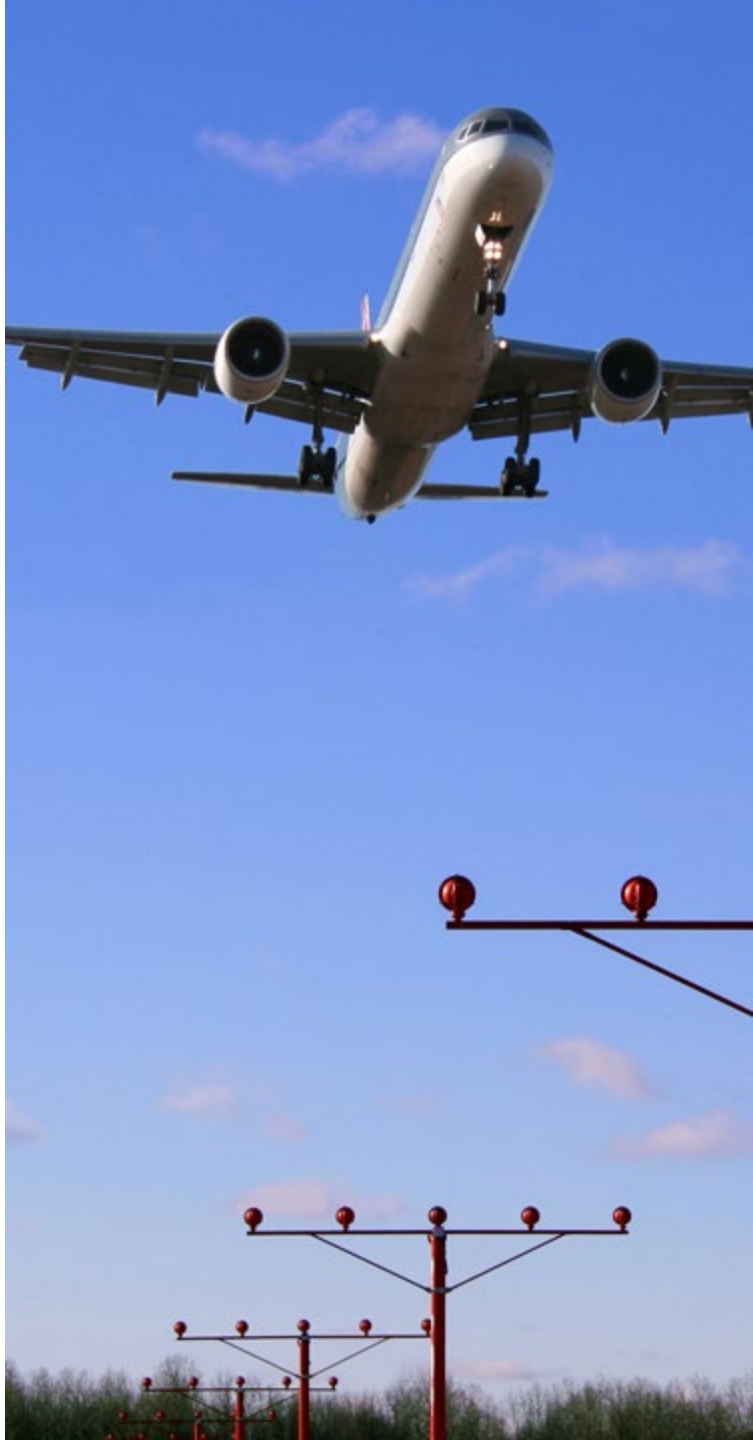
Illuminating Engineering Society (IES) Government Contacts Sub-Committee Meeting

Steve McArthur
Visual Guidance Lighting Systems
AJM-3220

October 7, 2021



Overview

- Visual Guidance Lighting Systems (VGLS) Team
- Lighting Systems and Ancillary Equipment
- Capital Investment Programs
- Active Procurements
- Next Generation Lighting Systems
- Specification and Standard Installation Drawing Updates
- Procurement Opportunities

VGLS Team Contact Information

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Lighting Systems and Ancillary Equipment

- **High Intensity Approach Lighting System with Sequenced Flashing Lights** (ALSF-2)
- **Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights** (MALSR)
- **Precision Approach Path Indicator** (PAPI)
- **Runway Visual Range** (RVR)
- **Runway End Identifier Lights** (REILs)
- **Radio Remote Control System** (RRCS)
- **Visual Approach Slope Indicator** (VASI)
- **Radio Remote Control Interface Unit** (RRCIU)
- **Replacement Lamp Monitoring System** (RLMS)
- **Lead-in Lights**
- **Semiflush Flashers and Steady Burners**
- **Low Impact Resistant** (LIR) **Structures**
- **Transformers**
- **Frangible Bolts**

Capital Investment Programs

- **Runway Visual Range**

  Replaces older RVR equipment with PC-Based RVR equipment. RVR provides air traffic controllers with a measurement of the visibility at key points along a runway: touchdown, midpoint and rollout.

- **Approach Lighting System Safety Enhancement**

  Upgrades the equipment to current standards and reduces the potential severity of take-off and landing accidents by replacing rigid structures, and the entire approach lighting system, with lightweight and low-impact structures that collapse or break apart upon impact. In addition, the program will transition to Light-Emitting Diode (LED) technology and start installations of Parabolic Aluminized Reflector (PAR) LEDs in FY 2023.

Capital Investment Programs

- **Navaids Sustainment**

  Sustains Approach Lighting Systems (ALS), which includes MALSR for Category I approaches and ALSF-2 for Category II/III approaches. Additionally, Navaids Sustainment supports the REIL and RLMS projects.

- **Visual Navaids for New Qualifiers (VNNQ)**

  Supports the procurement, installation, and commissioning of PAPI systems and REIL systems at new qualifying runways.

Capital Investment Programs

- **Replace VASI with PAPI**

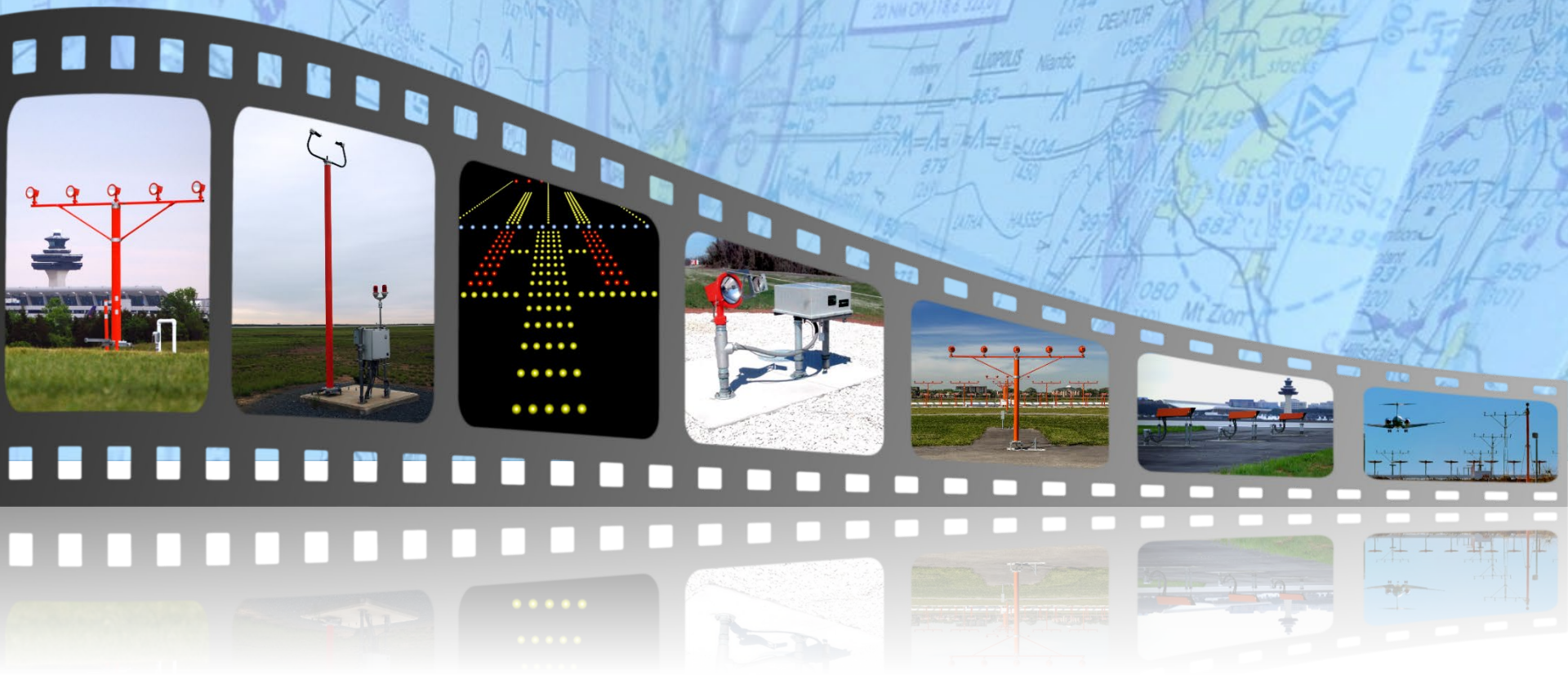
  Supports the procurement, installation, and commissioning of PAPI systems in order to comply with ICAO's recommendation to replace the VASI lights with PAPI lights.

- **Instrument Landing Systems**

  Supports the installation of ILS and/or High Intensity Approach Lighting System. An ILS precision approach system is comprised of a grouping of electronic devices Localizer, Glide Slope, marker beacons and, in some cases, ancillary aids (DME, ALS, RVR, etc.)

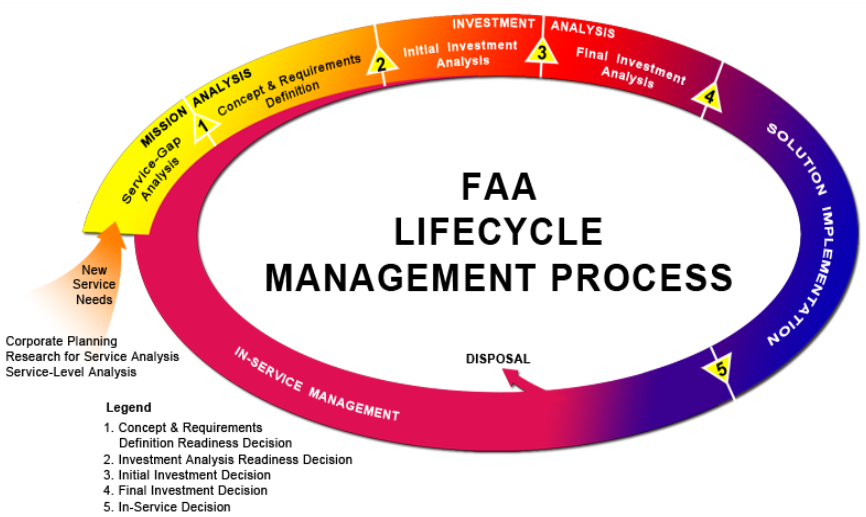
Next Generation Lighting Systems

LED PAPI / LED MALSR



LED PAPI Project

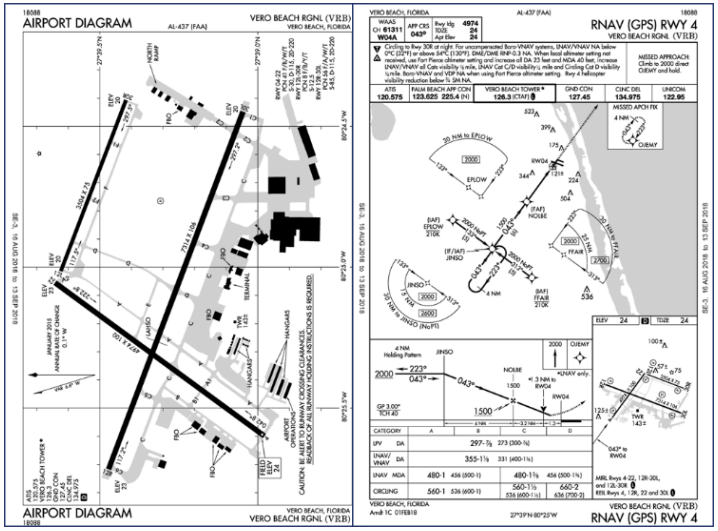
- **Objective**: The primary objective is to fully deploy LED PAPI by using the System Development, Deployment and Implementation phases of FAA's Acquisition Management Systems (AMS) process
  - Project Activities
    - Preliminary Design Review
    - Critical Design Review
    - Design Qualification Test
    - Operational Test
    - Configuration Audits
    - Product Baseline
    - **In-Service Management**



LED PAPI Implementation

- **Installed and Commissioned 59 LED PAPI systems**

- **LED PAPI's have been shown to reduce energy consumption by over 60%**



LED MALSR Project

- **Issue:**
  - FAA has experienced a shortage of suppliers of the PAR-38 incandescent lamps for the MALSR systems in the NAS
- **Status:**
  - In the interim, Alternative Incandescent Lamps (AILs) have been identified and approved to support the MALSR systems in the NAS
  - Currently maintaining a pulse on the incandescent market, and procuring incandescent lamps as needed
  - A roadmap has been established to transition from current PAR-38 and PAR-56 incandescent lamps, to an energy efficient LED solution

Roadmap to the Future

- **Transition from current PAR-38 and PAR-56 incandescent lamps to energy efficient LED technology**
  - Developed alternative LED lamps that can use existing lamp fixtures to minimize cost of conversion
  - Established and execute the transition plan to replace incandescent lamps
  - Rely on LED technology to improve reliability and maintainability and reduce ops costs

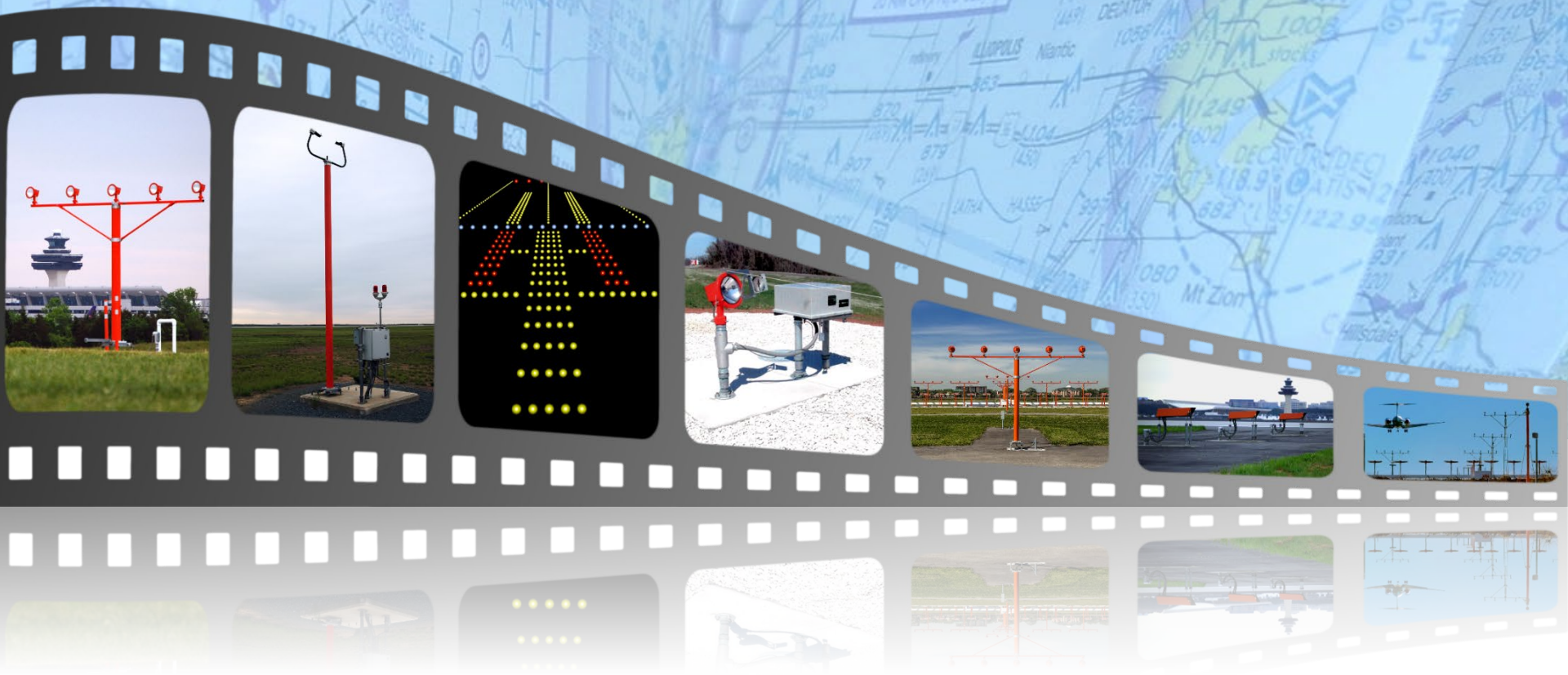
LED Project Activities

- Installed LED PAR-38s at Savannah/Hilton Head Airport (SAV)
- Conducted Duration Testing at Joint Base Cape Cod (JBCC) in IFR conditions using EVFS and Natural cameras
- Completed environmental testing, including EMI, of LED PAR-56 Prototype at certified laboratory
- **Install prototype LED PAR-38s and PAR-56s at four (4) MALSR operational sites**
- **Complete and approve LED Lamp Specification**
- **Award LED Lamp production contract**

MALSR Sustainment Study

- **Determine the feasibility for continuing over 900 MALSR/MALSF/MALS systems through the year 2045**
- **Identify parts obsolescence, performance issues, parts demand, operations costs, equipment condition, system availability, characterize system supportability, and evaluate failure rate**
- **Conduct Quantitative Analysis**
- **Conduct Qualitative Analysis**
- **Develop Recommendations for Sustainment Initiatives**

Specifications and Standard Installation Drawings



Specification Updates

- **LED REIL:** *Approved (Mar 2018)*
- **ALSF-2 SLEP:** *Anticipated Approval (October 2021)*
- **LED PAR-38 & PAR-56 Lamp:** *Anticipated Approval (November 2021)*
- **LED PAPI System:** *Anticipated Approval (March 2022)*
- **LED MALSR System:** *Anticipated Approval (August 2022)*

Reasons for Change
▪ LEDs ▪ Changes in Standards ▪ Color Boundaries ▪ Photometrics ▪ Changes in Testing Requirements ▪ Design vs. Performance ▪ Outdated Specifications

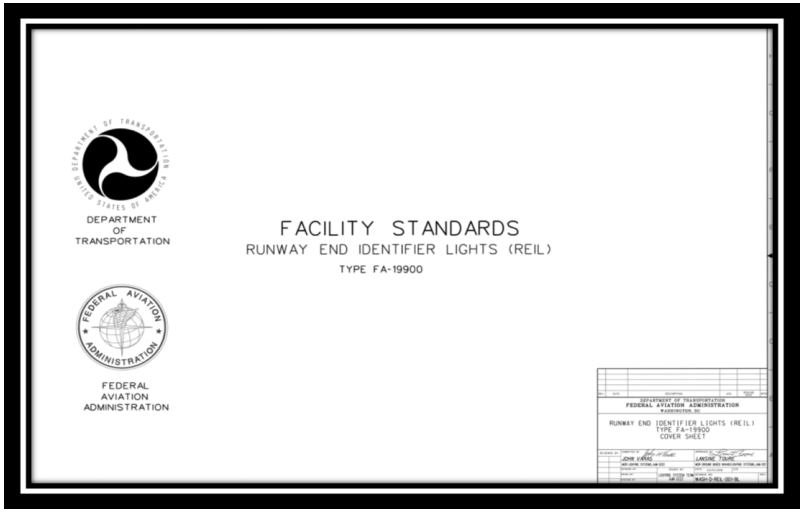
Standard Installation Drawings

- Established a Working Group to update VGLS Standard Installation Drawings
  - Working Group members:
    - Civil and Electrical Engineers
    - WSA, CSA, ESA, HQ

Update Summary
▪ Outdated Drawings ▪ Changes in FAA Standards (i.e.., FAA-STD-019) ▪ Improve Drawing Layout ▪ Outdated Specifications ▪ Comprehensive Drawing Package

Standard Installation Drawings

- Standard REIL Drawings approved 2018



- Standard PAPI Drawings approved 2019

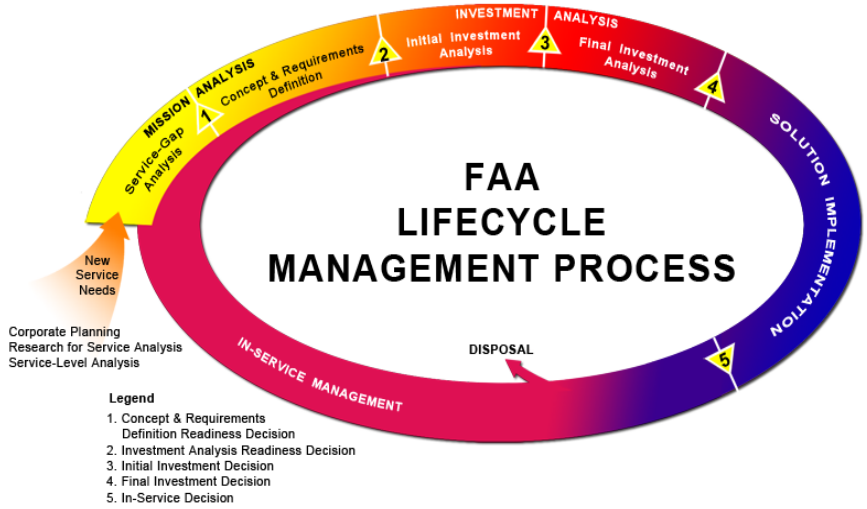
Standard Installation Drawings

- MALSR Drawings are 75% complete
- Restarted MicroStation to AutoCAD conversion: September 2021
- Complete conversion from MicroStation to AutoCAD by January 2022
- Complete MALSR drawings by May 2022
- Complete remaining Drawings (ALSF-2 and any additional updates) by July 2022

Procurement Opportunities

Procurement Forecast

- **ALSF-2 SLEP (FAA-E-2999)**
- **Incandescent PAR-38**
- **LED PAR-38/PAR-56**
- **RRCS**
- **SFSB**



Note: You should monitor the https://beta.sam.gov/ website for procurement opportunities.

Disclaimer: This forecast is for informational and marketing purposes only and does not constitute a specific offer or commitment by the FAA to fund in whole or in part any of the procurements referenced herein.

Questions?