Lighting Research and Development Projects

Airport Technology Research (ATR) Branch (ANG-E26)

Presented to: IESALC

Ryan King

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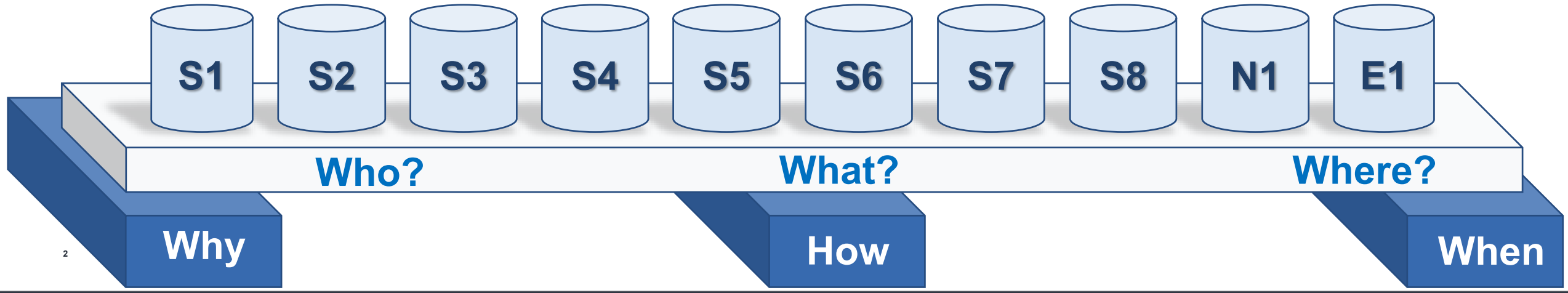
Airport Safety Research Areas

- S1 – Airport Planning and Design
- S2 – Airport Safety Data Mining
- S3 – Aircraft Rescue and Fire Fighting
- S4 – Wildlife Hazard Abatement
- S5 – Visual Guidance
- S6 – Runway Surface Safety Technology
- S7 – Airport Safety and Surveillance Sensors
- S8 – Unmanned Aircraft Systems Integration (*transitioning to UAS/New Emergent*)
- N1 – Airport Noise
- E1 – Airport Environmental



S5 – Visual Guidance

The information and science of ensuring safe, accurate movements in and around AOA using visual cues.

- Identification and elimination of deficiencies in existing airport lighting, signage, and surface painted markings that may cause confusion, lack conspicuity, or potentially contribute to a pilot or ground vehicle operator causing a runway incursion.
- New visual guidance concepts and technologies are researched and evaluated to improve the safety and efficiency of aircraft and ground vehicle operations.

Current Projects

- EMAS Signage Simulations ongoing
- Lighted X – Evaluation of NIST Recommendations
- Closed Runway Conspicuity
- Solar Airport Lighting Systems Evaluation

FAA Project Managers: Darian Byrd, Russ Gorman, Ryan King

Lighted X

Lighted X

- Lighted X Project reinitiated under new Visual Guidance Contract
- Research Request with purpose to evaluate the NIST recommendations on optimum size, (20ft vs 28ft) Intensity, and Lighting technology (LED vs Incandescent)
- Evaluations will be done for both daytime and nighttime operations
- Added Optimum flash rate to the research request(Aug 18 2021). Test cases are 2.5s on 2.5s off, 2.5s on 1s off, and 1s on 1s off
- In person meeting last week to discuss proposed changes to Task Plan(to be delivered by 5/25/22) and Test Plan (To be delivered by 6/8/22)
- Currently scouting locations for ground evaluations of Lighted X (preferably 1.5 Nautical miles out) to eliminate test cases that are not feasible to test during Flight Evaluations.

Solar Lighting for GA Airports

Penn Yan, NY

Cape May, NJ

Sola Lighting for GA Airports

- Prototype Installation at Cape May Airport in NJ completed
  - More than a year of data
- Installation of test array at Penn Yan Airport in NY completed
- Installation of test array at GA airport near Phoenix AZ in progress
  - Supply chain impacts/delays
- Test array comprises about 46 lighting fixtures fromtow different product lines i.e. Avlite and Carmannah
- Includes wind cones, ERGLs, Informational signs, obstruction lights, runway edge lights and taxiway lights
- Photometrics
- Battery autonomy
- Radio Control

Thank you