

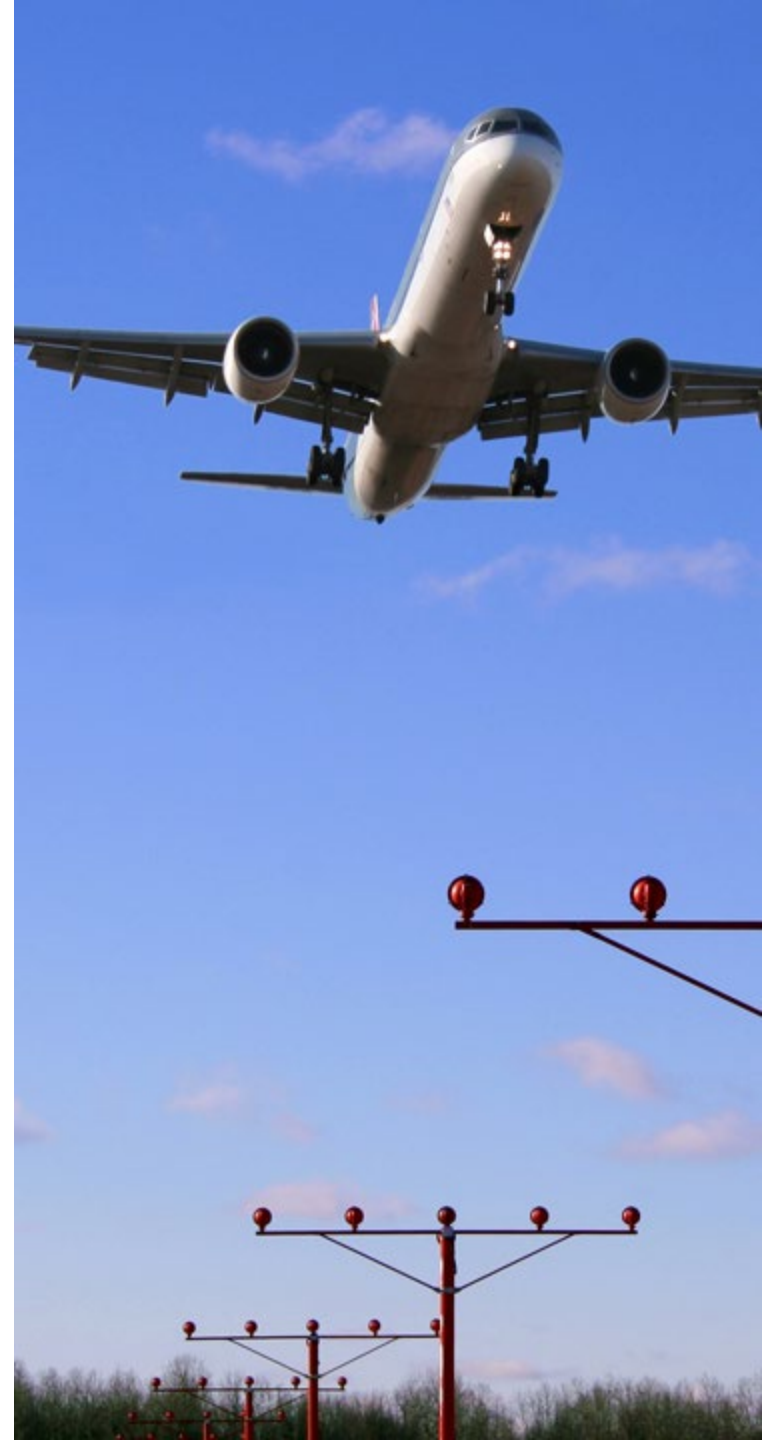
# **Illuminating Engineering Society (IES) Government Contacts Sub-Committee Meeting**

**Ndubuisi Nnorom**

Visual Guidance Lighting Systems

AJM-3220

**April 14, 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**
- **COVID-19 Impact**



# VGLS Team Contact Information

Name	Projects	Phone
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Renee Williams	RVR, LIR	202.267.9923
Ndubuisi Nnorom	ALSF-2, RLMS, REIL, RRCS, SFSB	202.267.9923
Donald Lampkins	MALSR, PAPI, LED	202.267.7332
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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.



# Capital Investment Programs

- **Nav aids Sustainment**

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

- **Visual Nav aids 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.)

# Active Procurements

## LED PAPI



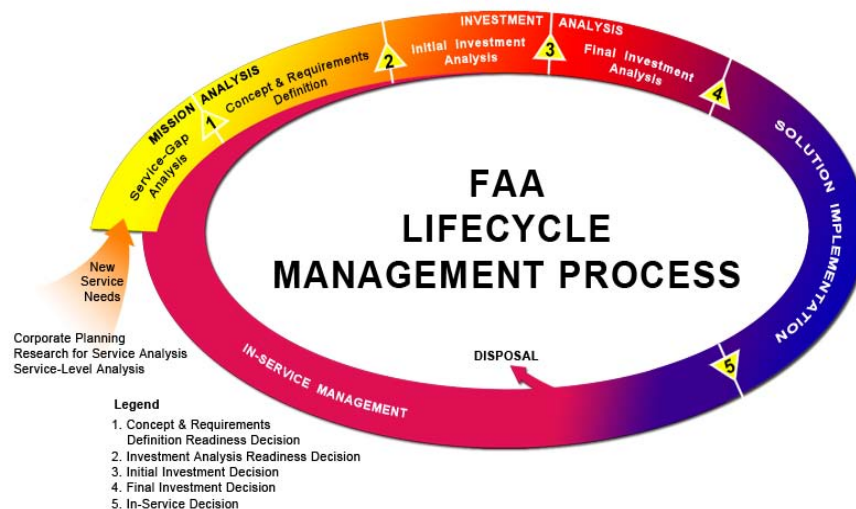


# LED PAPI Project

- **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

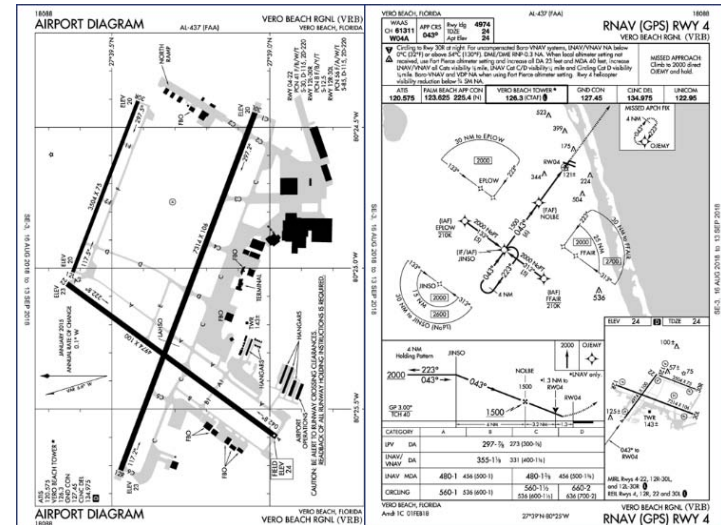
- **Project Activities**

- Preliminary Design Review
- Critical Design Review
- Design Qualification Test
- Operational Test
- Configuration Audits
- Product Baseline
- **In-Service Management**



# LED PAPI Implementation

- Installed and Commissioned 51 LED PAPI systems
- LED PAPI's have been shown to reduce energy consumption by over 60%



# Next Generation Lighting Systems

## LED MALSR



# 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

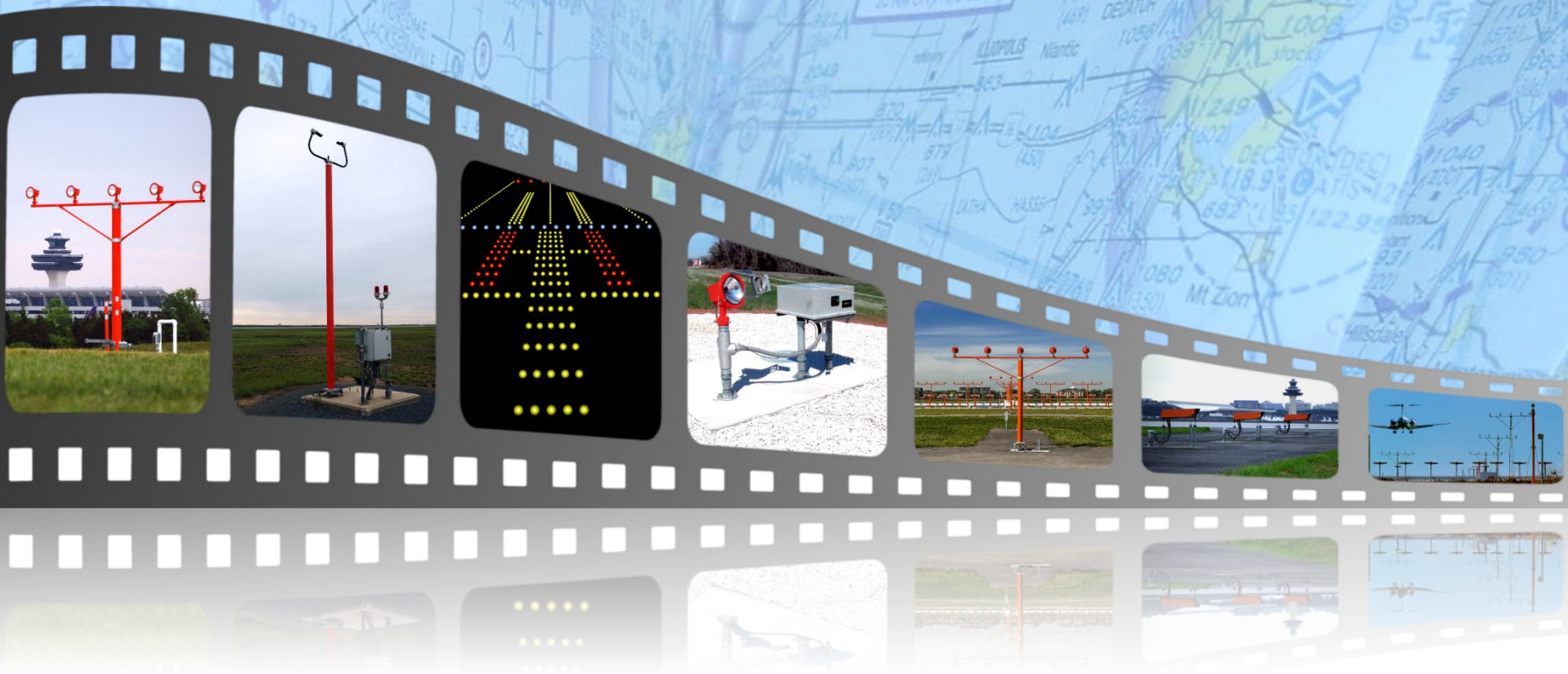
- **Transition from current PAR-38 and PAR-56 incandescent lamps to energy efficient LED technology**
  - Developed alternative LED lamps that can use existing lamp fixtures to minimize cost of conversion
  - Established and execute the transition plan to replace incandescent lamps
  - Rely on LED technology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



# LED Project Activities

- Incorporated Brightness to Luminous B/L ratio of 1.6 for white LEDs
- Conducted Flight Demonstration at FAA Technical Center to specifically address brightness issue
- Conducted EVFS Demonstration at Juneau, AK to collect images during low visibility condition using EVFS and Natural cameras.
- 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
- Tested LED PAR-56 Prototypes at FAA Technical Center
- **Complete testing of LED PAR-56 Prototype at certified laboratory**
- **Install LED PAR-38s and PAR-56s at four (4) MALSRS operational sites**
- **Complete and approve LED Lamp Specification**
- **Award LED Lamp production contract**

# Specifications and Standard Installation Drawings



# Specification Updates

- LED REIL; *Approved (Mar 2018)*
- **LED PAR-38 and LED PAR-56 Lamp**; *Anticipated Approval (July 2021)*
- **ALSF-2 SLEP**; *Anticipated Approval (September 2021)*
- **LED PAPI System**; *Anticipated Approval (November 2021)*
- **LED MALSR System**; *Anticipated Approval (May 2022)*

Reasons for Change
<ul style="list-style-type: none"><li>▪ LEDs</li><li>▪ Changes in Standards</li><li>▪ Color Boundaries</li><li>▪ Photometrics</li><li>▪ Changes in Testing Requirements</li><li>▪ Design vs. Performance</li><li>▪ Outdated Specifications</li></ul>



# Standard Installation Drawings

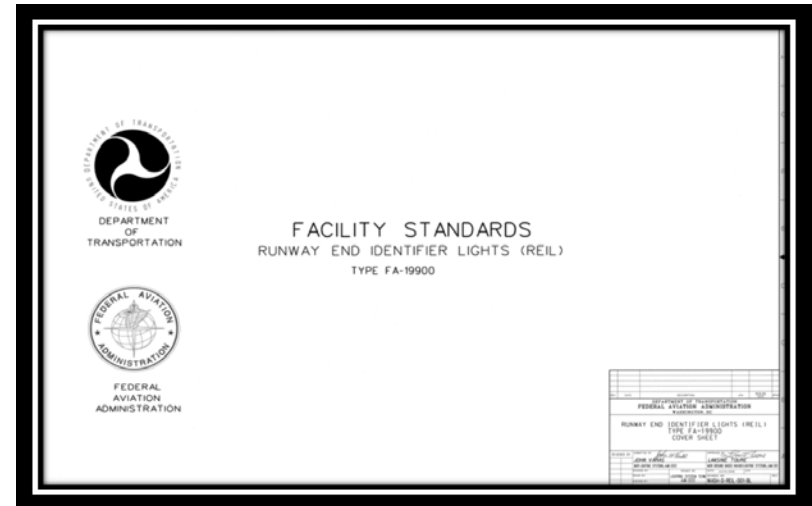
- Established a Working Group to update Lighting Systems Standard Installation Drawings
  - Working Group members:
    - Civil and Electrical Engineers
    - WSA, CSA, ESA, HQ

## 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

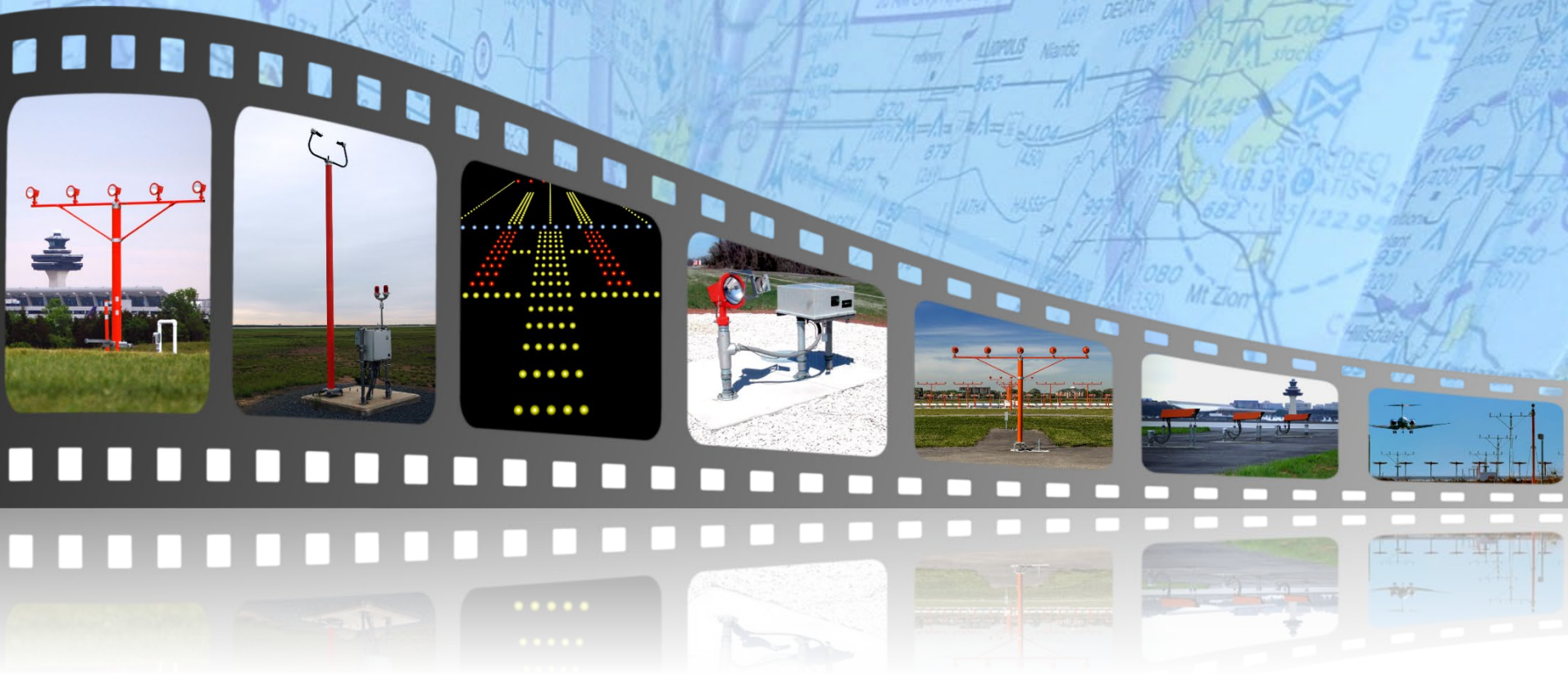


# Standard Installation Drawings

- MALSR Drawings were 75% complete
- Work on hold while FAA transitions from MicroStation to AutoCAD (obtain new software, new templates and complete training)
- Restart task in June 2021
- Rework completed drawings from MicroStation to AutoCAD format (1 month)
- Complete remaining Drawings
- New anticipated Draft completion: October 2021

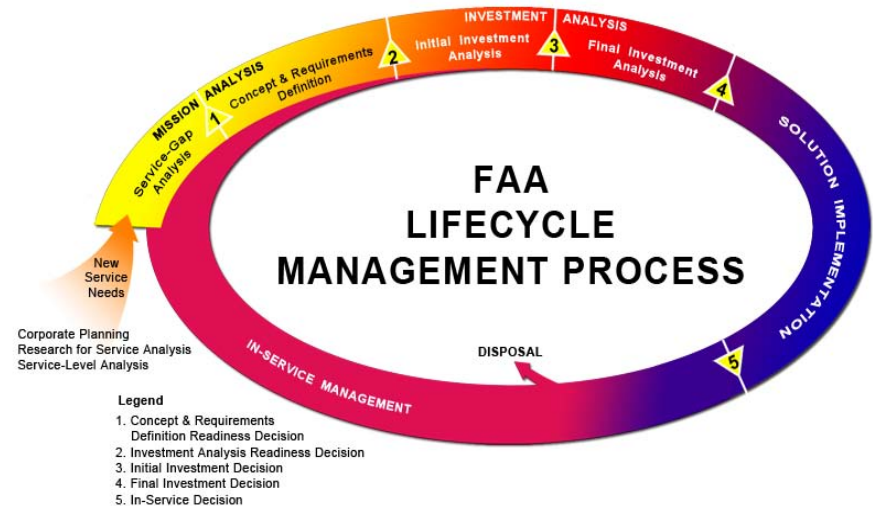


# Procurement Opportunities



# Procurement Forecast

- ALSF-2 SLEP (FAA-E-2999)
- Incandescent PAR-38
- LED PAPI
- LED PAR-38/PAR-56
- RRCS – Tech Refresh (FAA-E-2723)
- RVR
- 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?

