Air Entry/Exit Re-engineering (AEER)

International Biometrics Performance Conference

National Institute of Standards and Technology

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Agenda

- Drivers for Entry/Exit Transformation
- Air Entry/Exit Re-engineering (AEER) Framework
- Challenges and Risks
- Integrated Path Forward
- Accomplishments
- Test & Evaluation Strategy
- Draft Evaluation Criteria
- Iris Device Qualification Test (IDQT)
- Notional CONOPs
- Test & Evaluation Capability
- DHS Level I Acquisition Process

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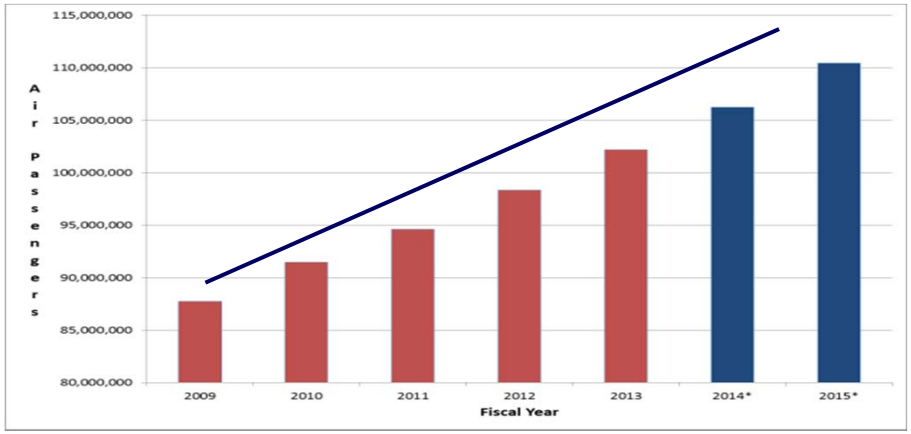
Drivers for Entry / Exit Transformation

Issues

- Increased traveler volume and wait times
- Incomplete information on traveler departures
- Legislative mandate for biometric exit not met
- Air threat remains a priority

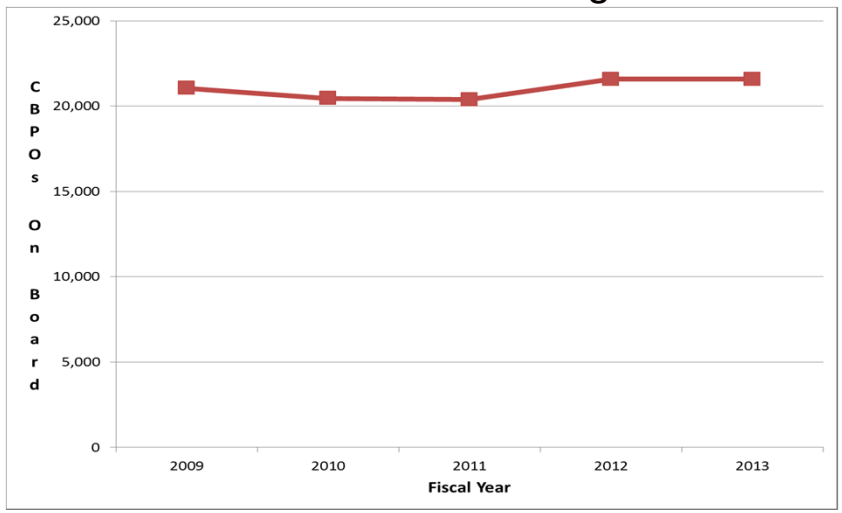
Although current legislation focuses on biometric exit, improvements must be made to the end-to-end process, from entry to exit, in order to be most effective.

Air Passengers



- Total air passenger volume is up over 21% compared to FY 09.
- Air travel expected to grow 4% - 5% annually for the next several years.

CBP Officer Staffing



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Apex AEER Framework

Objectives

- Enhance current air entry operations
- Develop a cost-effective biometric air exit solution
- Integrate into existing air operations

Strategy

Build Phase

- Execute air entry/exit operational survey and analysis
- Identify operational requirements and capability gaps
- Perform economic impact analysis
- Identify biometric and non-biometric solution sets

Test & Transition Phase

- Establish Maryland Test Facility (MdTF)
- Technology qualification and process improvement
- Solution development, testing and evaluation
- Business case development

CBP Ownership Phase

- Conduct field trial of air entry and exit solutions
- Transition solutions to operators

Stakeholders

Government

- CBP Port of Entry Operators
- Office of Biometric Identity Management
- DHS Privacy Office
- DHS Office of Policy
- National Institute of Standards and Technology (NIST)

Air Associations

- Airlines for America
- Airports Council International-North America
- International Air Transport Association
- US-Travel Association

Congress

- House Committee on Homeland Security
- Senate Committee on Homeland Security and Governmental Affairs
- House and Senate Appropriations Committees

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Apex AEER Challenges and Risks

- Need to consider solutions that "Do No Harm" to current throughput and airline boarding times, and minimize airport infrastructure requirements
- Need to ensure compliance with current DHS Privacy Regulations
- Generalized recommendations based on airports surveyed
- Significant collaboration with various air travel industry stakeholders, but limited engagement with some stakeholders
- Potential changes in legislative requirements could significantly impact project scope and schedule
- Need to ensure compliance with established processes and schedules for DHS acquisitions (i.e. cannot accelerate by sole sourcing)

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Integrated Path Forward

Activities:

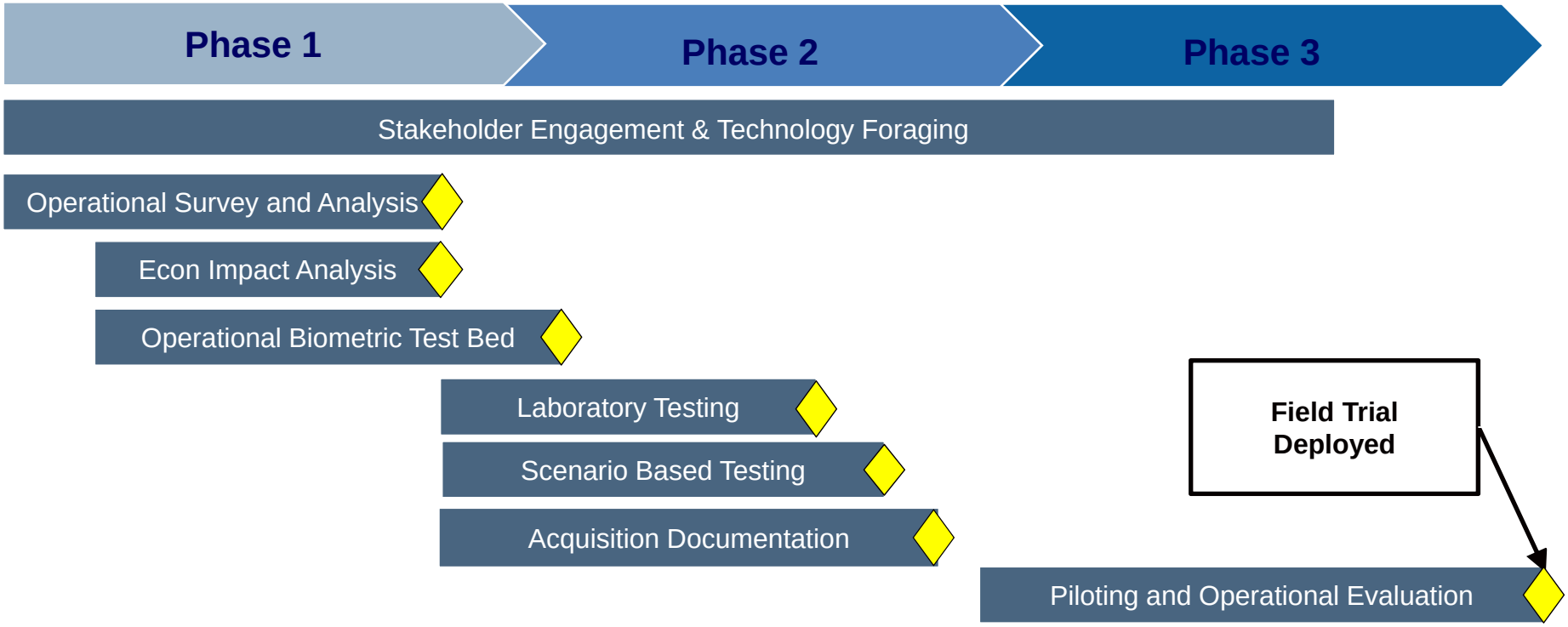
- Continue to engage with airports, and international partners (e.g. UK, Netherlands, etc.) to identify best practices and lessons learned from implemented systems and gather passenger facilitation data
- Collaborate with industry stakeholders to refine biometric air exit CONOPs

Activities:

- Validate biometric air entry/exit CONOPs and technologies with scenario based testing
- Complete airport entry/exit analytical tools and document for transition to CBP
- Conduct performance and cost/benefit analysis of biographic and biometric exit
- Select biometric technology candidates for field evaluation

Activities:

- Conduct field evaluation of air entry and exit technology solutions at selected airport(s)



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Apex AEER Accomplishments

Operational Analysis

- Completed Airport Operational Surveys visits (JFK, LAX, ORD/MDW, MIA, SFO, LAS, ATL) and documented findings in As-Is Operational Survey Report
- Developed a repeatable survey methodology with tools and applied it to airport environment
- Mapped existing Entry Processes
- Assessed Biometric Exit Options
- Drafted entry and exit capability gap assessment, including targeted areas for potential solutions

Economic Analysis

- Identified financial implications of current capability gaps for air entry
- Performed literature review of past U.S. entry/exit efforts
- Researched cost information pertaining to potential entry and exit solutions

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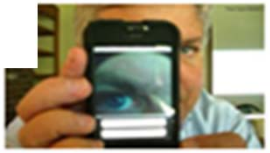
Apex AEER Accomplishments

Biometric Technology Market Survey

- Canvassed commercially viable biometric devices
- Completed initial device capabilities and maturity report



Testing

- Established NIST Oversight role
- Conducted tech foraging and testing in collaboration with NIST
- Developed Iris Device Qualification Test (IDQT) in conjunction with NIST. IDQT is designed to measure peak imaging performance, and removes the “human factor” in laboratory qualification and testing
- Developed an Omnibus Test and Evaluation Plan
- Prepared draft Human Subject Test Protocol for IRB submission

Technology and Test Capability

- Site selected in Upper Marlboro, MD
- Completed Test Bed architectural drawings;
  submitted drawings to PG County Permit Office for approval

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Apex AEER Accomplishments

Stakeholder Engagement

- Serve as Vice-chair of International Air Transport Association (IATA) Passenger Experience - Biometrics Multidisciplinary Group
- Engaged air industry stakeholders to discuss project goals, gather operational requirements, and address potential concerns
- Conducted air entry/exit webinar with Airports Council International-North America (ACI-NA) to discuss notional CONOPs
- Completed January 2014 ACI-NA, Airlines for America and U.S. Travel Association working session to further discuss pros and cons of notional CONOPs

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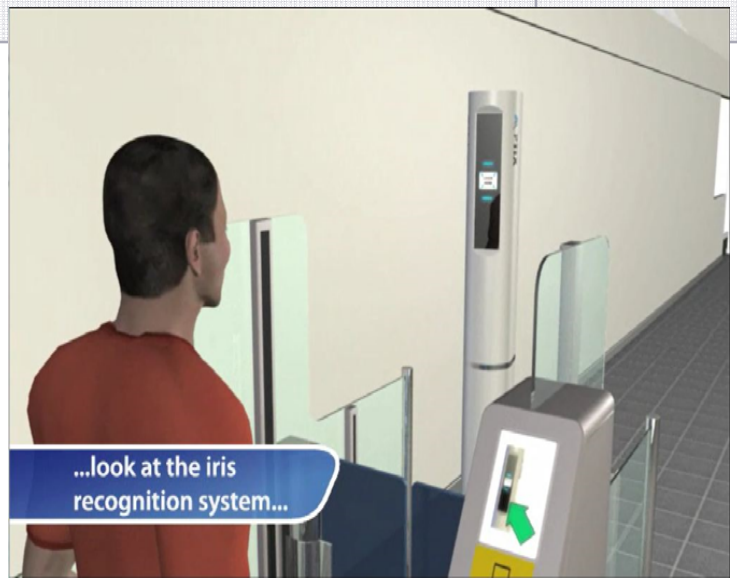
Test & Evaluation Strategy

Test & Evaluation		
Laboratory Tests	**Scenario-based Tests**	**Field Trials**
• Ensure biometric devices can perform with current air entry/exit operations • Determine biometric-device applicability for each CONOP	• Assess CONOPS performance • Assess human-to-system issues in air entry/exit processes • Model potential impacts to operational processes	• Evaluate systems performance • Identify and mitigate observed impacts to operational processes



Iris Capture Process

Fingerprint Capture within the FIS

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Draft Evaluation Criteria

Laboratory Tests	Scenario-Based Tests	Field Trials
SDK/API Integration	CONOPS Integration	Systems Integration
Data Standards Conformance	Transaction Time/ Throughput	Biographic/Biometric Matching Performance
Biometric Data Quality	Usability	Aircraft Turn Time
Third Party Certification/ Test Review	Biometric Performance	Airport Connection Time
Capture Conditions Assessment	Exception Handling	Gate Utilization
Biometric Capture Assessment (FTA, FTP, acquisition time)	Network Bandwidth and Latency	Operations Impact Assessment
Interoperability/ Intraoperability	Footprint and Weight	Traveler Experience and Satisfaction
	Staffing Levels	

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Iris Device Qualification Test (IDQT)

- Developed by DHS S&T Directorate and NIST
- Provide evaluation and qualification tests of iris cameras, to support down selection decisions of devices prior to human-in-the-loop testing for US Government applications.
- Develop “Appendix F-like” iris device qualification testing tools and procedures which:
  - Minimize biases between devices
  - Minimize modification to intended device operation on real human subjects
  - Measure “peak” imaging performance… degradation from realistic operations should be revealed in subsequent evaluation stages
  - Should be simple enough to be practically conducted by a third party testing facility

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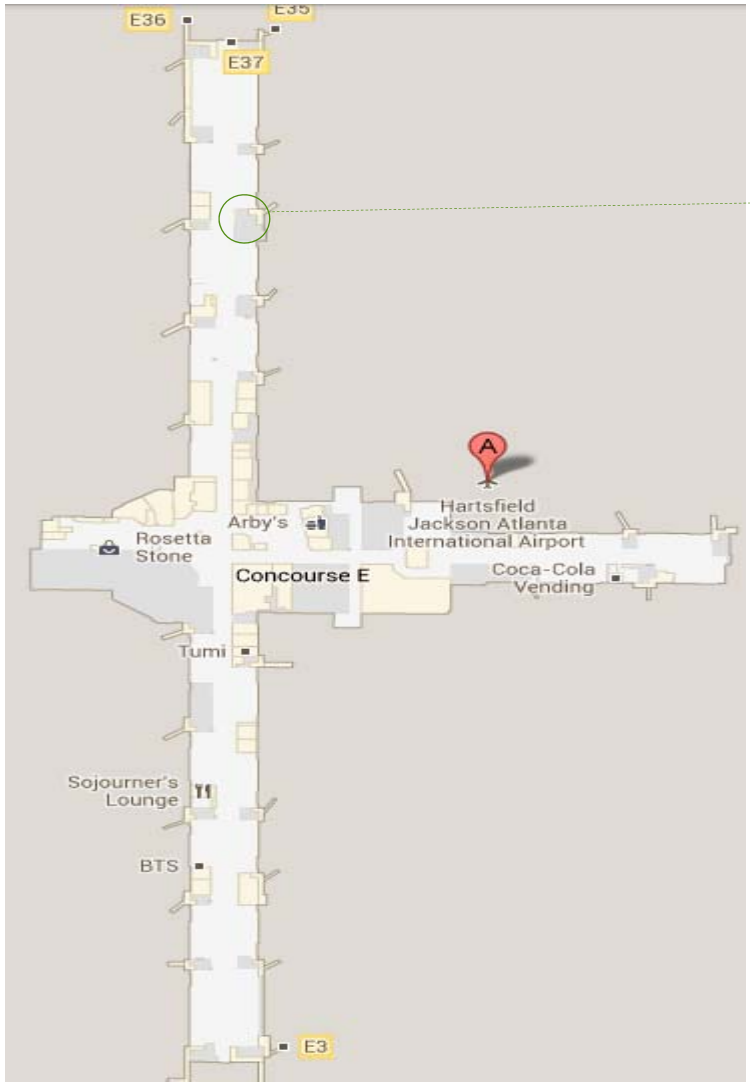
Notional Biometrics Self-Boarding Gate



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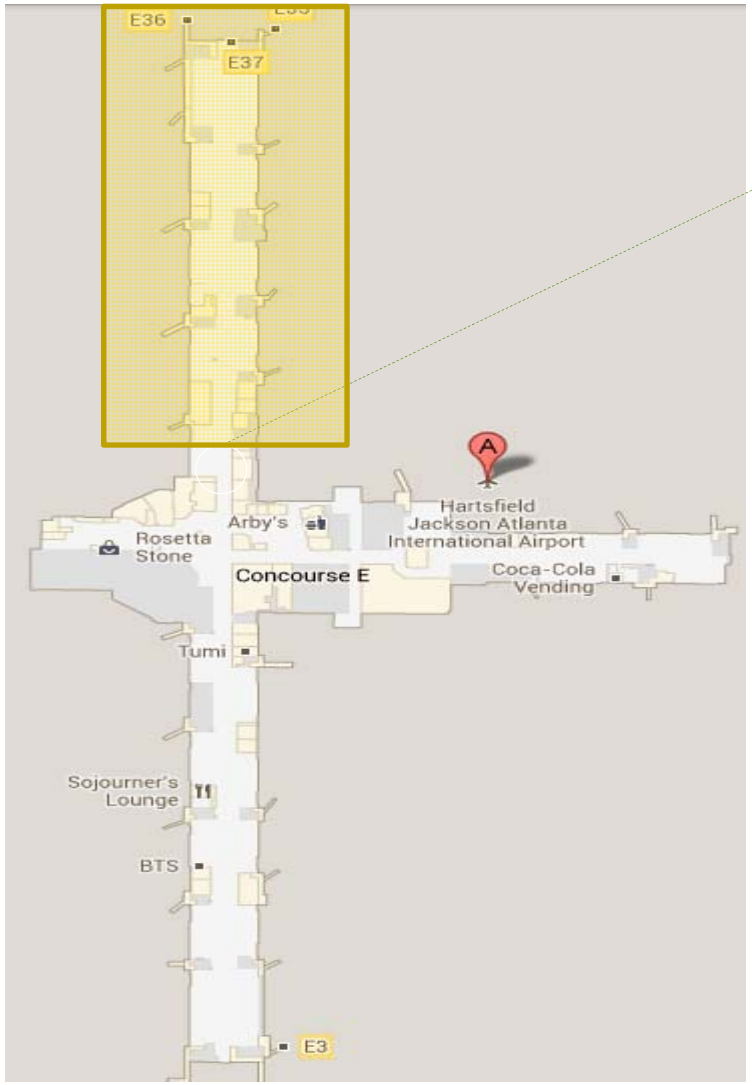
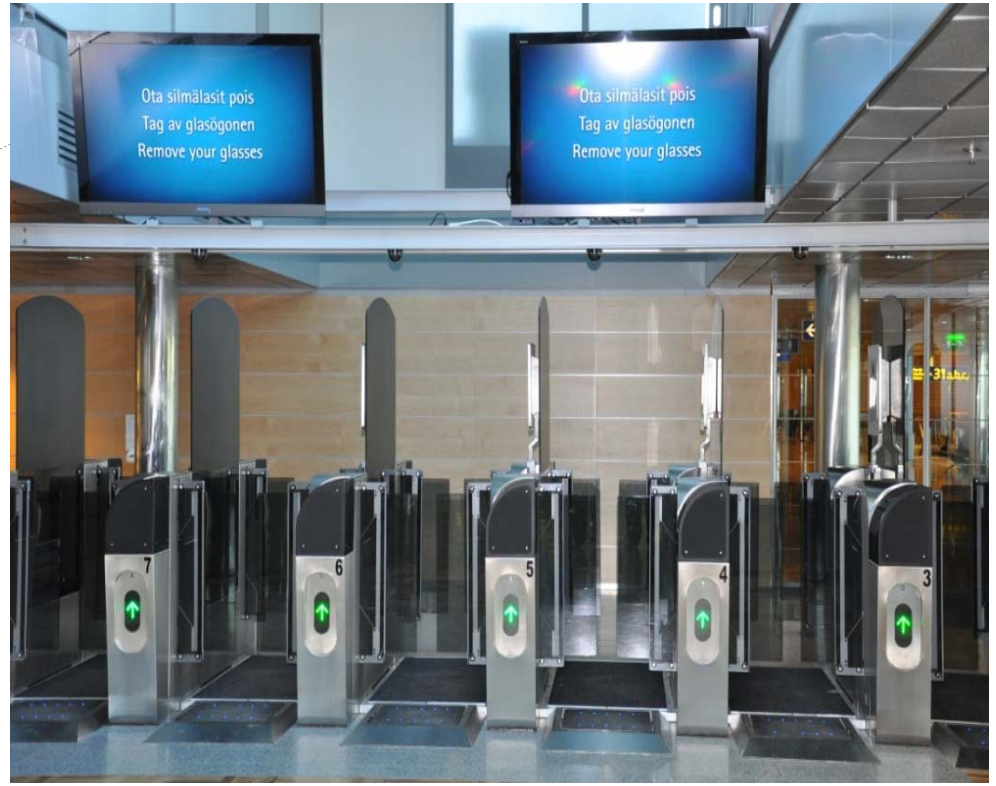
Notional Centralized Capture (ABC)





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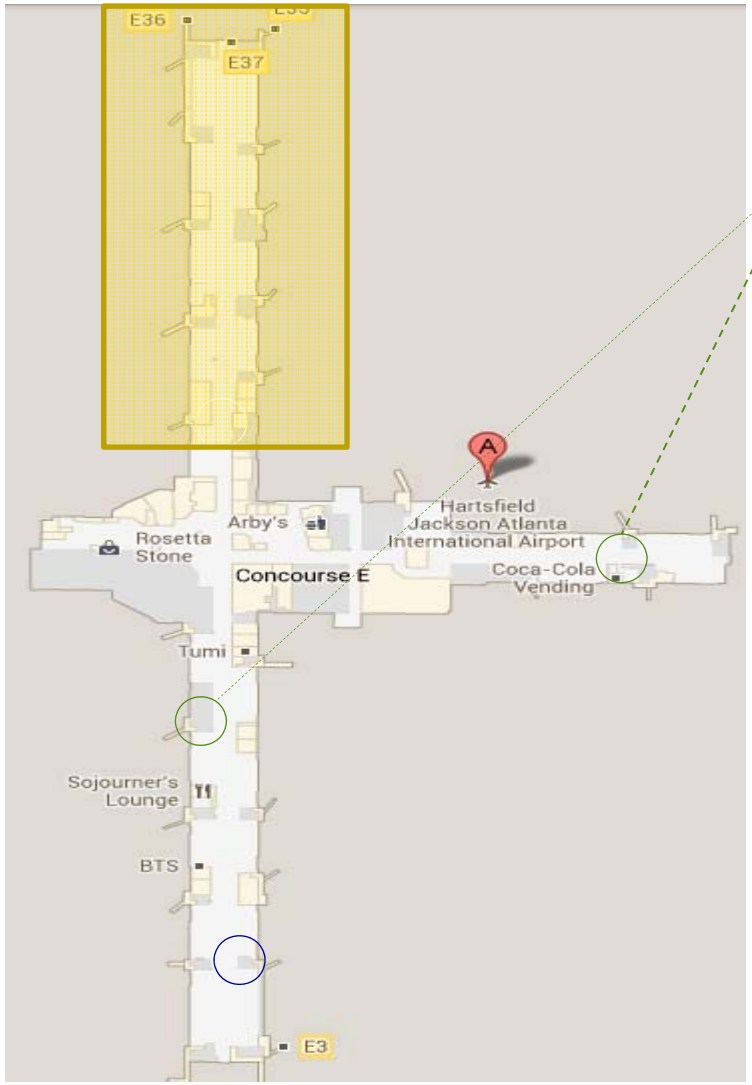
Notional Irregular/Mobile Operations



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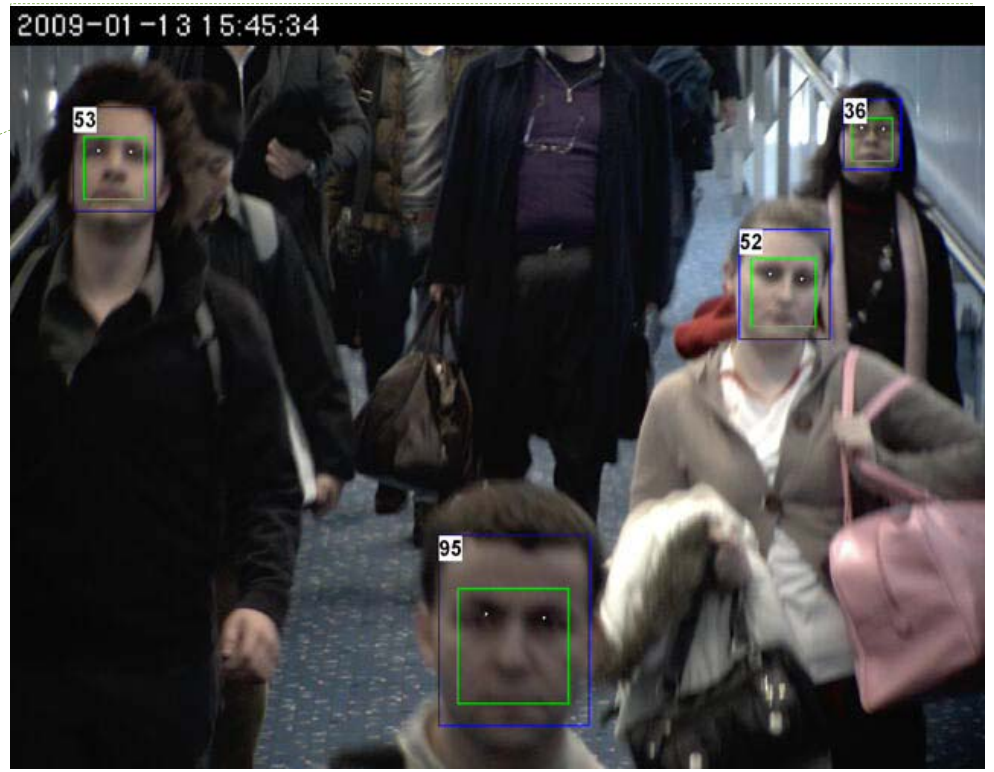
Notional Passenger Loading Bridge



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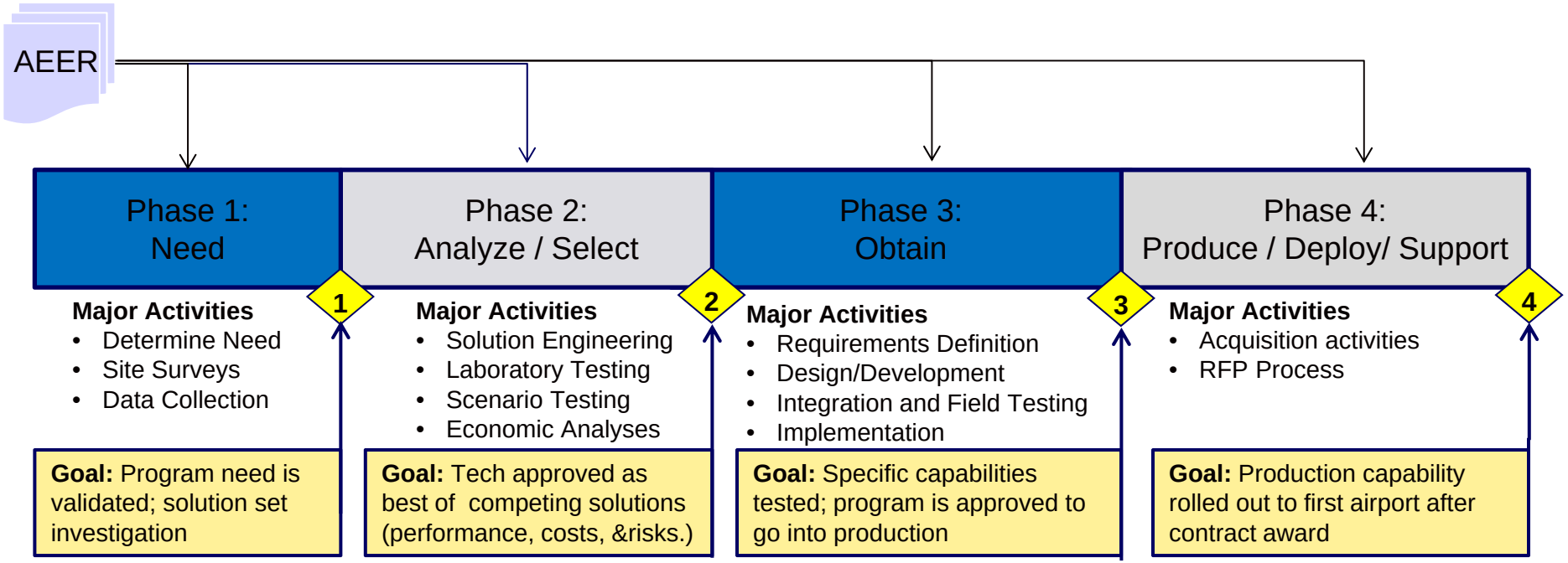
Test & Evaluation Capability

Maryland Test Facility (MdTF) - Controlled environment for laboratory and scenario-based testing to evaluate biometric technologies and other operational processes under simulated airport entry and exit conditions

- Over 25,000 sq. ft. of office and laboratory space
- Designed to support 3 tests and 50 test subjects concurrently

DHS Level I Acquisition Process

- Deliberate acquisition process reduces risk and increases oversight
- Apex AEER *outputs inform each phase* of a future CBP acquisition process and, as a result, provide the component with a "jump start" that could compress elements of the schedule



Questions?