

Remote Towers Information

Presented to: Airport Sponsors/Operators

By: FAA NextGen and Technical Operations

Date: August 23, 2023



Federal Aviation
Administration



Federal Aviation
Administration

Agenda

- **RT Pilot Program Congressional Direction**
- **New RT Strategy**
- **SDA and Commissioning Processes**
- **SDA Timeline**
- **RT Siting Process**
- **RT FCT Business Case Model**
- **Summary**



Remote Tower Pilot Program Congressional Direction

Congress directed the FAA to establish an RT pilot program to:

- **Evaluate technical and operational feasibility of applying RT technology in the NAS**
 - Conduct evaluations at select pilot sites to determine operational viability for use in the NAS
 - Initial evaluations for systems used at Class D, VFR airports
- **Establish minimum standards and a clear process for operational certification of RT**
 - Develop an Advisory Circular that defines the process to Certify (i.e., System Design Approval), and Commission RTs
 - Develop associated technical system requirements/ standards
 - Create a Qualified Vendor System List (QVSL) of approved systems
- **Understand the business case of establishing and operating RTs in the NAS**
 - Update FAA Contract Tower (FCT) Benefit Cost model to determine if RTs meet requirement for entry into the FCT program



RT Pilot Program Strategy

- **Original Strategy**

- FAA evaluates remote tower system at vendor/FAA selected airport locations (one-system/one-site approach)
- Air traffic approvals limited to site specific configuration/layout

- **New Strategy**

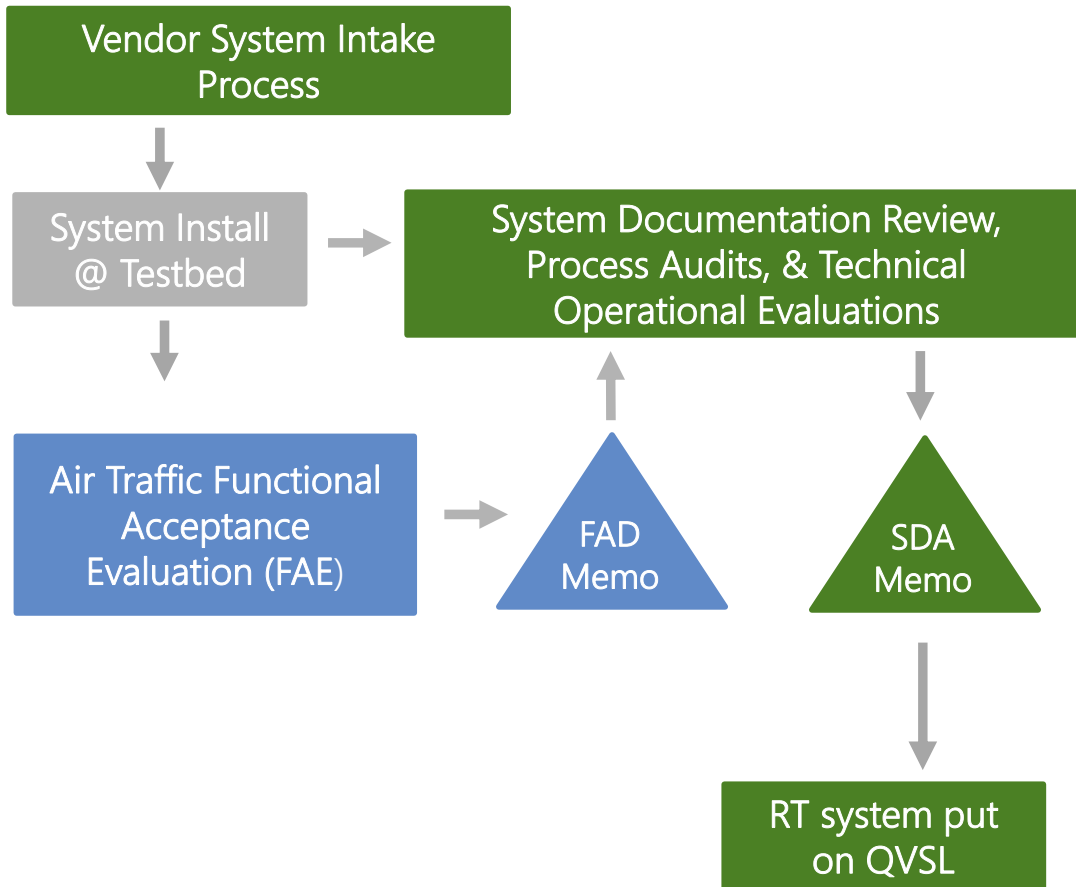
- As of September 2022, the FAA is no longer selecting individual airport pilot sites
- Centralized testing and evaluation at the **RT testbed located at the National Aerospace Research and Technology Park (NARTP)***, and **Atlantic City International Airport (ACY)**
- Vendor must pass **FAA Intake Review Process** prior to proceeding to the full System Design Approval (SDA) Process
- Accelerates timeline in meeting goals of Congressional direction
- Provides more robust evaluation of vendors' systems to allow FAA to explore the environmental and operational bounds of the utility of RT systems
- Provides broader solutions to the RT marketplace in a timelier manner
- Reduces risk to FAA and airport sponsors in the case the vendor system cannot meet FAA standards

**Note: NARTP is located adjacent to the William J. Hughes Technical Center*

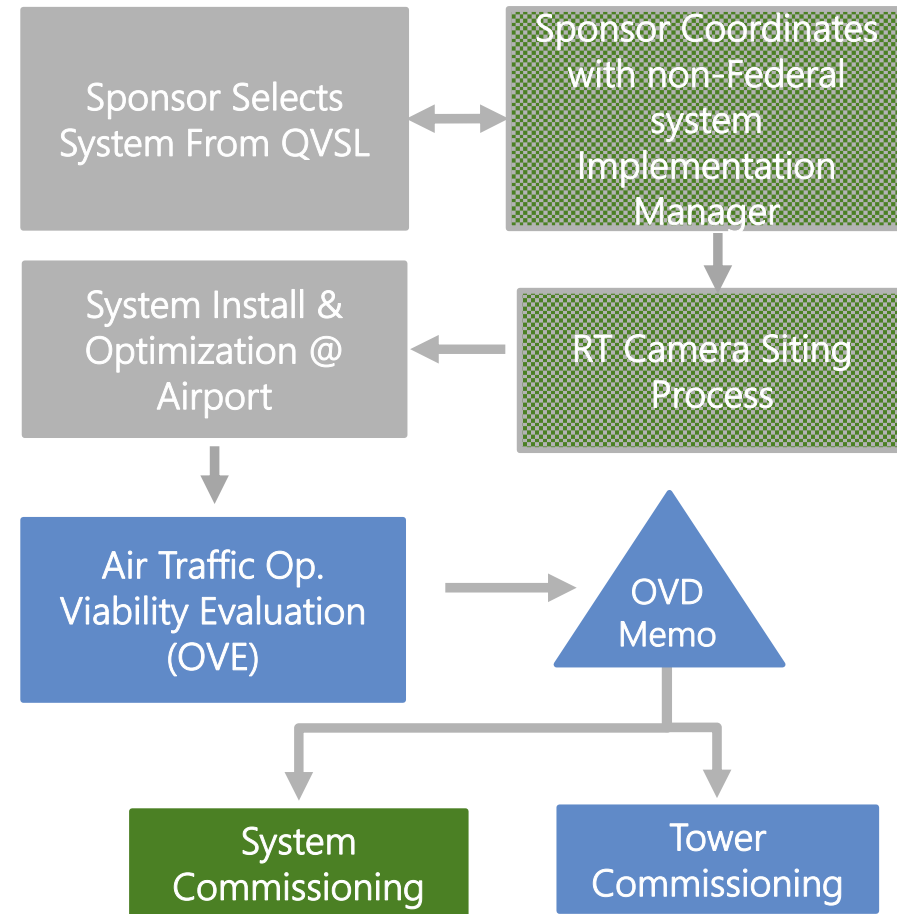


SDA & Commissioning Process Overview

System Design Approval @ Testbed



Commissioning @ Airports



For a system to become operational in the NAS, the vendor system must obtain SDA AND successfully complete all Commissioning Activities

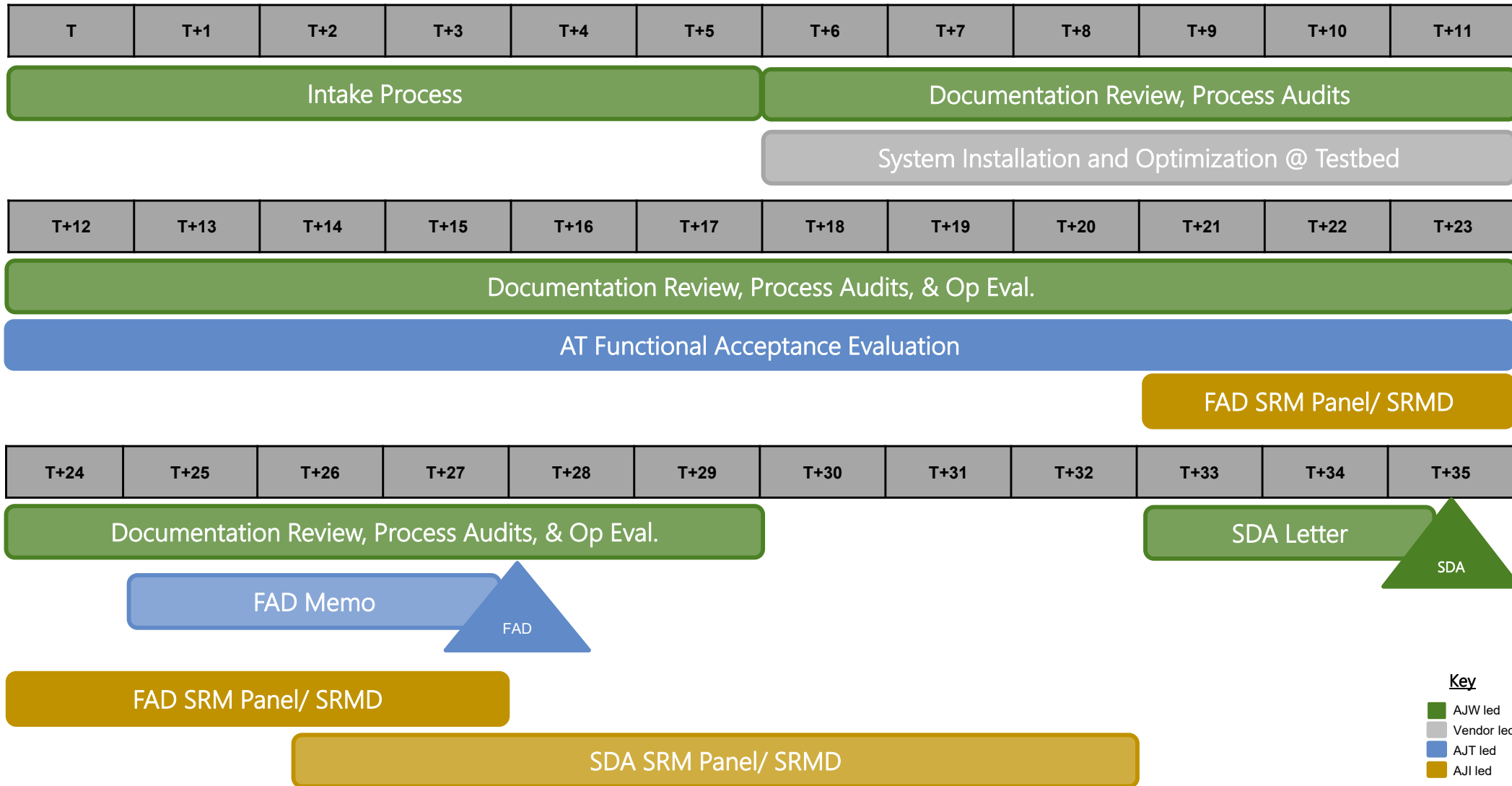
Key

- Tech Ops Led
- Vendor / Sponsor Led
- Air Traffic Led
- Sponsor/AJW Led



Federal Aviation Administration

Vendor SDA Notional Timeline



Key

- AJW led
- Vendor led
- AJT led
- AJI led

Schedule Dependencies:

- AJW bandwidth (i.e., number of vendors simultaneously completing Intake/SDA Process)
- Vendor's requirements for testbed infrastructure; this schedule assumes no changes to RT testbed infrastructure are required
- Vendor's installation/optimization timeline
- Vendor's ability to timely deliver SDA documentation
- Quality of vendor's submitted SDA documentation



Federal Aviation Administration

Remote Tower Siting Process

- Draft RT Siting Order outlining the RT siting process is under development
- Siting process determines the location, orientation and height of camera nests
- Process is being modeled after current FAA Tower Siting Order JO 6480.4 and the new VISTA process used for brick-and-mortar towers
 - Expanded the existing tower [Visibility Analysis Tool \(VAT\)](#), which is used to assess initial visibility criteria for a conventional OTW views; the new [Tower Visibility Toolkit \(TVT\)](#) can assess initial visibility criteria for brick-and-mortar towers (OTW views) as well as Remote Towers (camera views)
 - Developed a RT Preliminary Hazard List
 - Subsequent work underway to determine acceptable 3D models to simulate camera views for siting panels



RT FCT Benefit Cost Model

- Since the acceptance to the FAA Contract Tower (FCT) program relies on a benefit-cost analysis, FAA has examined the adjustments needed to the current BC model to adequately assess the BC for remote tower applicants
- RT FCT BC model was developed proactively; RTs cannot be considered for FCT program until FAA approves systems for use in the NAS
- The FAA Contract Tower (FCT) Program Benefit Cost Model for Remote Tower applicants was finalized in September 2021
 - Costs
 - This model only considers FAA incurred costs (FAA does not fund construction of brick-and-mortar towers or RT systems); therefore, there is only slight FAA cost increase associated with annual tech. op. inspections of the non-Federally owned RT systems
 - Benefits
 - RT efficiency benefit analysis showed there was no difference in RT efficiency as compared to brick and mortar
 - Data needed to calculate the RT safety benefit is very limited; therefore, FAA took a risk-based approach and reduced the safety benefits by 10% until more safety benefit data is available
- In most cases if an airport meets BC ratio (i.e., $BC > 1$) with a brick-and-mortar tower, then the airport will meet the BC ratio with a Remote Tower also



RT Business Case for Airport Sponsors

- Preliminary comprehensive cost analysis show that RTs are likely a cost-effective alternative to brick-and-mortar towers for many airports, but it is site-specific.
- The cost categories below are those that differ between a brick-and-mortar and RT and should be considered when determining the best solution for a site.

Cost Category	Brick-and-Mortar	Remote Tower
Facility Construction	All costs to construct a Traditional up/down tower, including base building, site preparation and utility connections.	All costs to construct the Remote Tower Center (RTC), including site preparation and utility connections.
RT Equipment Procurement	Not applicable.	Procurement of remote tower system. Includes logistics, initial spares, and installation of control room equipment in RTC.
RT Airfield Equipment Installation	Not applicable.	Installation of towers/masts and cameras on Remote Tower Airfield (RTA), including trenching of power/comm. lines to camera masts, and from masts to RTC control facility.
Training	No costs. Assume traditional training is established.	Conduct of initial controller and maintenance training for RT system.
Building Maintenance	Recurring upkeep and maintenance of tower.	Recurring upkeep and maintenance of RTC.
RT Equipment Maintenance	Not applicable.	Recurring upkeep and maintenance of RT equipment in RTC and on the RTA.
Utilities	Recurring utilities costs (e.g., water, electric, gas, oil, commercial comm., etc.)	Recurring utilities costs (e.g., water, electric, gas, oil, commercial comm., etc.)



Summary

- FAA is no longer selecting individual airport RT pilot sites
- All RT vendors must go to ACY Testbed for evaluation and System Design Approval (SDA)
- Once vendor obtains SDA, the system will be put on a QVSL
 - RT systems on the QVSL can be used to provide Air Traffic Control Tower services in the NAS
 - QVSL will indicate environment (e.g. multiple runway, Class D, VFR tower) for which the RT system is approved for use
 - First approved RT system not expected on QVSL until late 2025
- Once QVSL is established, interested airports and system vendors must follow the RT system Commissioning Process as outlined in the RT Advisory Circular
 - Airports must coordinate with non-Federal (system) Program Implementation Manager (PIM) before purchasing a system for provision of ATCT services at airport
 - Airports must complete the RT camera siting process
 - System must complete an Operational Viability Evaluation and obtain a positive OVD



RT Non-Federal Website

- The RT Advisory Circular (AC)* and future Qualified Vendor System List (QVSL) can be found on the RT non-Federal Website:
https://www.faa.gov/airports/planning_capacity/non_federal/remote_tower_systems
- Updated documents will be uploaded to website as available
- Any questions, please contact Matt Richardson
<matthew.richardson@faa.gov>





Federal Aviation
Administration

THANK YOU



Presented to: Airport Sponsors/Operators
By: FAA NextGen and Technical Operations
Date: August 23, 2023



Federal Aviation
Administration 13

Back Up



Federal Aviation
Administration

Acronyms

- AC- Advisory Circular
- RTC- Remote Tower Center
- RTA- Remote Tower Airport
- NARTP- National Aerospace Research & Technology Park (testbed RTC)
- ACY- Atlantic City International Airport (testbed RTA)
- OVR- Operational Visual Requirements
- FAE- Functional Acceptance Evaluation (at testbed)
- FAD- Functional Acceptance Decision (for SDA)
- SDA – System Design Approval
- OVE- Operational Viability Evaluation (at each sponsor airport site)
- OVD- Operational Viability Decision (for Commissioning)

