



Vic Thompson Company Profile



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- **FOUNDED IN 1994**
- **LOCATIONS**
 - Headquarters: Arlington, TX
- **OUR VISION:** *To honor our values of innovation, excellence and integrity by being leaders in our chosen fields of design/build, construction management and systems engineering*
- **OUR MISSION:** *Build and maintain enduring relationships with clients who share our values*
- **THREE INTEGRATED BUSINESS UNITS:**
 - Design & Construction
 - Research & Development
 - Operations & Maintenance



Overview

DESIGN & CONSTRUCTION

- Master Planning
- System Design & Construction
- Program & Project Management
- On-site Quality Assurance
- Construction Administration
- Peer Review – Evaluations of Operational Security Systems
- Owner Representation
- System Installation and Integration
- System Testing and Commissioning

RESEARCH & DEVELOPMENT

- Product Research and Development
- Integration & Testing of Technologies & Equipment into Optimized Security Systems
- Simulation Modeling
- Evaluation of Security Technologies
- Independent Testing and Evaluation
- Integration Standards and Procedures for Government and Private Customers

OPERATIONS & MAINTENANCE

- On-site O&M management support for Security Systems
- O&M Program Development for Security Systems
- Installation and Commissioning of Security Systems
- O&M Support of Ancillary Airport Equipment
- O&M Training
- CMMS Development, Deployment, and Training



Overview



VTC PROVIDES:

- Multifaceted and professional engineering and management services
- Efficient, economical and practical solutions
- Strategic planning, concept development, system design, engineering, and integration testing and evaluation

EXPERIENCE INCLUDES:

- Successful completion of over 200 projects at more than 90 sites nationwide
- Significant contributions to the Transportation Security Administration's (TSA) Planning Guidelines and Design Standards (PGDS) for CBIS
- Overall management of millions of square feet of renovation and new construction

KEY CUSTOMERS INCLUDE:

- Airports
- Port Authorities
- Airlines
- TSA



*Design & Construction
Capabilities*



HARRISBURG INTERNATIONAL AIRPORT (MDT)

- Certified at 535 BPH per machine with less than 0.05% error rate
- Described as “among the best they have seen” and “easy to test” by Battelle

CHICAGO MIDWAY INTERNATIONAL AIRPORT (MDW)

- 10 machine system
- Over 525 BPH per machine with less than 1% error rate

HOUSTON HOBBY AIRPORT (HOU)

- Certified at 576 BPH per machine, the highest throughput in the country at the time

*Design & Construction
Highlights*



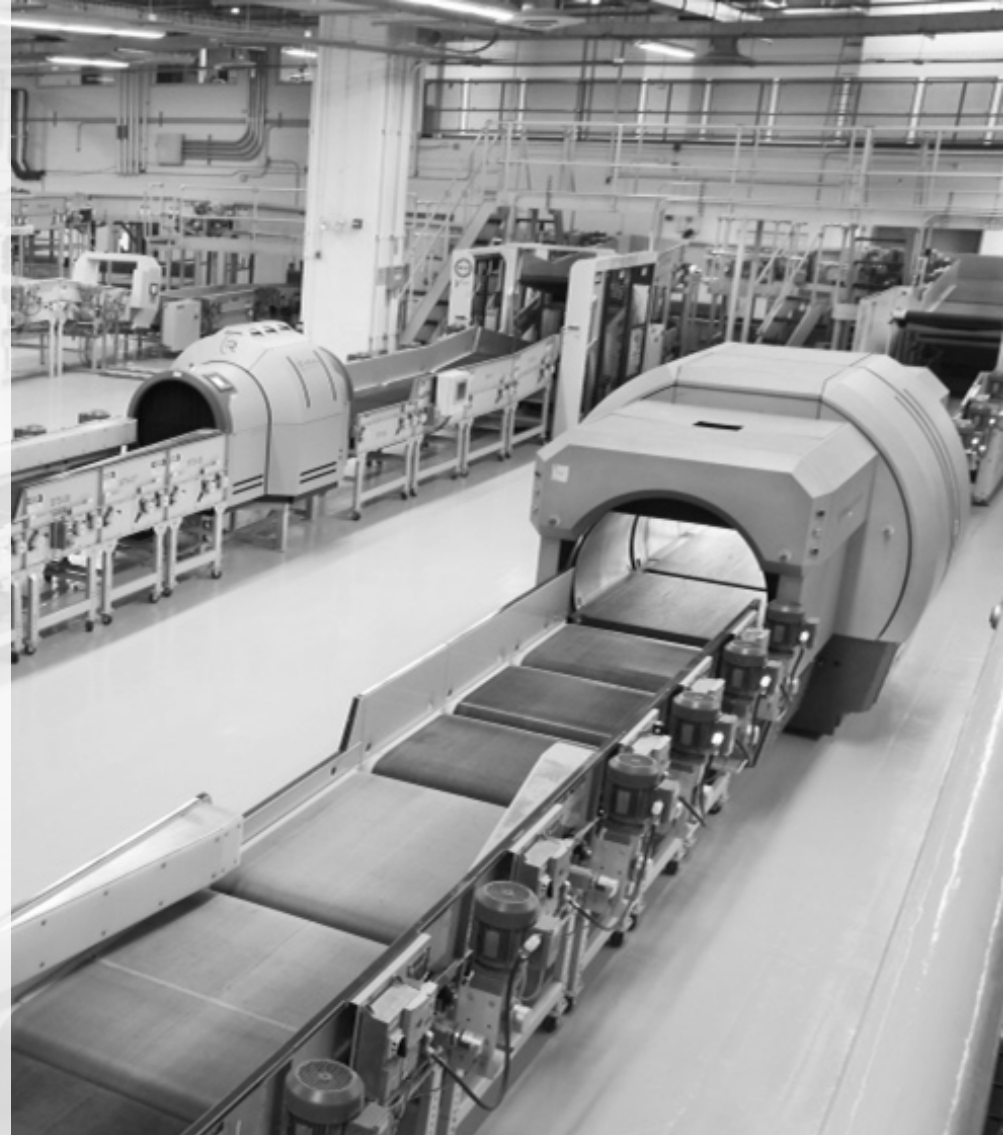
THE TSIF:

- Houses dedicated laboratories, test areas and office space for more than 150 systems and testing engineers
- Accommodates five different EDS technologies within a single CBIS for concurrent testing
- Provides a realistic environment to evaluate current and new advanced screening technologies, processes and procedures

VTC PROVIDED:

- Overall program and construction management
- Design, simulation modeling, construction administration, quality assurance, testing and commissioning
- Simulation of outbound passenger, baggage and cargo movement
- Adherence to fast-track schedules

Client	Transportation Security Administration
Project Cost	\$25,600,000
Started	March 2008
Completed	December 2008
Project Scope	Design/Builder of 128,000 sq ft Testing Facility



TSA Systems Integration Facility (TSIF)



Over the course of five years, VTC provided the necessary design/build services for the following Southwest Airlines (SWA) expansion projects:

- Concourse C ramp and operations expansion
- Facilities and aircraft maintenance facility
- Ticket counter check-in and ticket office expansion
- Outbound baggage conveyor system as well as expansion of baggage make-up facilities
- Build-out of a new cargo facility
- Renovation of the GSE and provisioning facility

SWA was able to more than double the number of daily flights at LAS

Client	Southwest Airlines
Project Cost	\$25,000,000
Started	1998
Completed	2004
Project Scope	Design/Builder & Owner's Representative



*McCarran International
Airport (LAS)*



AS THE PRIME DESIGN CONSULTANT, VTC:

- Prepared all CBIS design documents including nine different configuration alternatives for analysis and stakeholder selection
- Orchestrated all A&E design tasks in the preparation and consolidation of all design and construction documents for two new 3-machine in-line CBIS and two new structures to house the CBIS screening matrices
- Provided on-site construction administration and quality assurance services
- Developed detailed, site specific, contingency plans
- Facilitated monthly meetings to establish continuity and encourage a collaborative discussion amongst all system stakeholders

Client	Columbus Regional Airport Authority
Project Cost	\$50,000,000
Started	September 2007
Completed	February 2012
Project Scope	Design, QA/CA, Testing and Commissioning Support



*Port Columbus International
Airport (CMH)*



VTC continues to demonstrate the value of understanding the special requirements of airport and airline operations by bringing the right professional talent to a project and maintaining communications with all stakeholders.

VTC RENOVATED AND OPTIMIZED:

- Airline ticket offices
- Ticket counter outbound and inbound claim/conveyor systems
- Baggage make-up facility
- Passenger gate hold rooms
- Passenger screening operations
- Aircraft maintenance and parts facility
- Cargo and provisioning facility
- Passenger boarding bridges

THROUGHOUT THE COURSE OF THE PROJECT, VTC:

- Minimized impact to daily operations
- Achieved optimal operational benefits in support of SWA's growth
- Maintained a safe environment for the traveling public during construction

Client	Southwest Airlines
Project Cost	\$6,800,000
Started	1995
Completed	1999
Project Scope	Design/Builder



Kansas City International Airport (MCI)



As the prime design consultant for two new Checked Baggage Inspection Systems (CBIS), including necessary facility modifications to house the new CBIS, VTC:

- Reviewed the original proposed CBIS design that called for two screening matrices with a total of five machines to service just Terminal 1
- Streamlined the design and developed a more cost effective and efficient 3-machine matrix that will support the screening requirements for all of Terminal 1, thus saving money and resources
- Centralized the On Screen Resolution Room (OSR) for both Terminal 1 and Terminal 2 to offer greater staffing efficiencies
- Evaluated and streamlined the airline's baggage make-up configuration and process throughout the airport leading to improved operational performance and efficiency

Client	City of St. Louis
Project Cost	\$60,000,000
Started	July 2009
Completed	On-going
Project Scope	Design, Modeling, CA/QA, Testing and Commissioning



*Lambert-St. Louis
International Airport (STL)*



- Comprehensive survey of newly commissioned, under performing CBIS
- Detailed recommendations on best approach to achieve optimal performance
- Design and Construction Management Services for modifications to existing 7 machine system
- Modeling used throughout design and construction to optimize system
- 7 phases, some during peak season; multiple contingency plans
- Originally, the system was certified at 1,500 BPH with an error rate of 7-10%
- After the redesign, the system was certified by the TSA at a throughput of 2,500 BPH and an error rate of less than 1% with no additional CT machines

Client	Lee County Port Authority
Project Cost	\$12,700,000
Started	February 2006
Completed	January 2008
Project Scope	CBIS Re-design and Construction Management



Southwest Florida International Airport (RSW)



- Pioneer site for legacy CBIS re-control process optimization
- System survey and detailed recommendations report on best approach to achieve optimal performance
- System optimization to accommodate AirTran merger
- Design/Build services for CBIS re-control and upgrade of existing six machine CBIS, which consists of two pods (East and West)
- Legacy system capacity approximately 1400 BPH
- Modifications will improve system to approximately 2400 BPH and lower the existing error rate
- Phase 1 (East pod) completed and certified with 1200 BPH capacity and 2% error rate

Client	Southwest Airlines
Project Cost	\$5,000,000
Started	April 2011
Completed	April 2012
Project Scope	Design/Build, QA/CA, Testing and Commissioning Support



*Baltimore Washington International
Thurgood Marshall Airport (BWI)*



- Design/Build – Design and modifications to existing 2 machine system for SWA
- Final system throughput increased by approximately 250%
- System Error rate reduced to less than 1%
- Unique phasing:
 - Temporary conveyor used to transport baggage to next ticket counter conveyor
 - Baggage handlers used to transport bags back to make-up unit
 - Minimal interruption to SWA

Client	Southwest Airlines
Project Cost	\$1,000,000
Started	January 2005
Completed	October 2006
Project Scope	Design/Build, Modeling, QA/CA, Testing and Commissioning Support, Training



Manchester Boston Regional Airport (MHT)

ITEMS TO AVOID:

- Steep Conveyor Slopes
- Photoeyes Too Close to the Belt
- Static-Plough and Roller Diverters
- Improper Merging and Too Many Merges
- 90-Degree Belt Merges (Right Angle Transfer)
- Directly Opposing Diverters
- Reinsertion Points Between CT Machine and Decision Points
- Bottlenecks
- Non-Powered Rollers
- Power Turns at the CT Machine Exit
- Mixing Bags with All Statuses Together (Most Inefficient Systems)



CBIS Lessons Learned



ITEMS TO USE:

- Variable Frequency Drives and Conveyor Brakes
- High Speed Diverters instead of Pushers
- Tubs When Appropriate
- Caution with Draft Curtain Placement

ITEMS TO CONSIDER:

- How Bag Orientation to the CT Machine will be Maintained
- Affect of Short Reconciliation Lines
- Tracking Methodology (PE, Shaft Encoders, RFID)
- Manage Belt Speed Transitions to Avoid Tracking Loss
- Quickly Separate Bags Based on Status (Most Efficient System)



*CBIS Lessons Learned
(cont.)*

QUESTIONS TO ASK

- System Capacity
 - Bag Volumes (Current and Projected)
 - CT Machine Throughput
 - CBIS Delivery and Take-away Capability
 - Bag Time in System
- Storage Capacity
 - Passenger Arrival Curves
 - Make-up Capacity
 - Cart Storage
- Tracking Technology – PE and Shaft Encoders
- Bag Tag Reading Technology
 - Laser Array
 - RFID
- Maximizing System Automation
- System Operational Availability
- Fail Safe Functionality



System Design Criteria



QUESTIONS TO ASK (CONT.)

- Handling of Oversized Bags
- Handling of Alarmed Bags
- Handling of Selectee Bags
- Handling International Connecting Bags
- OSR
- CBRA (ETD Resolution Area)
- Ergonomics
- Contingency Plans (Proactive and Reactive)
- Engineering Issues
- Maintenance Access and Removal
- Floor Loading
- Integration with Existing Systems



*System Design Criteria
(cont.)*



VTC has a long history and on-going commitment to in-house *Research and Development* (R&D), testing, and evaluation of a broad range of both stand-alone and integrated systems. The R&D business unit responds to needs identified internally as well as by our clients. Solutions encompass both first article products and improvements to processes and procedures.

VTC'S R&D UNIT PROVIDES:

- Strategic planning for technology programs and activities
- Concept development, 1st article testing, and requirements analysis
- System design, engineering and integration
- Developmental and operational testing and evaluation
- Modeling and simulation



Research & Development



THE TEST BED:

- Enhances and promotes greater collaboration and cooperation between all stakeholders
- Provides a neutral venue for testing to generate objective data for assessing technology, maturity, and interoperability
- Confirms performance against defined needs and requirements
- The emphasis of the Test Bed Program is operational testing, but it can accommodate a variety of component and integration testing. The CBIS Test Bed may be used to perform discrete testing and evaluation activities including Figure of Merit Testing, evaluation of systems upgrades, data collection, and analysis based on anomalous results from other test activities, operational performance reviews, and functional evaluations of subsystem's elements and components.

VTC CBIS Test Bed



VTC PROVIDES:

- Test area support throughout the equipment evaluation process
- Various system configurations tests
- Collaboration with stakeholders in order to optimize design configurations
- Proper functionality testing for all levels of screening equipment, such as:
 - Explosion Detection Systems (EDS)
 - Explosives Trace Detection (ETD)
 - Passenger screening portals
 - Enhanced metal detectors
 - Sortation units
 - Workstations
 - Test fixtures
- Equipment trade off analyses for the TSA and recommendations of lease versus purchase options resulting in cost savings to the Federal Government

Client	TSA
Project Cost	\$6,000,000
Started	2008
Completed	On-going
Project Scope	Test Area Support

TSIF Test Support



VTC PROVIDES THE FOLLOWING CHECKPOINT SERVICES:

- Evaluates emerging checkpoint security screening technologies and trends
- Designs checkpoint scenarios that optimize technology as well as passenger flow
- Assesses new technologies, such as:
 - Advanced Imaging Technology (AIT)
 - Walk Through Metal Detectors (WTMD)
 - Stand-off detection
 - Advanced Technology (AT)
 - Explosive Trace Detection (ETD)

SITES INCLUDE:

- Oakland International Airport (OAK)
- Phoenix Sky Harbor International Airport (PHX)
- Port Authority New York New Jersey (PANYNJ)
- Los Angeles International Airport (LAX)
- Mineta San Jose International Airport (SJC)
- TSA Systems Integration Facility (TSIF)

IN SUPPORT OF TSA'S PAX 2.0 PROGRAM, VTC:

- Provided system design in support of TSA's goals and mission
- Evaluated checkpoint layouts and proposed system modifications
- Devised alternative layouts and performed engineering and evaluation testing



Passenger Screening Services



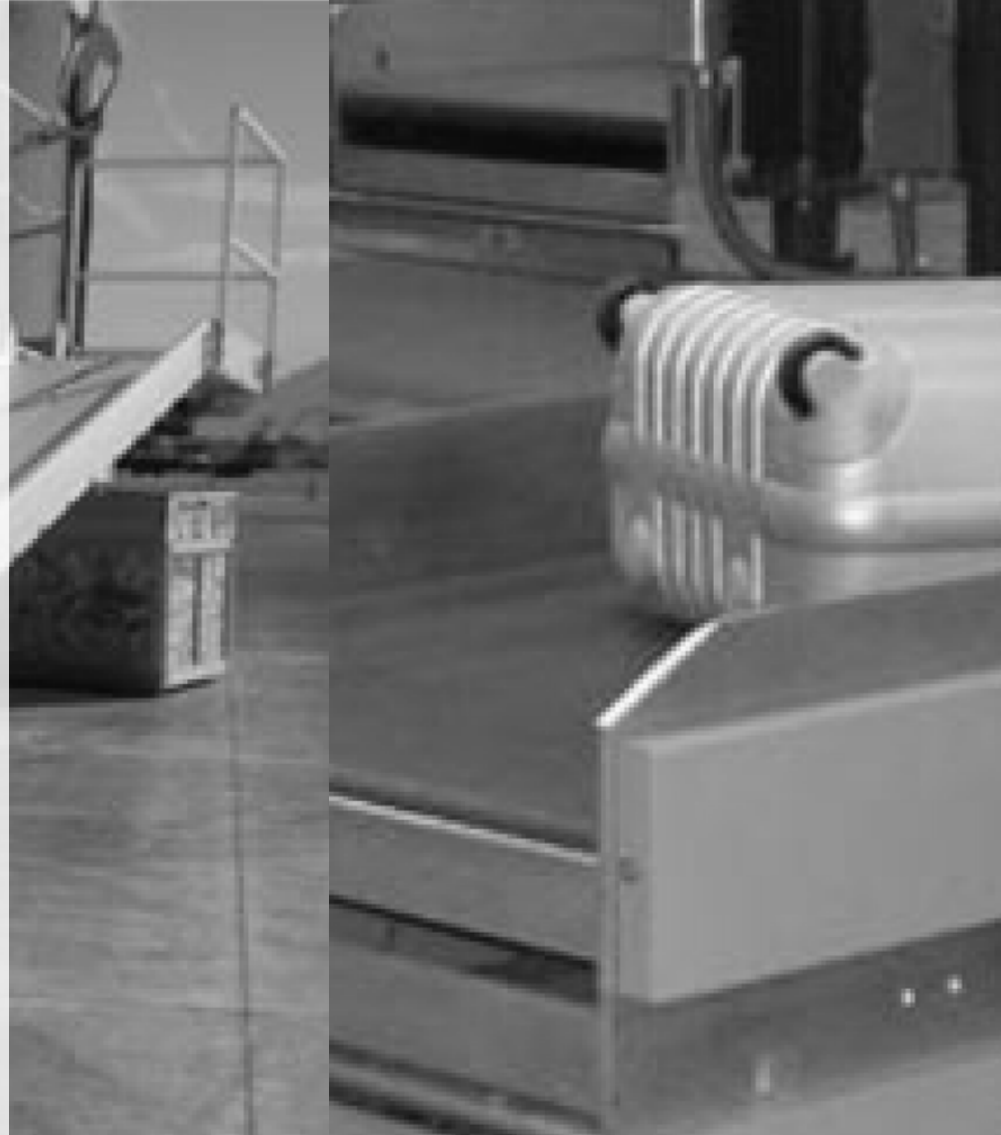
As part of our Research and Development business unit, VTC develops solutions to meet our client's needs.

BAGGAGE SLIDE:

- Ideal for moving excess carry-on baggage, strollers and wheelchairs from the passenger boarding bridge to the ramp
- The modular construction consists of an anodized aluminum frame and slider bed that is lightweight, sturdy and rust resistant which makes them easy to install and maintain
- The light-weight aluminum reduces the cantilevered load on the passenger boarding bridge while the modular design allows for easy parts replacement caused by tug and/or bag cart damage.

BOB-M (NO LIFT BAGGAGE SHUTTLE):

- Ideal for use in virtually any airport Checked Baggage Resolution Area (CBRA)
- Designed and assembled in the USA
- Incorporates high quality aluminum and steel to provide strength and durability in today's demanding airport environment
- A self-contained system that requires minimal maintenance
- A complete ergonomically integrated solution for reducing on-the-job injuries and increasing productivity
- This unit is compliant with the no lift policy in TSA's Planning Guidelines and Design Standards version 4.0
- VTC has also designed and developed a ticket counter version that offers the same ergonomic benefits found in the CBRA model



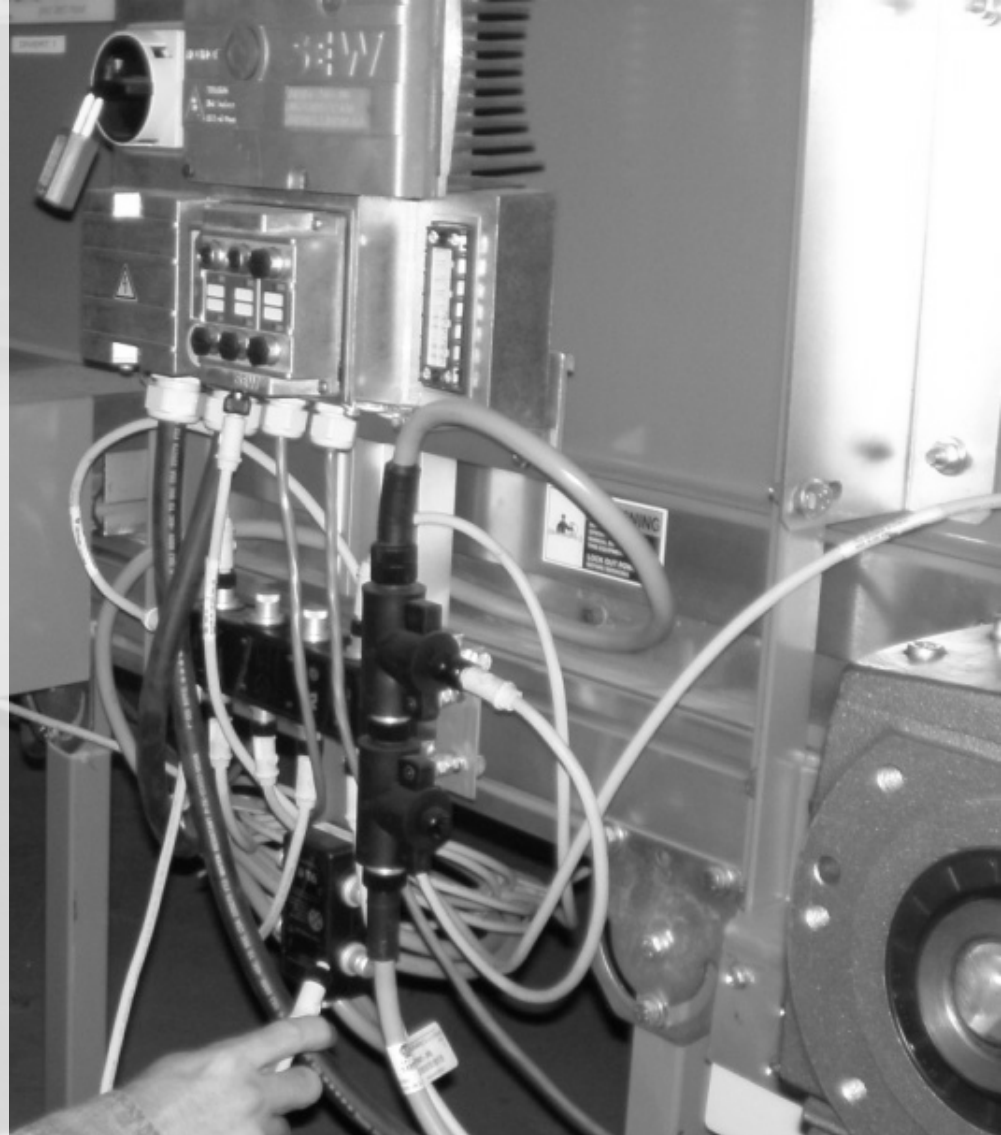
*Products:
Baggage Slide and BOB-M*



Vic Thompson Company (VTC) provides on-site management of operations and maintenance (O&M) for security screening systems. Services include oversight of the entire system development and implementation of maintenance programs and training plans, and management of contractor maintenance staff.

VTC'S O&M BUSINESS UNIT PROVIDES:

- On-site Operations and Maintenance support for security screening systems
- Customization of Computerized Maintenance Management Systems (CMMS)
- Operations and Maintenance support of specialized ancillary equipment
- Operations and Maintenance program development and training for security screening systems
- Integrated Logistics Support
- Acquisition and Life-Cycle Management



Operations & Maintenance



WHILE SERVING AS THE OWNER'S REPRESENTATIVE FOR SWA, VTC:

- Acted in the interest of SWA and continuously assessed the compliance of the SWA contractor with performance standards outlined within the contract
- Managed the deployment, utilization and communications among all stakeholders and the contractor's personnel
- Coordinated and scheduled the participation of SWA resources for all system testing activities. This required system wide cooperation throughout the ISAT performed by Battelle.
- Participated in the development of risk mitigation and contingency operations plans and procedures for facility operations. These plans were written to facilitate the operations of all stakeholders during a system failure

Client	Southwest Airlines (SWA)
Project Cost	\$1,800,000
Started	2006
Completed	2008
Project Scope	Owner's Representative and BHS Operations & Maintenance Management

*Baltimore Washington International
Thurgood Marshall Airport (BWI)*



VTC CAN PROVIDE YOU WITH:

- “Best in Class” design and construction services
- A world class testing facility
- Standardized processes and procedures
- A fundamental understanding of feasibility in the airport environment
- Cost efficient and effective design strategies



In Closing



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Company**

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Mini In-line

Cat Scanner

Green Field Site

For More Information