



**Department of Homeland Security
Transportation Security Administration**

Passenger Screening Program

Advanced Imaging Technology

**Life Cycle Cost Estimate (LCCE)
With
The American Recovery and Reinvestment Act (ARRA)**

Version 1.1

March 16, 2010

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Life Cycle Cost Estimate

For

The Advanced Imaging Technology

Reviewed by:

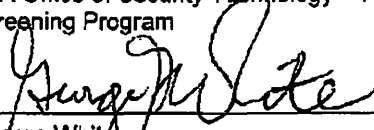


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TABLE OF CONTENTS

1. OVERVIEW	4
2. GROUND RULES AND ASSUMPTIONS.....	6
3. SUMMARY OF METHODOLOGY	7
4. LIFE CYCLE COST (BY WBS ELEMENT).....	8
<u>COST ELEMENT 1.1 - PRODUCT ACQUISITION</u>	8
<u>COST ELEMENT 1.2- SYSTEM TEST AND EVALUATION</u>	8
<u>COST ELEMENT 1.3 - SITE SURVEYS</u>	9
<u>COST ELEMENT 1.4- SITE ACTIVATION</u>	9
<u>COST ELEMENT 1.5 - OUT OF WARRANTY MAINTENANCE</u>	10
<u>COST ELEMENT 1.6 - TRAINING</u>	10
<u>COST ELEMENT 1.7 - PRODUCT & TECHNICAL DATA</u>	11
<u>COST ELEMENT 1.8 - CONSUMABLES START-UP PACKAGE</u>	12
<u>COST ELEMENT 1.9 - DISPOSAL</u>	12
<u>COST ELEMENT 1.10 - ENGINEERING SUPPORT SERVICES</u>	13
5. SUMMARY CHARTS OF TOTAL LIFE CYCLE COST (BY WBS ELEMENT).....	13
6. RISK AND SENSITIVITY	16

TABLES

TABLE 1: ADVANCED IMAGING TECHNOLOGY PROJECTED DEPLOYMENT AND DISPOSAL SCHEDULE	5
TABLE 2: TOP LEVEL ADVANCED IMAGING TECHNOLOGY COST SUMMARY.....	5
TABLE 3: ADVANCED IMAGING TECHNOLOGY WORK BREAKDOWN STRUCTURE	7
TABLE 4: THEN YEAR COST SUMMARY BY WBS (\$M)	14
TABLE 5: BASE YEAR 2009 COST SUMMARY BY WBS (\$M)	15
TABLE 6: COST SUMMARY PERCENTAGES.....	16
TABLE 7: SENSITIVITY DOLLAR INCREASE IMPACT.....	17
TABLE 8: SENSITIVITY PERCENTAGE INCREASE IMPACT.....	17

1. OVERVIEW

The Passenger Screening Program (PSP) oversees the development and deployment of Transportation Security Equipment (TSE) that screens passengers and their personal property to deter, detect, mitigate and prevent transportation of explosives and weapons on commercial aircraft. TSA uses these security equipment systems to guard the checkpoint of approximately 450 U.S. commercial airports, with over 2000 lanes, and other forms of travel across the country, in an effort to prevent catastrophic loss or air piracy. PSP provides TSA screeners the tools and methods to verify that the traveling individuals do not carry any items they could use as weapons or any other type of threat.

PSP divides the systems in support of airport checkpoint screening into three separate capability areas:

1. **Passenger Screening** – Provide Transportation Security Officers (TSO) with the capability to detect threats carried by or concealed on the passenger's body.
2. **Carry-on Baggage Screening** – Provide TSOs with the capability to detect threats on or concealed in the passenger's carry-on baggage.
3. **Layered Security** – Incorporate layers of services and technologies into an integrated security solution with technologies such as credential authentication and standoff detection.

Advanced Imaging Technology (AIT) is a new project that will be used to enhance the TSA passenger screening capability. The purpose of the AIT project is to evaluate and procure commercially available devices that permit Transportation Security Officers (TSOs) to screen passengers for concealed metallic and non-metallic weapons and explosives without using a physical pat-down or hand-held metal detector screening. As defined in the approved standard operating procedure (SOP), alarm resolution will require only a limited, area focused pat-down.

This Life Cycle Cost Estimate (LCCE) covers the projected acquisition and deployment of 1800 AIT units for Full Operational Capability (FOC), and addresses the life cycle cost associated with the validation, deployment, supportability, sustainment, and disposal of these AIT systems. The LCCE structure is as follows:

- a. Section 1: Overview
- b. Section 2: Ground Rules and Assumptions
- c. Section 3: Summary of Methodology
- d. Section 4: Life Cycle Costs (By WBS Element)
- e. Section 5: Summary Charts of Total Life Cycle Cost (By WBS Element)
- f. Section 6: Risk and Sensitivities)

The American Recovery and Reinvestment Act (ARRA) requires TSA to provide an Expenditure Plan for the accelerated procurement and installation of checkpoint explosive technologies at locations with completed design plans. Funds from ARRA will

allow TSA to acquire and deploy Advanced Imaging Technology to their targeted locations a year sooner than originally scheduled.

After deployment, TSA will deploy and initially sustain PSP equipment with Original Equipment Manufacturer (OEM) warranties under the product acquisition contract and then with a Performance Based Logistics (PBL) maintenance support contract using a Maintenance Service Provider (MSP). For this LCCE, TSA will decommission and remove the 1800 units at the end of the expected service life of seven years in the same order as deployed

Table 1 below shows the AIT six year acquisition/deployment schedule provided by the PSP Program Office on February 12, 2010. This schedule was used for the LCCE, with a projected service life of seven years after deployment. Table 2 is a top-level summary of the projected Work Breakdown Structure (WBS) element costs. Section 5 provides a detailed WBS cost summary in "Then Year Dollars", and "Base Year 2009 Dollars".

Table 1: Advanced Imaging Technology Projected Deployment and Disposal Schedule

Projected Acquisition	FISCAL YEAR															
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
<i>Pilot</i>	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
<i>Production</i>	143	300	500	550	125	135	0	0	0	0	0	0	0	0	0	1753
	190	300	500	550	125	135	0	0	0	0	0	0	0	0	0	1800
<i>Disposal</i>	0	0	0	0	0	0	0	190	300	500	550	125	135	0	0	1800

Table 2: Top Level Advanced Imaging Technology Cost Summary

COST SUMMARY BY MAJOR WBS (\$M)			
WBS	Cost	2009 Then Year	2009 Base Year
1.0	Advanced Imaging Technology		
1.1	Product Acquisition	\$ 323.68	\$ 271.31
1.2	System Test and Evaluation	\$ 11.06	\$ 10.08
1.3	Site Surveys	\$ 1.56	\$ 1.42
1.4	Site Activation	\$ 48.48	\$ 44.04
1.5	Out of Warranty Maintenance	\$ 240.68	\$ 186.88
1.6	Training	\$ 99.45	\$ 87.28
1.7	Product & Technical Data	\$ 0.03	\$ 0.03
1.8	Consumables Start Up Package	\$ 3.23	\$ 2.94
1.9	Disposal Costs	\$ 15.71	\$ 10.79
1.10	Engineering Support Services	\$ 16.49	\$ 13.08
	Total	\$ 760.38	\$ 627.86

2. GROUND RULES AND ASSUMPTIONS

Below are the ground rules and assumptions used for the LCCE analysis:

- * The PSP program will continue indefinitely as Public Law mandates that the government perform the security screening of passengers and carry on items at airports.
- * The Advanced Imaging Technology acquisition started in FY09 and costs for that year are included in the "Then Year" and "Base Year" calculations.
- * The base year for Advanced Imaging Technology "Base Year" calculations is FY09.
- * The LCCE uses inflation costs adjustments based on OMB Inflation Allowance Chart dated July 25, 2007 for "Then Year" calculations to establish nominal dollars for the analysis.
- * Due to the variety of tasks that fall under contractor program management and other indirect costs, these type costs are included as part of other cost elements.
- * The cost and benefits of Government personnel conducting program/acquisition management, government oversight of contractor performance, and other related activities are integrated cost of the TSA management function and are not included in this analysis.
- * PSP considers airport facility costs as cost associated with doing business at the airport and are not included in this analysis.
- * Airport security is an overarching responsibility of the TSA and the law requires the TSO to perform this function with or without specific TSE. Specific TSE can improve security operations and should not increase workforce requirements. New technology may in fact reduce these requirements. Therefore, TSO costs are not included in the life cycle cost for this analysis.
- * For consistency in the estimates for this LCCE, the deployment and installation of the TSE happens on the first day of the Fiscal Year (FY).
- * Predictions of costs farther into the future are less accurate than near year cost predictions.
- * The Advanced Imaging Technology integrated project team develops the deployment locations and deployment schedule based on projected need and in coordination with various offices of TSA, including the Office of Security Operations. This analysis does not factor in cost variations based on location.
- * The Original Equipment Manufacturer (OEM) will include a commercial warranty as part of the product acquisition cost for Advanced Imaging Technology. The analysis assumes a 24-month warranty starting. The 24-month warranties will cover all preventive and corrective maintenance, parts and labor. To accommodate this increase in coverage over the typical 12-month commercial warranty, this analysis increases the production unit cost by 10% starting in FY10.
- * Excepted maintenance are infrequent maintenance actions not covered by the warranty. A separate time and material contract line item number (CLIN) is normally added to the product acquisition contract to cover these costs. Since they are infrequent, hard to project, and have minimal impact on the overall life cycle cost, they are not included in the LCCE analysis.

- * After the warranties, the OEM or a third party MSP supports and sustains all TSE through PBL maintenance contracts. TSA will use firm-fixed price PBL maintenance contracts that cover maintenance work force, supply support, maintenance manuals, support equipment, spares packaging and shipment, and maintenance facilities based on a per unit basis of deployed systems.
- * The unit acquisition cost includes all optional accessories required for operation.
- * For the LCCE, the PSP Program Office will decommission and remove the deployed units at the end of the expected service life (seven years) in the same order as deployed
- * While TSE disposed of by the Defense Reutilization and Marketing Service may have some scrap value, there is no direct cost savings to the TSE project.

3. SUMMARY OF METHODOLOGY

Table 3 provides a summary of the Work Breakdown Structure (WBS) used for the AIT LCCE. It also provides an overview of the sources for the estimates and the methodology used for each WBS.

Table 3: Advanced Imaging Technology Work Breakdown Structure

WBS	Work Element	Data Source	Determiner Methodology
1.0	Advanced Imaging Technology		
1.1	Product Acquisition		
1.1.1	Pilot Unit	FFP Contract CLIN0003	Actual
1.1.2	Production Units	FFP Contract CLIN0003	Actual
1.2	System Test and Evaluation		
1.2.1	QT&E	TE - Similar type TSE	Analogy
1.2.2	OT&E	TE - Similar type TSE	Analogy
1.2.3	Field Support for T&E	FFP Contract CLIN0016	Actual
1.2.4	FAT	TE - Similar type TSE	Analogy
1.2.5	SAT	TE - Similar type TSE	Analogy
1.3	Site Surveys	PO - Similar type TSE	Analogy
1.4	Site Activation		
1.4.1	Site Preparation	FFP Contract CLIN014A & 0014B	Actual
1.4.2	MAC (Shipping & Warehouse)	FFP Contract CLIN0018	Actual
1.4.3	System Integration	FFP Contract CLIN0009	Actual
1.5	Out of Warranty Maintenance	FFP Contract CLIN0012 & 0013	Actual
1.6	Training		
1.6.1	Training Image Development	FFP Contract CLIN0011	Actual
1.6.2	Training Simulators	FFP Contract CLIN0011	Actual
1.6.3	Operator Training	FFP Contract CLIN0011	Actual
1.6.4	Maintenance Training	FFP Contract CLIN0011	Actual
1.7	Product & Technical Data		
1.7.1	Operators Manuals	FFP Contract CLIN0004	Actual
1.7.2	Maintenance Manuals	FFP Contract CLIN0005	Actual
1.7.3	Technical Data Package	FFP Contract CLIN0015	Actual
1.8	Consumables Start Up Package	PO - Similar type TSE	Analogy
1.9	Disposal Costs		
1.9.1	Removal	LCS - Similar type TSE	Analogy
1.9.2	DMRS Reclamation	LCS - Similar type TSE	Analogy
1.10	Engineering Support Services	FFP Contract CLIN0017	Actual

Includes those test requirements applicable to the operational environment (e.g., power, voltage, electromagnetic, stress, loading, live interfaces, threat resolution, etc.).

- * SAT is an independent verification of each installed TSE to confirm the set up of the TSE. It also validates the operational configuration of the TSE, and confirms if it remains in compliance with contractual requirements.

Source Data: Similar tests conducted on TSE and Advanced Imaging Technology FY07 Firm Fixed Price (FFP) acquisition contract for OEM Field Support for T&E

Methodology:

- * QT&E, OT&E, FAT, SAT: Analogy to other TSE testing Actual to base year of OEM Field Support for T&E: Actual cost from FY 07 acquisition
- * **Basis of Estimate:**
- * QT&E: FY 07 rate of 1295 hours per test at \$72.00 per hour, with Other Direct Cost (ODC) of \$4,600 for travel and \$36,000 for material inflated to FY 09 cost factor as a non recurring cost in the first year of acquisition
- * OT&E: FY 07 rate of 2100 hours per test at \$72.00 per hour, with Other Direct Cost (ODC) of \$25,000 for travel and \$43,000 for material inflated to FY 09 cost factor as a non recurring cost in the first year of acquisition
- * Field Support for T&E: \$300,000 contract base year cost factor inflated to applicable acquisition year as a recurring cost during the acquisition years
- * FAT: FY 07 rate of one hour per test at \$72,00 per hour ,with Other Direct Cost (ODC) of \$1,900 travel x per units acquired inflated to applicable acquisition year cost factor as a recurring cost during the acquisition years
- * SAT: FY 07 rate of one hour per test at \$72,00 per hour ,with Other Direct Cost (ODC) of \$1,900 travel x per unit acquired inflated to applicable acquisition year cost factor as a recurring cost during the acquisition years

Cost Element 1.3 - Site Surveys

Definition: The Site Survey element (WBS 1.3) represents the cost associated with the conduct of site surveys conducted by the programs office at deployed locations to ensure the airports have all the installation and integration requirements before the arrival of the TSE at the deployment location. Areas addressed for site surveys include space, power, communications, and mechanical requirements, and any additional accessories or furnishings required for the installation and operation of the TSE.

Source Data: Similar type site surveys for TSE

Methodology: Analogy to other site surveys

Basis of Estimate: FY 07 rate of four hours per site survey at \$72.00 per hour plus Other Direct Costs (ODC) of \$1,900 for travel x 1/3 units acquired in a year inflated to applicable acquisition year cost factor as a recurring cost during the acquisition years.

Cost Element 1.4- Site Activation

Definition: The Site Activation element covers all the activities necessary to ship TSE to the deployed location and to install and integrate a TSE. This includes the costs for site preparation and modification (WBS 1.4.1), shipping and temporary warehousing of the units before installation (WBS 1.4.2), and system installation and integration at the

- * Training simulators provide the software that will be required for use of the training images and will run on commercial PCs' allowing for playback of images simulating all controls and functionality of the system.
- * Operator training prepares the TSOs at the deployed sites to use properly the TSE, including all system functions.
- * Maintenance training provides training in the maintenance of the TSE for field service technicians (FST) and Government engineers supporting the performance of the contract.

Source Data: Advanced Imaging Technology FY07 FFP acquisition contract

Methodology:

- * Training Image Development – Actual cost from the first year of FY 07 acquisition contract
- * Training Simulators – Actual Cost from first year of FY 07 acquisition contract
- * Course Conduct – Actual per class cost by type course from first year of FY 07 acquisition contract

Basis of Estimate:

- * Training Image Development: \$62,150.00 contract base year cost factor inflated to first year of acquisition as a non recurring cost in the first year of acquisition
- * Training Simulators: \$7,000.00 contract base year cost factor x number of units acquired inflated to applicable acquisition year cost factors as a recurring cost during the acquisition years
- * Operator Training Conduct: \$17,845.00 per class contract base year cost factor x number units acquired inflated to applicable acquisition year cost factor as a recurring cost during the acquisition years
- * Maintenance Training Conduct: \$19,608.00 per class contract base year cost factor x number of new units OWW inflated to applicable year cost factor as a recurring cost until two years after the end of acquisition

Cost Element 1.7 - Product & Technical Data

- * **Definition:** The Product and Technical Data element represents the cost associated with developing and delivering the operator manuals (WBS 1.7.1), the maintenance manuals (WBS 1.7.2), and an engineering technical data package (WBS 1.7.3). The Operators Manual describes all functions for the operation of the system. It includes instructions on how to execute each function, and any troubleshooting guidance necessary to resolve errors not requiring corrective maintenance by qualified technicians.
- * The Maintenance Manual supports on-site scheduled (preventive) and unscheduled (corrective) maintenance performed by qualified maintenance technicians. It includes instructions on how to perform preventive maintenance actions, and on performing corrective maintenance including diagnostics and repair actions.
- * The Technical Data Package (TDP) will provide engineering and technical information in accordance with commercial drawing requirements on all assemblies and subassemblies identified as lowest replaceable units in the associated maintenance documentation, as required to support preventive and corrective maintenance actions and associated provisioning. The TDP will

include models, drawings, lists, specifications, standards, performance requirements, quality assurance requirements, software documentation and packaging details.

Source Data: Advanced Imaging Technology FY07 FFP acquisition contract

Methodology:

- * Operators and Maintenance Manuals: Actual, not separately priced
- * Technical Data Package: Actual cost from first year of FY 07 acquisition contract

Basis of Estimate:

- * Operators and Maintenance Manuals: Not separately priced, included in product acquisition costs
- * Technical Data Package: \$31,021 contract base year cost factor inflated to first year of acquisition as a non recurring cost in the first year of acquisition

Cost Element 1.8 - Consumables Start-Up Package

Definition: The Consumables Start-Up Package element (WBS 1.8) represents the costs for a one-time start-up consumable package delivered with each TSE. It consists of consumables required for operation of the basic system and any supplies needed for daily or weekly operator servicing of the TSE for the first three months of normal operations.

Source Data: Similar type consumable start-up packages for TSE

Methodology: Analogy to similar type TSE

Basis of Estimate: FY 07 \$1,500.00 per package cost factor x number units acquired inflated to applicable acquisition year as a recurring cost during the acquisition years

Cost Element 1.9 - Disposal

Definition: The Disposal element includes all costs associated with dismantling, removing, and properly disposing of TSE at the end of its life cycle. When TSA removes TSE from an installed location, a contractor will disassemble and pack the TSE for shipment, and arrange for handling and shipment of the TSE to the TSA warehouse (WBS 1.9.1). At the warehouse, TSA will arrange for the proper reclamation and disposal of the TSE through the Defense Reutilization and Marketing Service (DRMS) (WBS 1.9.2). This ensures the TSE is disposed of in compliance with all TSA Sensitive Security Information (SSI), safety, hazardous material, and property management requirements.

Source Data: Legacy ETD removal and disposal actions for TSE

Methodology: Analogy to legacy ETD TSE with increased cost for larger size of Advanced Imaging Technology

Basis of Estimate:

- * Removal: FY 07 \$5,000.00 per unit cost factor x number units removed inflated to applicable life cycle disposal year as a recurring cost during the disposal years
- * DMRS Reclamation: FY 07 \$500.00 per unit cost factor x number units removed inflated to applicable life cycle disposal year as a recurring cost during the disposal years

Cost Element 1.10 - Engineering Support Services

Definition: The Engineering Support Services element (WBS 1.10) covers the costs associated with contractor engineering and technical services that the LCCE does not address under other cost elements. This includes such actions as assisting in field tests, troubleshooting and correcting problems that may arise during or after tests, preparing and managing engineering change proposals (ECP), and any other training conduct required. ECPs are changes to the TSE required to correct deficiencies, add or modify interface or interoperability requirements, make a significant and measurable effectiveness change in the operational capabilities or logistics supportability of the system, effect substantial life cycle cost savings, or prevent slippage in an approved production schedule.

Source Data: Advanced Imaging Technology FY07 FFP acquisition contract

Methodology: Actual cost for first year of FY 07 contract

Basis of Estimate: \$1,000,000.00 contract base year cost factor inflated to applicable engineering support year as a recurring cost during the life cycle of the project

5. SUMMARY CHARTS OF TOTAL LIFE CYCLE COST (by WBS ELEMENT)

This Section provides summary charts of the "Then Year" (escalated for budgeting) and "Base Year" estimates for acquisition, deployment and disposal of 1800 AIT TSE over the projected life cycle of the systems. Table 4 is a summary of the LCCE based on "Then Year" dollars calculated from the applicable BOE identified in Section 4 and using the inflation rates in OMB Inflation Allowance Chart, dated July 25, 2007. Table 5 is a summary of the LCCE based on "Base Year 2009" dollars.

Table 5: Base Year 2009 Cost Summary by WBS (\$M)

		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
1.0	Advanced Imaging Technology															
1.1	Product Acquisition	\$30.03	\$44.96	\$74.93	\$82.43	\$18.73	\$20.23	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$274.31
1.1.1	Pilot Unit	\$ 8.60	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8.60
1.1.2	Production Units	\$ 21.44	\$ 44.96	\$ 74.94	\$ 82.43	\$ 18.74	\$ 20.24	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 262.72
1.2	System Test and Evaluation	\$11.53	\$ 1.62	\$ 2.48	\$ 2.69	\$ 0.86	\$ 0.91	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10.08
1.2.1	QT&E	\$ 0.15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.15
1.2.2	OT&E	\$ 0.24	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.24
1.2.3	Field Support for T&E	\$ 0.33	\$ 0.33	\$ 0.33	\$ 0.33	\$ 0.33	\$ 0.33	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.96
1.2.4	FAT	\$ 0.41	\$ 0.64	\$ 1.07	\$ 1.18	\$ 0.27	\$ 0.29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.87
1.2.5	SAT	\$ 0.41	\$ 0.64	\$ 1.07	\$ 1.18	\$ 0.27	\$ 0.29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.87
1.3	Site Surveys	\$ 0.16	\$ 0.24	\$ 0.39	\$ 0.43	\$ 0.10	\$ 0.11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.22
1.4	Site Activation	\$ 5.13	\$ 7.34	\$ 11.36	\$ 12.87	\$ 3.82	\$ 4.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 43.04
1.4.1	Site Preparation	\$ 1.31	\$ 1.31	\$ 1.31	\$ 1.31	\$ 1.31	\$ 1.31	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7.85
1.4.2	MAC (Shipping & Warehouse)	\$ 0.28	\$ 0.41	\$ 0.68	\$ 0.75	\$ 0.17	\$ 0.18	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.45
1.4.3	System Integration	\$ 3.56	\$ 5.62	\$ 9.37	\$ 10.31	\$ 2.34	\$ 2.53	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33.74
1.5	Out of Warranty Maintenance	\$ -	\$ -	\$ 3.95	\$ 10.17	\$ 20.56	\$ 31.98	\$ 34.57	\$ 33.43	\$ 27.20	\$ 16.82	\$ 5.40	\$ 2.80	\$ -	\$ -	\$ 186.88
1.5.1	In Warranty (IW) Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1.5.1	Out of Warranty (OOW) Maintenance	\$ -	\$ -	\$ 3.95	\$ 10.17	\$ 20.56	\$ 31.98	\$ 34.57	\$ 33.43	\$ 27.20	\$ 16.82	\$ 5.40	\$ 2.80	\$ -	\$ -	\$ 186.88
1.6	Training	\$ 5.21	\$ 8.12	\$ 17.60	\$ 21.31	\$ 14.07	\$ 15.41	\$ 2.67	\$ 2.89	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 87.28
1.6.1	Training Image Development	\$ 0.07	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.07
1.6.2	Training Simulators	\$ 1.45	\$ 2.29	\$ 3.81	\$ 4.20	\$ 0.95	\$ 1.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13.73
1.6.3	Operator Training	\$ 3.70	\$ 5.83	\$ 9.72	\$ 10.70	\$ 2.43	\$ 2.63	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 35.01
1.6.4	Maintenance Training	\$ -	\$ -	\$ 4.06	\$ 6.41	\$ 10.69	\$ 11.75	\$ 2.67	\$ 2.89	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 38.47
1.7	Product & Technical Data	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.03
1.7.1	Operators Manuals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.7.2	Maintenance Manuals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1.7.3	Technical Data Package	\$ 0.04	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.03
1.8	Consumables Start Up Package	\$ 0.31	\$ 0.49	\$ 0.82	\$ 0.90	\$ 0.20	\$ 0.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.94
1.9	Disposal Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.14	\$ 1.80	\$ 3.00	\$ 3.30	\$ 0.75	\$ 0.81	\$ -	\$ 10.79
1.9.1	Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.04	\$ 1.63	\$ 2.72	\$ 3.00	\$ 0.68	\$ 0.74	\$ -	\$ 9.81
1.9.2	DMRS Reclamation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.10	\$ 0.16	\$ 0.27	\$ 0.30	\$ 0.07	\$ 0.07	\$ -	\$ 0.98
1.10	Engineering Support Services	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.00	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.09	\$ 1.00	\$ -	\$ -	\$ 13.08
TOTALS		\$43.48	\$63.86	\$112.62	\$131.39	\$69.44	\$73.97	\$38.33	\$38.54	\$30.09	\$20.91	\$9.79	\$4.64	\$0.81	\$-	\$627.86

6. RISK and SENSITIVITY

Labor Rate Volatility

As shown on Table 6 below, maintenance and product acquisition are the two cost drivers for the Advanced Imaging Technology acquisition. Together they account for 74.22% of the "Then Year" total life cycle cost. While the PBL maintenance contract and product acquisition contract establish FFP per unit cost, labor rate volatility in the technical field could influence the projected unit maintenance cost and/or product acquisition costs for future years beyond the anticipated inflation rate. Tables 7 and 8 show the fiscal impact if maintenance cost (WBS 1.5) and product acquisition production unit costs (WBS1.1.2) increased by an additional 1%, 3%, 5%, 8% and 10% in FY10. The top row shows the increases if only production unit costs were increased, and the left column shows the increase if only maintenance unit costs were increased. The other matching intersections show the increases with the associated maintenance and product acquisition percentage increases. A 10% FY10 increase in both maintenance unit cost and production unit costs would result in a \$53.43M and 7.03% increase in the overall life cycle costs of the project.

(Note that the analysis increased the FY10 production acquisition unit cost by 10% over the previous year's estimates to cover the increased costs for a two years full warranty starting in FY 10. The labor rate volatility increases used for the sensitivity analysis are additional percentage increases.)

Table 6: Cost Summary Percentages

% COST SUMMARY BY MAJOR WBS (\$M)			
WBS	Costs	FY10 Then Year	FY10 Est. Year
1.0	Advanced Imaging Technology		
1.1	Product Acquisition	42.57%	43.21%
1.2	System Test and Evaluation	1.46%	1.61%
1.3	Site Surveys	0.20%	0.23%
1.4	Site Activation	6.38%	7.01%
1.5	Out of Warranty Maintenance	31.65%	29.76%
1.6	Training	13.08%	13.90%
1.7	Product & Technical Data	0.00%	0.01%
1.8	Consumables Start Up Package	0.43%	0.47%
1.9	Disposal Costs	2.07%	1.72%
1.10	Engineering Support Services	2.17%	2.08%
	Total	100.0%	100.0%

Table 7: Sensitivity Dollar Increase Impact

		Sensitivity Analysis - Year 10						
		Production Per Unit Cost						
		\$760,376,637	FY10	1% Increase	3% Increase	5% Increase	8% Increase	10% Increase
		Unit Costs	\$760,376,637	\$763,308,778	\$769,200,071	\$775,055,328	\$783,863,955	\$789,738,089
Maintenance Per Unit Cost	FY10	\$21,554	\$760,376,637	\$763,308,778	\$769,200,071	\$775,055,328	\$783,863,955	\$789,738,089
	1% Increase	\$21,769	\$762,777,374	\$765,713,583	\$771,587,717	\$777,460,135	\$786,268,762	\$792,142,896
	3% Increase	\$22,200	\$767,590,014	\$770,526,223	\$776,400,357	\$782,272,775	\$791,081,402	\$796,955,536
	5% Increase	\$22,631	\$772,402,654	\$775,338,863	\$781,212,997	\$787,085,415	\$795,894,042	\$801,768,176
	8% Increase	\$23,278	\$779,627,197	\$782,563,406	\$788,437,540	\$794,309,958	\$803,118,585	\$808,992,719
	10% Increase	\$23,709	\$784,439,837	\$787,376,046	\$793,250,180	\$799,122,598	\$807,931,225	\$813,805,360

Table 8: Sensitivity Percentage Increase Impact

		Sensitivity Analysis - Year 10						
		Production Per Unit Cost						
			FY10	1% Increase	3% Increase	5% Increase	8% Increase	10% Increase
		Unit Costs	\$171,119	\$172,830	\$176,253	\$179,675	\$184,808	\$188,231
Maintenance Per Unit Cost	FY10	\$21,554	0.00%	0.39%	1.16%	1.93%	3.09%	3.86%
	1% Increase	\$21,769	0.32%	0.70%	1.47%	2.25%	3.41%	4.18%
	3% Increase	\$22,200	0.95%	1.33%	2.11%	2.88%	4.04%	4.81%
	5% Increase	\$22,631	1.58%	1.97%	2.74%	3.51%	4.67%	5.44%
	8% Increase	\$23,278	2.53%	2.92%	3.69%	4.46%	5.62%	6.39%
	10% Increase	\$23,709	3.16%	3.55%	4.32%	5.10%	6.25%	7.03%



Transportation Security Administration

Advance Imaging Technology Equipment:

Location	Lanes	Model AIT	Serial Number
CHKPT - A1 Delta/NWA/Alaska/Continental	L 1/2	Rapiscan 1000	S50948005
	L 3/4	Rapiscan 1000	S50948004
	L 5/6	Rapiscan 1000	S50948003
	L 7/8	Rapiscan 1000	S50948002
CHKPT - E2 International	L 2/3	Rapiscan 1000	S50950008
	L 4/5	Rapiscan 1000	S50950006
	L 7	Rapiscan 1000	S50950007
CHKPT - B1 US Air	L 1/2	Rapiscan 1000	S51006004
CHKPT - B2 US Air Shuttle	L 2/3	Rapiscan 1000	S50951004
CHKPT - B5 American	L 1/2	Rapiscan 1000	S50951005
	L 3/4	Rapiscan 1000	S50950010
	L 5/6	Rapiscan 1000	S50951002
	L 7/8	Rapiscan 1000	S50951003
CHKPT - C1 Air Tran	L 1/2	Rapiscan 1000	S50950009
CHKPT - C2 JetBlue	L 3/4	Rapiscan 1000	S51006006
CHKPT - C3 United	L 3/4	Rapiscan 1000	S50951005
CHKPT - E1 Southwest	L 2/3	Rapiscan 1000	S51006006



Transportation Security Administration

SPO-7R Equipment:

- There are two SPO-7R's located at Boston Logan International Airport and these are deployed randomly to different locations

Equipment	Serial Number
SPO-7R	1008
SPO-7R	1011