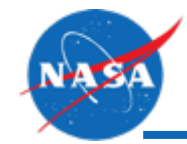# Unmanned Aircraft Systems (UAS) Integration in the National Airspace System (NAS) Project

Ground Based Detect and Avoid

UAS INTEGRATION IN THE NAS

Jim Murphy
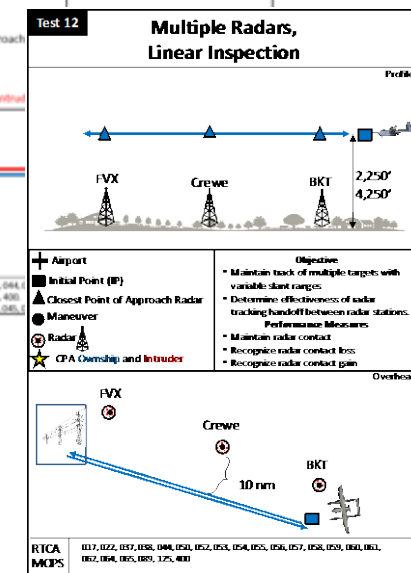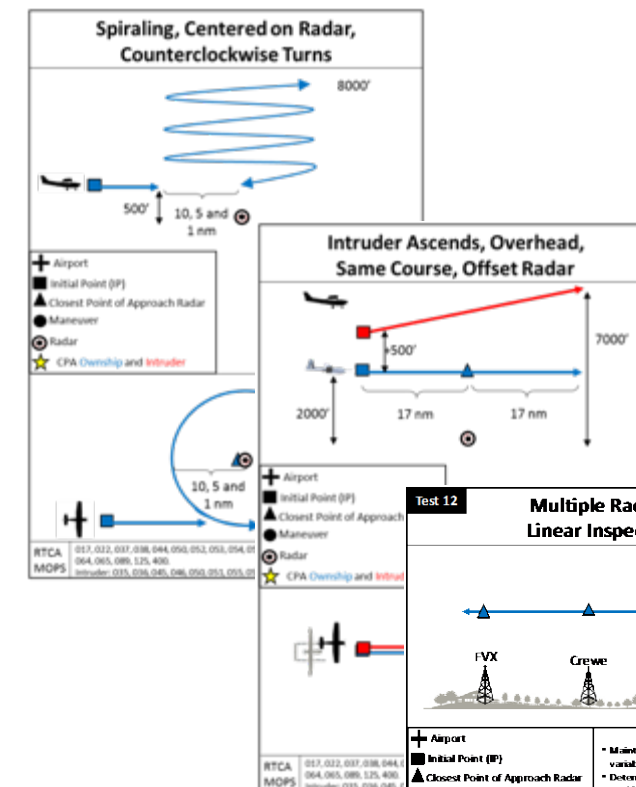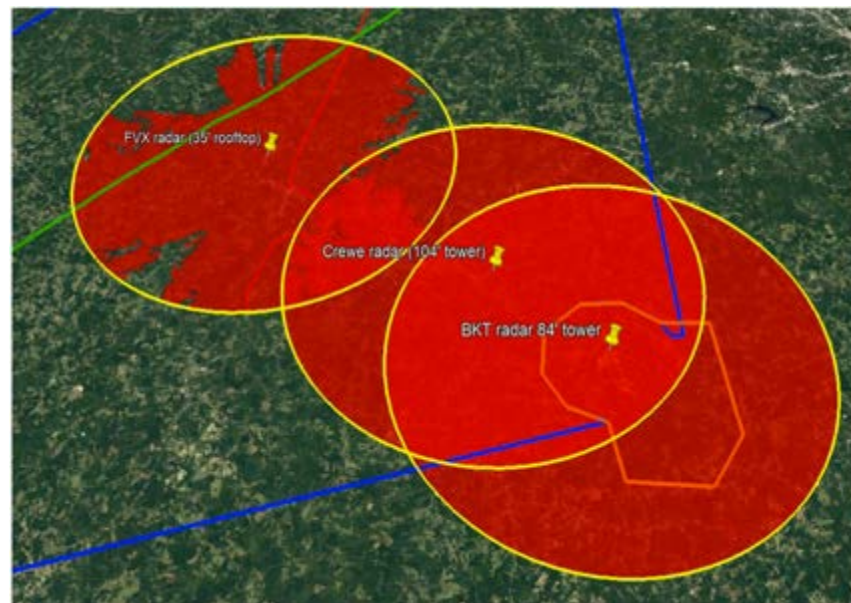**UAM Coordination and Assessment Team Liaison**
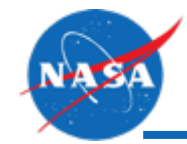
GBDAA Research Objectives

- Implement a Ground Based Detect and Avoid (GBDAA) system that will have long term strategic value to NASA, FAA, and industry partners

- Develop ground based sensor models to support NASA and Industry simulations

- Gather relevant ground based sensor data with live aircraft to inform the RTCA SC-228 DAA Phase 2 Minimal Operating Performance Standards (MOPS)
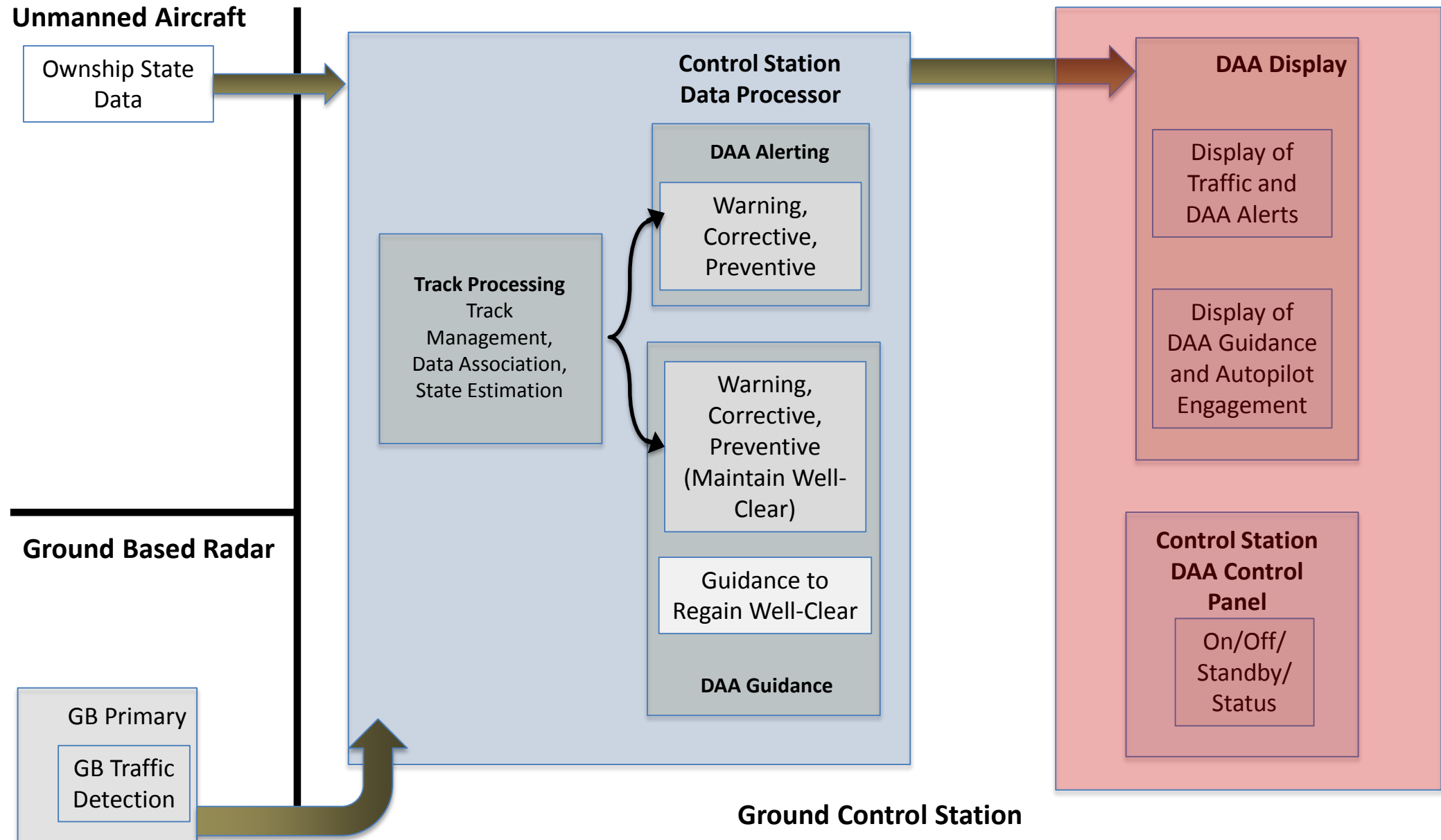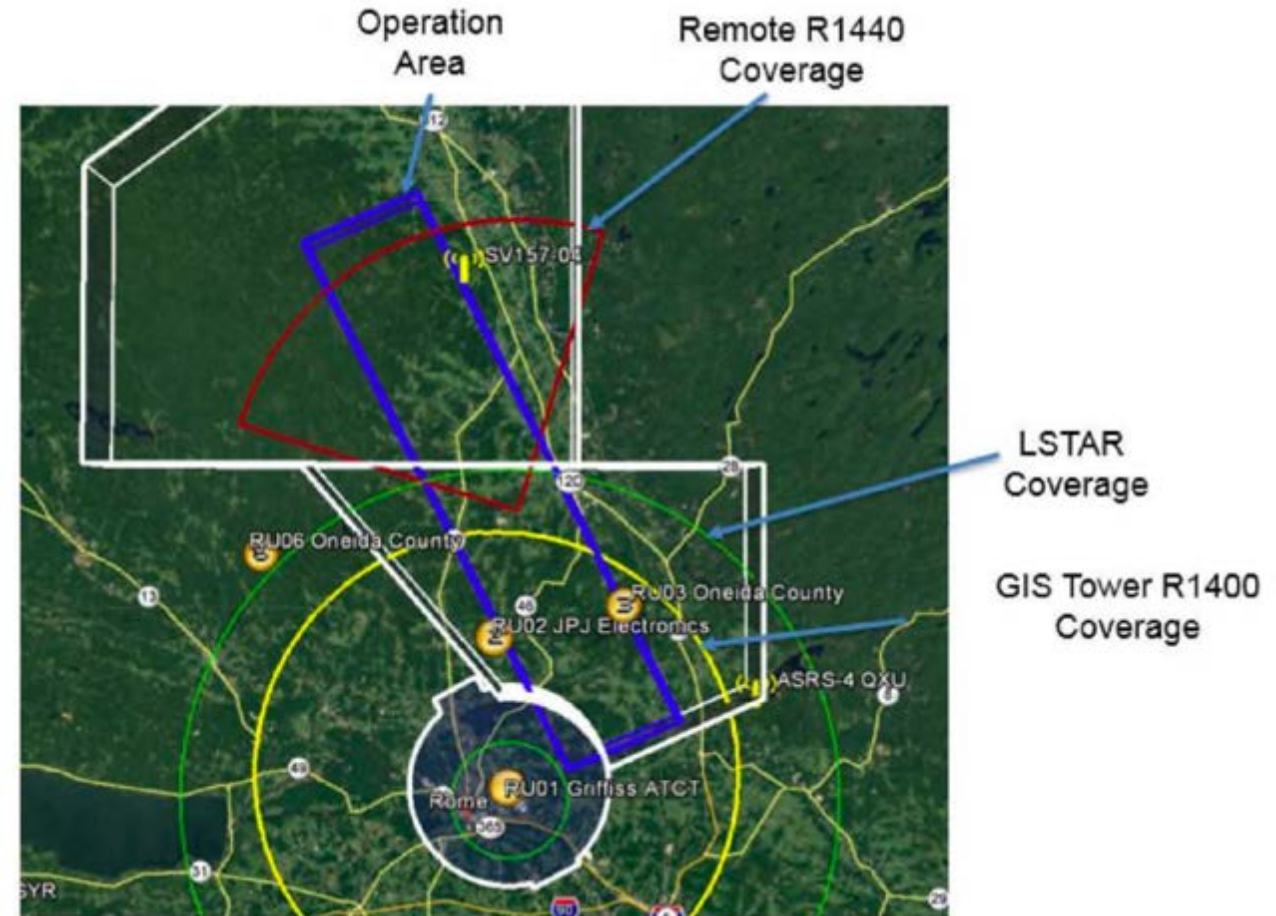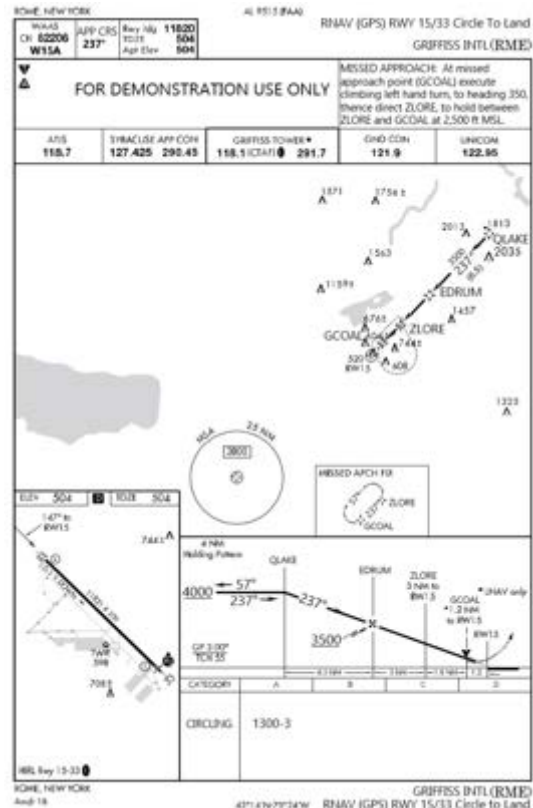
New York UAS Test Site

Aerosonde Block G

GBDAA Architecture

Unmanned Aircraft

Ownship State Data

Ground Based Radar

GB Primary

GB Traffic Detection

Control Station Data Processor

Track Processing
Track Management, Data Association, State Estimation

DAA Alerting

Warning, Corrective, Preventive

Warning, Corrective, Preventive (Maintain Well-Clear)

Guidance to Regain Well-Clear

DAA Guidance

Ground Control Station

DAA Display

Display of Traffic and DAA Alerts

Display of DAA Guidance and Autopilot Engagement

Control Station DAA Control Panel

On/Off/ Standby/ Status

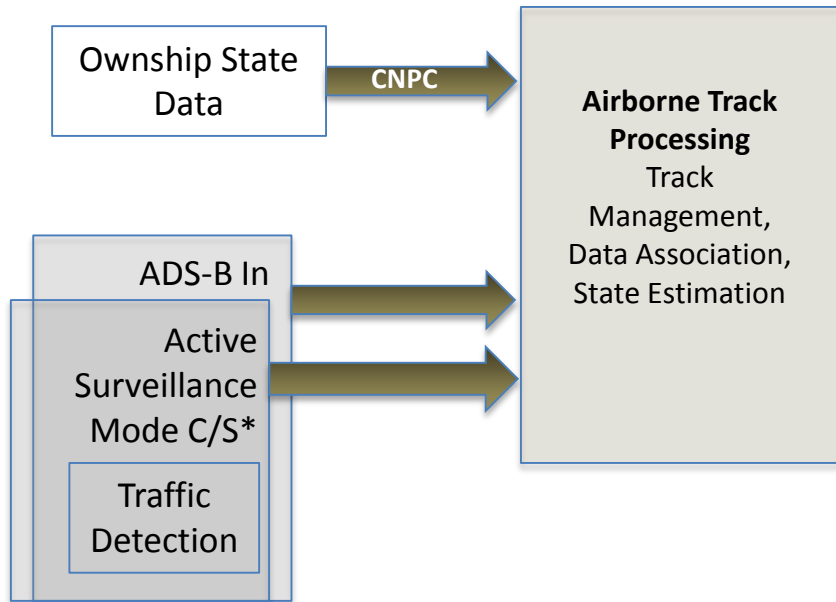# Airborne/Ground Interoperability Testing
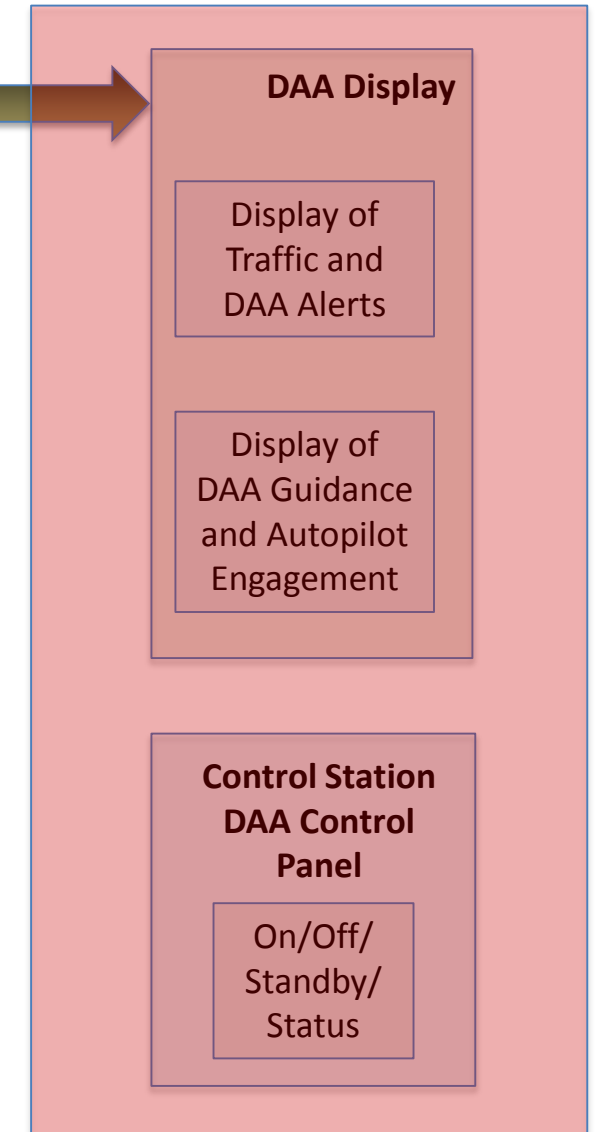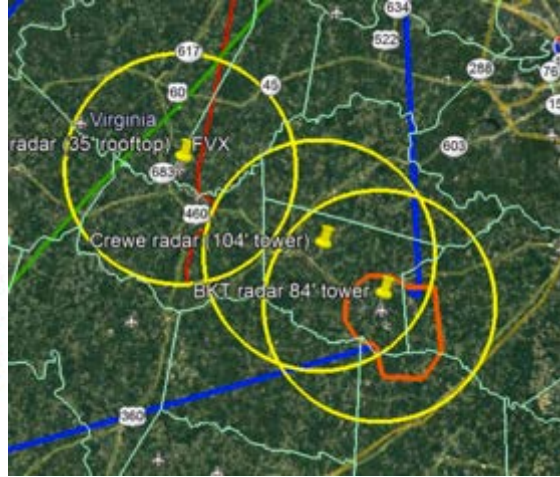
Airborne/Ground Interoperability Architecture

Data Collection Flights and Deliverables

New York UAS Test Site

- GBDAA Radar Characterization and System Implementation
  - Flights: July - September
  - Sensor Model: September
  - Final Report: September

- Airborne/Ground Interoperability
  - Flights: May - June
  - Data Analysis Results: September
  - Final Report: September