo Management Systems Branch provides access to IT systems that facilitate TSA's efforts to ensure the security of cargo transported on passenger aircraft. These systems are used by more than 35,000 industry users; vet approximately 7.3 million shippers and 450,000 air cargo workers; and support regulation of nearly 4,000 indirect air carriers.

Future State: In support of the future modernization effort, TSA initiated discussions, design discovery, and development that will result in a new system, the Certified Facility Management System. All systems will be integrated into this new system in a phased approach. The technical objectives of modernization are as follows: consolidate and integrate existing systems; enable two-factor authentication solutions; enhance support of certification and accreditation security activities; enable the mobile worker; leverage the cloud; and implement agile development.

Figure A44: Air Cargo IT Systems Funding Profile

Air Cargo IT Systems – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Air Cargo Security Portfolio - Investment	$13.11	$13.26	$13.26	$13.26	$13.26	$66.15
Total Air Cargo IT Systems	**$13.11**	**$13.26**	**$13.26**	**$13.26**	**$13.26**	**$66.15**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

II. TSE Acquisition Update

This section compares security-related technology (SRT) acquired against the planned technology programs and projects.

TSA operates legacy equipment while evaluating potential replacements in an affordable manner. One way to increase affordability and to decrease complete system replacements is the procurement and deployment of technologies to upgrade existing machines as new capabilities arise. TSA takes an incremental approach in developing and deploying enhanced threat detection performance and alarm-resolution capabilities. When upgrades are not possible to avoid obsolescence, recapitalization remains the sole solution.

The following acquisitions deviated from TSA projections:

- **CAT Units in FY 2020:** TSA completed testing and evaluation on the CAT units in early August 2019 and achieved acquisition decision event (ADE) approval later that month to produce and deploy the first 505 CAT units. TSA completed the initial deployment of 505 CAT units in March 2020, rapidly enhancing credential authentication capabilities at federalized airports across the country. The second round of CAT deployments began in July 2020, with 331 of 501 CAT systems installed as of December 11, 2020.

- **CT Units in FY 2020:** TSA procured 300 AT/CT units for the initial checkpoint CT deployment at high-priority airports, while we continue the CPSS program, currently in Increment 1, as the long-term solution. CPSS achieved ADE 2A approval in August 2019 and is pursuing ADE 2B approval, projected for December 17, 2020. Deployment of the 300 AT/CT units began in November 2019. As of December 11, 2020, TSA has deployed 272 of 300 AT/CT units.

- **AT Units in FY 2020**: TSA does not plan to procure additional AT units, except as needed to address airport passenger growth and urgent screening equipment needs in cases where CT units are not yet available.

- **EDS Units in FY 2020:** TSA installed 52 of the 100 units procured in late FY 2019 to support recapitalization efforts and deployment of new inline checked baggage screening systems. Procurement quantities are based on airport equipment requirements and depend on the timelines for project execution at each specific airport site.

- **AIT Units:** In late FY 2019, TSA procured 100 AIT units and as of December 11, 2020, 78 of the 100 units have been installed.

III. PSP Legacy Program Funding Profile

The PSP Legacy program contains four technologies (BLS, BPS, Chemical Analysis Device, and Walk-Through Metal Detectors). Changes to this PSP cost driver in FY 2021 reflected a realignment of Capabilities Development to the Mission Support program/project/activity, in addition to increases to the agency's Federal Employees Retirement System contribution, the 2021 pay raise, and an awards spending increase.

Figure A45: PSP Legacy Funding Profile

Passenger Screening Program Legacy – FY 2022 PB-FY 2026 ($ in millions)						
Program	**FY 2022 PB**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2022 PB-2026 Total**
Boarding Pass Scanner	$0.49	$0.51	$0.34	$0.36	$0.36	$2.06
Bottled Liquid Scanner	$8.35	$8.72	$8.43	$8.75	$8.90	$43.15
Enhanced Metal Detector	$6.22	$6.84	$7.39	$7.68	$7.81	$35.94
Chemical Analysis Device	$1.31	$1.03	$1.03	$1.07	$1.09	$5.53
PSP Legacy Pay	$1.58	$1.65	$1.69	$1.73	$1.77	$8.41
Total PSP Legacy	**$17.95**	**$18.75**	**$18.88**	**$19.59**	**$19.93**	**$95.10**

FY 2022-FY 2026 reflects FY 2022 PB dated May 27, 2021.

IV. Technology Acquisitions

TSA has updated what was formerly the Transportation Security Acquisition Manual, signed in August 2018, to be titled the TSA Acquisition Manual (TSAAM). The TSAAM aligns to DHS guidance regarding implementation of the Acquisition Lifecycle Framework (ALF),[9] which outlines key activities for defining, developing, and delivering needed capabilities. In accordance with DHS Acquisition Management Instruction 102, it outlines the high-level, structured approach to define, develop, and deploy capabilities in the TSA ALF. TSAAM components combine to outline a repeatable, transparent, and flexible process that TSA uses when pursuing a new acquisition.

As the leadership of a TSA ALF Integrated Product/Project Team begins the process of structuring a prospective acquisition, the TSAAM guides decision-making and organizational activities. It also assists execution-level members of the ALF Integrated Product/Project Team to understand their responsibilities and required actions over the lifecycle of the acquisition, as well as those of their peers. Lastly, it enables TSA leadership to make approval decisions based on robust understanding of key decision points, processes, and stakeholders. As a keystone manual for TSA acquisitions, it provides the foundational information that acquisition teams need to deliver the right capability at the right time through a series of acquisition lifecycle phases.

A. Acquisition Lifecycle

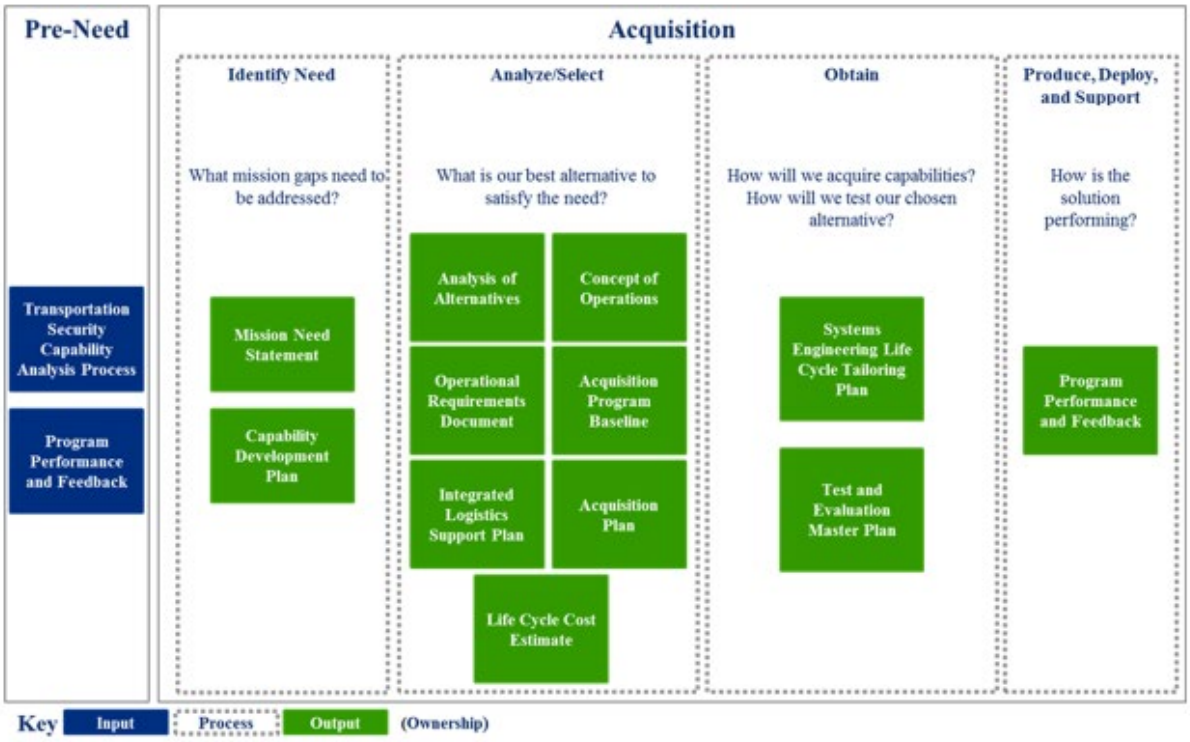
Aligning Resources in Pre-Need

The Pre-Need phase is a prerequisite for entering the ALF. In this phase, TSA collects, analyzes, and prioritizes TSA capability gaps. It also includes an analysis of TSA resources, a risk assessment, and a capability analysis. The capability analysis includes the Transportation Security Capability Analysis Process (TSCAP), which analyzes TSA's capability gaps to identify recommended courses of action for well-timed gap prioritization decisions. If the only acceptable course of action after gap identification and prioritization is to implement a matériel solution (a new device or significant modifications to existing devices), TSA continues through the ALF into the Identifying Need Phase.

Figure A46 depicts the subsequent phases of the lifecycle that TSA will execute to acquire a matériel solution.

[9] DHS Acquisition Management Instruction 102-01-001, rev. 01 (March 9, 2016) and DHS Manual for the Operation of the Joint Requirements Integration and Management System, rev. 00 (April 21, 2016).

Figure A46: Overview of the Acquisition Lifecycle for SRT Matériel Solutions



Identifying Needs

After the Pre-Need Phase has concluded in a recommendation for a matériel solution such as SRT, TSA transitions into the Identifying Needs phase of the Acquisition Lifecycle. In this phase, TSA validates the need for the prospective acquisition, ensures alignment of the prospective acquisition to TSA and DHS objectives, defines the mission need, and develops initial requirements.

Analyzing and Selecting Alternatives

In the Analyze and Select Phase, TSA screens capabilities and analyzes the results to select prospective solutions. During this phase, TSA facilitates testing and evaluation of potential capabilities, analyzes alternatives, and estimates the costs of prospective acquisitions, culminating in the decision to approve or disapprove officially a prospective acquisition.

Leveraging Department Efficiencies

As TSA moves into the Obtain phase, it first considers how to leverage department efficiencies. DHS strategic sourcing contracting vehicles provide DHS Components with economic and performance benefits through collaboration and enterprise planning. TSA continues to embrace

strategic sourcing as a proven best practice to save money, to reduce redundancy, to drive standardization, to streamline procurements, and to improve business efficiency.

Obtaining Capabilities

In the Obtain Phase, TSA focuses on systems development, testing, and evaluation to ensure an effective acquisition. TSA has made strides over the past few years to accelerate capability delivery and to reduce cost while obtaining solutions. Below, TSA has provided updates for initiatives with significant status changes:

Accelerating Capability Delivery and Reducing Cost
Since 2018, DHS has changed acquisition policy, and TSA has updated the TSAAM to reflect these changes and to ensure that processes comply with current DHS acquisition guidelines. Specifically, TSA has updated requirements in DHS Management Instruction 102-01, including instructions for acquisition management, cybersecurity, DHS agile methodology, and rapid acquisition guidelines. These changes will allow TSA to maximize cost-effectiveness throughout the ALF and to accelerate capability delivery.

Improving Agile Processes
In addition to revising ALF requirements, TSA has updated the TSAAM to clarify how TSA stakeholders should engage with ALF processes. For example, to address a previous lack of understanding among stakeholder groups, the definition of Transition Manager now clearly states the responsibilities for Transition Managers across the ALF. Additionally, TSA redefined the relationship between capability managers and program managers to clarify roles across the development of a capability. These changes not only will define transition points between stakeholder roles and responsibilities, but they also will improve coordination of requirements for each phase of the ALF. As a result, the likelihood of delays or disruptions to capability delivery because of lack of stakeholder coordination or clear roles and responsibilities will be reduced.

Furthermore, TSA updated the TSAAM to require integration with IT stakeholders, codifying IT integration points and reviews to ensure IT engagement across the ALF. This update also included IT-specific enhancements like cybersecurity requirements throughout the TSAAM and incorporated agile IT processes, among the other agile process additions to the document. These changes support integration of an IT-specific acquisition framework and drive general process improvement.

Accelerating Capability Delivery in Response to COVID-19
The COVID-19 pandemic response and recovery shifted and accelerated many of TSA's priorities for obtaining new capabilities through the ALF process. Accordingly, TSA updated the TSAAM to accelerate capability delivery through several acquisition processes. To begin, the Urgent Solution Intake Process has been updated to define a standardized evaluation process to vet rapidly technology solution proposals that address urgent mission needs and integrate existing solution intake channels. Additionally, these updates define a starting point to initiate outreach with appropriate stakeholders and to provide users with baseline criteria to identify suitable acquisition and procurement pathways. Finally, the

updates ensure a 90-day procurement process by requiring prioritization of the procurement and concentrating contracting resources. These newly defined steps to award a contract rapidly allow TSA to meet mission requirements under critical circumstances, as determined by TSA leadership.

V. Compliance Matrix

TSA's intent for the CIP is to meet the requirements of the 5-year technology investment plan [as required by section 1611 of title XVI of the Homeland Security Act of 2002, as amended by section 3 of the Transportation Security Acquisition Reform Act (P.L. 113–245), and the Advanced Integrated Passenger Screening Technologies report as required by Senate Report 115-283 accompanying the FY 2019 DHS Appropriations Act]. **Figure A47** shows where in the CIP the requirements are discussed.

Figure A47: Compliance Matrix

Requirement	Requirement Description	Report Location	Pages
b(1)	Develop 5-year technology investment plan in consultation with Under Secretary for Management.	*Not Required for Refresh*	
b(2)	Develop 5-year technology investment plan in consultation with Under Secretary for Science and Technology.	*Not Required for Refresh*	
b(3)	Develop 5-year technology investment plan in consultation with the Chief Information Officer.	*Not Required for Refresh*	
b(4)	Develop 5-year technology investment plan in consultation with the aviation industry stakeholder advisory committee established by the Administrator.	*Not Required for Refresh*	
d(1)	The plan shall include an analysis of transportation security risks and the associated capability gaps that would best be addressed by security-related technology.	*Transforming Mission Execution* – Identifying and Prioritizing Threats, Risks, and Capability Needs and Gaps	
d(1)	The plan shall include consideration of the most recent Quadrennial Homeland Security Review (QHSR).	Most recent QHSR was released in 2014	

Requirement	Requirement Description	Report Location	Pages
d(2); d(2)A	The plan shall include a set of security-related technology acquisition needs, prioritized based on risks and associated capability gaps.	*Transforming Mission Execution* – Executing Our Mission *Appendix* – Capital Investment Programs	
d(2)B	The set of security-related technology acquisition needs shall include planned technology programs and projects with defined objectives, goals, timelines, and measures.	*Transforming Mission Execution* – Executing Our Mission *Appendix* – Capital Investment Programs	
d(3)	The plan shall include an analysis of current and forecasted trends in domestic and international passenger travel.	*Strategic Priorities to Drive Transformation* *Transforming Mission Execution*	
d(4)	The plan shall include an identification of currently deployed security-related technologies that are at or near the end of their lifecycles.	*Appendix* – Capital Investment Programs	
d(5)	The plan shall include an identification of test, evaluation, modeling, and simulation capabilities, including target methodologies, rationales, and timelines necessary to support the acquisition of the SRTs expected to meet the needs under paragraph (2)-d(2)A and d(2)B	*Appendix* – Capital Investment Programs	
d(6)	The plan shall include identification of opportunities for public-private partnerships.	*Transforming Mission Execution* – Partnering to Accelerate Action	
d(6)	The plan shall include identification of opportunities for small and disadvantaged company participation.	*Transforming Mission Execution* – Partnering to Accelerate Action	

Requirement	Requirement Description	Report Location	Pages
d(6)	The plan shall include identification of opportunities for intragovernment collaboration.	*Transforming Mission Execution* – Research and Development; Partnering to Accelerate Action	
d(6)	The plan shall include identification of opportunities for university centers of excellence.	*Transforming Mission Execution* – Partnering to Accelerate Action	
d(6)	The plan shall include identification of opportunities for national laboratory technology transfer.	*Transforming Mission Execution* – Research and Development; Partnering to Accelerate Action	
d(7)	The plan shall include identification of the Administration's acquisition workforce needs for the management of planned SRT acquisitions, including consideration of leveraging the acquisition expertise of other federal agencies.	*Transforming Mission Execution* – Partnering to Accelerate Action *Appendix*– Capital Investment Programs	
d(8)	The plan shall include identification of security resources, including information security resources that will be required to protect SRT from physical or cyber-enabled theft, diversion, sabotage, or attack.	*Transforming Mission Execution* – Executing Our Mission	
d(9)	The plan shall include identification of initiatives to streamline the acquisition process and to provide greater predictability and clarity to small, medium, and large businesses, including the timeline for testing and evaluation.	*Appendix* – Technology Acquisitions	
d(10)	The plan shall include an impact assessment to commercial aviation passengers.	*Transforming Mission Execution* – Executing Our Mission	

Requirement	Requirement Description	Report Location	Pages
d(11)	The plan shall include a strategy for consulting airport management, air carrier representatives, and Federal Security Directors whenever an acquisition will lead to the removal of equipment at airports, and how the strategy for consulting with such officials of the relevant airports will address potential negative impacts on commercial passengers or airport operations.	*Transforming Mission Execution* – Identifying and Prioritizing Threats, Risks, and Capability Needs and Gaps *Appendix* – Technology Acquisitions	
d(12)	The plan shall include an identification of SRT interface standards, in existence or if implemented, that could promote more interoperable passenger, baggage, and cargo screening systems.	*Transforming Mission Execution* – Executing Our Mission*;* Defining a Future State; Research and Development	
e(1)	To the extent possible, and in a manner that is consistent with fair and equitable practices, the plan shall leverage emerging technology trends and R&D investment trends within the public and private sectors.	*Transforming Mission Execution* – Research and Development	
e(2)	The plan shall incorporate private-sector input (aviation industry, stakeholder advisory committee) through requests for information, industry days, and other innovative means consistent with the Federal Acquisition Regulations.	*Transforming Mission Execution* – Partnering to Accelerate Action	
e(3)	The plan shall identify technologies in existence or in development that, with or without adaptation, are expected to be suitable to meeting mission needs.	*Transforming Mission Execution* – Executing Our Mission *Appendix* – Capital Investment Programs	
f	With the 5-year technology-investment plan, a list of nongovernment persons that contributed to the writing of the plan shall be provided.	*Not Required for Refresh*	

Requirement	Requirement Description	Report Location	Pages
g(1)	Beginning 2 years after the date the Plan is submitted to Congress under subsection (a), and biennially thereafter, the Administrator shall submit to Congress — an update of the plan.	*FY 2022 – FY 2026 Capital Investment Plan*	
g(2)	Beginning 2 years after the date the Plan is submitted to Congress, and biennially thereafter, the Administrator shall submit to Congress - a report on the extent to which each SRT acquired by the Administration since the last issuance or update of the Plan is consistent with the planned technology programs and projects identified under subsection d(2) for that SRT.	*Appendix –* TSE Acquisition Update	
(h)	‘‘(1) be prepared in consultation with— ‘‘(B) the Surface Transportation Security Advisory Committee established under section 404; and	*Reviewed by Surface Transportation Security Advisory Committee*	
(h)	‘‘(2) include— ‘‘(A) information relating to technology investments by the Transportation Security Administration and the private sector that the Department supports with research, development, testing, and evaluation for aviation, including air cargo, and surface transportation security;	*Transforming Mission Execution –* Research and Development	
(h)	‘‘(B) information about acquisitions completed during the fiscal year preceding the fiscal year during which the report is submitted;	*Appendix –* TSE Acquisition Update	
(h)	‘‘(C) information relating to equipment of the Transportation Security Administration that is in operation after the end of the life cycle of the equipment specified by the manufacturer of the equipment; and	*Appendix –* Capital Investment Programs	

Requirement	Requirement Description	Report Location	Pages
Advanced Integrated Passenger Screening Technologies	TSA is directed to submit a detailed report on passenger and baggage screening technologies not later than 180 days after the date of enactment of this act. The report shall include a useful description of existing and emerging technologies capable of detecting threats concealed on passengers and in baggage, as well as projected funding levels for each technology identified in the report for the next 5 fiscal years.	*Transforming Mission Execution* – Executing Our Mission *Appendix* – Capital Investment Programs	

VI. Abbreviations

3D	Three-Dimensional
ADE	Acquisition Decision Event
AIP	Airport Infrastructure Protection
AIT	Advanced Imaging Technology
ALF	Acquisition Lifecycle Framework
APS	Accessible Property Screening
AAR	Advanced Alarm Resolution
AR	Alarm Resolution
ASCF	Aviation Security Capital Fund
ASL	Automated Screening Lanes
AT	Advanced Technology
AVS	Auxiliary Viewing Station
BLS	Bottled Liquid Scanner
BPS	Boarding Pass Scanner
CAP	Capability Acceptance Process
CAT	Credential Authentication Technology
CAT-2	Second Generation Credential Authentication Technology
CAT-C	Credential Authentication Technology with Camera
CBP	U.S. Customs and Border Protection
CCTV	Closed-Circuit Television
CIP	Capital Investment Plan
CM	Capability Manager
COVID-19	Coronavirus Disease 2019
CPAM	Checkpoint Automation
CPSS	Checkpoint Property Screening System
CT	Computed Tomography
C-UAS	Counter-Unmanned Aerial System
DHS	Department of Homeland Security
EBSP	Electronic Baggage Screening Program
EDC	Explosive Detection Canine
EDS	Explosive Detection Systems
EMD	Enhanced Metal Detectors
ePACS	Enterprise Physical Access Control System
eTAS	Electronic Time, Attendance, and Scheduling Tool
ETD	Explosive Trace Detection
FAA	Federal Aviation Authority
FAMS	Federal Air Marshal Service

FIS	Field Information Systems
FISMA	Federal Information Security Management Act
FOC	Full Operational Capability
FSN	Field Security Network
FY	Fiscal Year
FYHSP	Future Years Homeland Security Program
HC	Human Capital
HD	High-Definition
HME	Hazardous Materials Endorsement
ID	Identification Document
IDM	Identity Management
IRF	International Risk Framework
IT	Information Technology
ITIP	Information Technology Infrastructure Program
LPD	Last Point of Departure
mDL	Mobile Driver's License
MPAC	Multimodal and Public Areas Capability
MSNS	Mission & Scheduling Notification System
NEDCTP	National Explosive Detection Canine Team Program
NRT	Near Real-Time
O&M	Operations and Maintenance
OPS	On-Person Screening
O&S	Operations and Sustainment
OTA	Other Transactional Agreement
PACS	Physical Access Control System
PB	President's Budget
PC&I	Procurement, Construction, and Improvements
PFP	Personnel Futures Program
PI	Prohibited Items
PPBE-S	Planning, Programming, Budgeting, and Execution – Strategy
PSC	Passenger Screening Canine
PSP	Passenger Screening Program
PVS	Primary Viewing Station
QHSR	Quadrennial Homeland Security Review
R&D	Research and Development
RTSPA	Risk and Tradespace Portfolio Analysis
S&T	Science and Technology Directorate
SG	Screening Gateway
SRT	Security-Related Technology
SST	Surface Security Technology

SSTA	Staffing, Scheduling, Time, and Attendance
STIP	Security Technology Integration Program
TDC	Travel Document Checker
TIM	Technology Infrastructure Modernization
TSA	Transportation Security Administration
TSAAM	TSA Acquisition Manual
TSCAP	Transportation Security Capability Analysis Process
TSE	Transportation Security Equipment
TSO	Transportation Security Officer
TSSRA	Transportation Sector Security Risk Assessment
TVS	Transportation Vetting System
TWIC®	Transportation Working Identification Credential
UAS	Unmanned Aerial System
VCS	Vetting and Credentialing System