

Topics

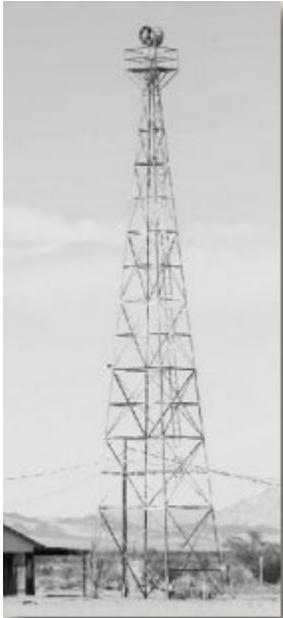
- Why Imagery and Surveys
- Guidance & Process
- Aeronautical Survey for Planning Projects
- Aeronautical Survey for Construction Projects
- Money



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Overview

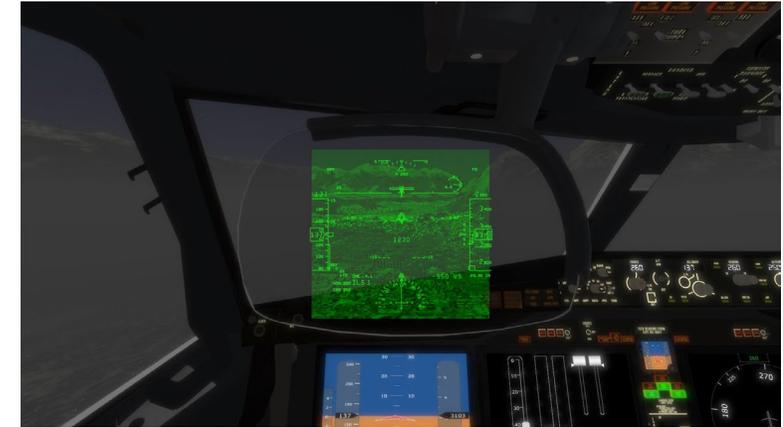
➤ Why the constant need for Aerial Imagery and Aeronautical Surveys?



Bonfires & Beacons



Moving Maps



Synthetic Vision



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Guidance

- [AC 150/5300-16](#) - *General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to the National Geodetic Survey*
- [AC 150/5300-17](#) - *Standards for Using Remote Sensing Technologies in Airport Surveys*
- [AC 150/5300-18](#) - *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards*
- *Policy Guidance Letter 2022-09 Updated Guidance for Airports Geographic Information Systems (AGIS) Survey Program*
https://www.faa.gov/sites/faa.gov/files/2022-09/PG_Airport_Geospatial_Survey_Update_2022.pdf
- *AGIS Survey Project Planning Guide*
<https://adip.faa.gov/agis/public/#/onlineHelp>



AGIS Survey Project Planning Guide

AGIS SURVEY PROJECT PLANNING GUIDE

PLEASE NOTE:

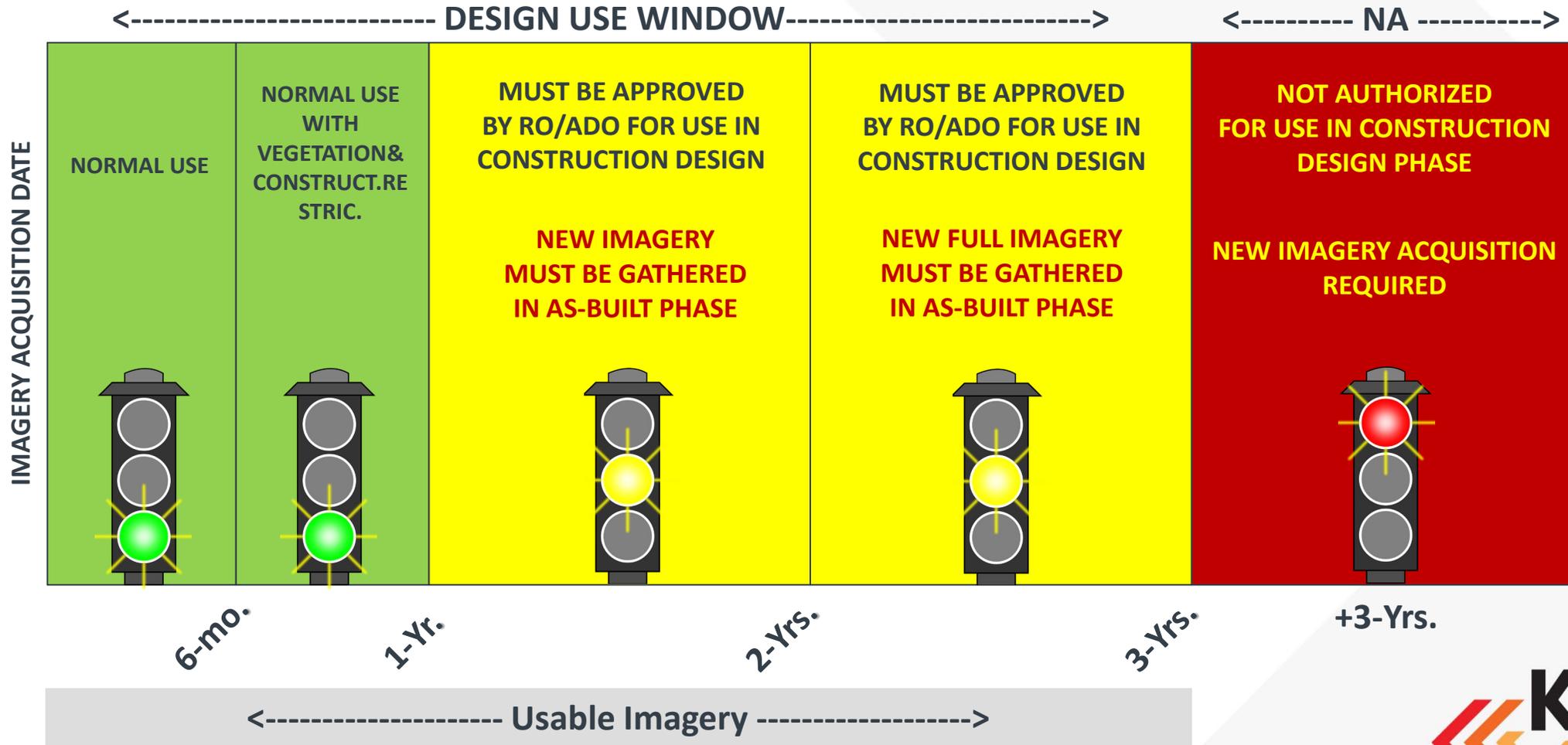
- This guide does not cover all situations and should be considered a "General Reference Only" for airport construction scoping/planning projects that require an AGIS Survey compliant submittal.
- Always verify AGIS Survey project requirements using the most current version of AC's 150/5300-16, -17, and -18.
- Review the 2022 AGIS Survey Policy Guidance Letter (PGL) for required AGIS project types and Safety Critical Data tolerances and required AGIS Survey project types.
- The Office of Airports is the only source for direction, clarification, or advice on airport survey data requirements for construction projects.

PRIMARY PROJECT PURPOSE	Has Existing AAA < 3-Yrs Old?	AGIS REQUIRED PROJECT TYPE		New AAA Required?	Design Phase Imagery Type		Required As-Built Phase Imagery (For Verification of SCD)	Reason/Direction
		DAB	AB Only		Previous < Imagery 3-Yrs Old	New Imagery		
RUNWAY CONSTRUCTION PROJECTS (SAFETY CRITICAL DATA SUBMITTAL)								
Include Any New or Reconstructed Taxiways In the Project Scope/AGIS Survey Submittal (Submit the Entire Length of the Taxiway. For AMDB, Consider Including/Updating Attached Taxiways and Markings)								
New Runway	---	YES	---	YES	---	YES - Full AAA OIS	YES - RWY + Construction Area(s)	IFP Dev & New OIS Sfcs
PROJECT NOTE(S): None								
VFR to IFR Runway (No RWY Construction)	---	---	YES	YES	---	---	YES - Full AAA OIS	IFP Dev & New OIS Sfcs
PROJECT NOTE(S): None								
VFR to IFR Runway (With RWY Construction)	---	YES	---	YES	---	YES - Full AAA OIS	YES - RWY + Construction Area(s)	IFP Dev & New OIS Sfcs
PROJECT NOTE(S): None								
Physical RWY End Change/Relocation (RWY Shift, Extension, Reduction, Relocation, etc.)	YES	YES	---	YES	(1)	(2)	(1)	IFP Dev & New OIS Sfcs
	NO	---	---	---	---	(2)	(2)	
PROJECT NOTE(S): None								
Add New or Alter Existing Displaced (Landing) Thld (No "Planned" RWY End Feature Changes)	YES	YES	---	# SITUATION SPECIFIC	(1)	(2)	(1)	IFP Dev & New OIS Sfcs
	NO	---	---	YES	---	(2)	(2)	
PROJECT NOTE(S): The term "Alter" includes addition, relocation and/or removal of a feature. # To ensure Safety of Flight, and to ensure that all published IAPs have the best minima available, a new/updated AC-18 AAA may be required for this project type. The age of a previously completed AAA (if any) and size of the airport should be key factors in the decision to require/not require a new AAA survey.								
LINEAR Runway Widening/Narrowing (No "Planned" Changes to RWY End/CL)	YES	YES	---	** POSSIBLE	(1)	(2)	(1)	IFP Dev (VGS)
	NO	---	---	** YES	---	(2)	(2)	
PROJECT NOTE(S): ** If more pavement is added/removed on one side of the runway centerline than the other (see OFFSET RWY Widening/Narrowing project type below), this will result in the movement of the Physical RWY End points and RWY CL. If this move is required for 2022 AGIS Survey PGL requirements, this project will require a new AC-18 AAA to be performed in a DAB AGIS Survey project. Also, a new AAA will be required if the runway is other than a VFR only utility RWY (i.e., circling is NA's to that runway or taxiway) and does not have a current AAA in AGIS Survey.								

Airport Data and Information Portal - Online Help

- Airports
 - AGIS Survey
 - Info for Surveyors
 - Airport Survey Projects
 - [AGIS Survey Project Planning Guide](#)
 - PACS & SACS / Non-Safety Critical Project
 - Safety Critical Data Collection, Not Including Design Data
 - Safety Critical Data Collection, Including Design Data
 - [Survey Viewer User Guide](#)
 - [Update My Account](#)
 - [Update My Password](#)
 - Modification of Standards (MOS)
 - [Facility Documents](#)
 - [Support Desk User Guide](#)
 - Airport Master Record (AMR)
 - Digital 7480-1
 - [RAM User Guide](#)

AC17 Imagery – Useability Timeline



The Aeronautical Survey

- Imagery
 - Design (in preparation for Instrument Approach)
 - As-Built (verification of Safety Critical)
- Data
 - Safety Critical (Runway, Taxiway, Navaids, Visual Aids, Obstructions)
 - Other Airfield Objects (Aprons, Lighting, Buildings, Signs, Etc.)



Safety Critical Information

Chapter 4.1.3 within [Advisory Circular 150/5300-18B](#) defines Safety Critical Data deliverable requirements for AGIS survey projects that are critical for safe flight operations.

- ✓ NAVAIDs
- ✓ Obstacles
- ✓ Runway End
- ✓ Touchdown Lift Off Area

- ✓ Airport Control Points
 - ✓ Airport Reference Point (ARP)
 - ✓ Airport Elevation
 - ✓ Touchdown Zone Elevation (TDZE)
 - ✓ Displaced Threshold Point
 - ✓ Stopway Ends
 - ✓ Centerline Perpendicular Point
 - ✓ Profile Points
 - ✓ Runway Intersection Points
 - ✓ PACS/SACS

- ✓ Runway
- ✓ Stopway
- ✓ Taxiway
- ✓ Visual Aids



NOTE: An AGIS Survey Project Submittal Is The Only Means To Change/Update Published Airport Safety Critical Data.



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Aeronautical Surveys in Planning Projects

- Initial AGIS Survey
 - Airport Data and Information Portal (ADIP)
 - Focus on Existing Facilities information into ADIP
 - Planning can use AGIS to analyze Future Alternatives and Initiate IFP
- Planning Project with previous AGIS Planning Project
 - Renew Obstruction Data
 - Need for Current Imagery
 - Planning can use to analyze Future Alternatives and Initiate IFP



Aeronautical Surveys in Construction Projects

➤ Runways

➤ New

- AGIS - Design & As-Built (DAB) including Airport Airspace Analysis (AAA)

- Imagery - DAB

➤ VFR to IFR (No Construction)

- AGIS - As-Built Only (AB Only) including AAA

- Imagery - AB Only

➤ VFR to IFR (Construction)

- AGIS – DAB including AAA

- Imagery - DAB



Aeronautical Surveys in Construction Projects

➤ Runways

➤ Threshold Change

➤ AGIS - DAB including AAA

➤ Imagery – DAB (Potential to use existing imagery for Design Imagery)

➤ Widen/Narrow

➤ AGIS - DAB including AAA (Potential to use existing AAA)

➤ Imagery – DAB (Potential to use existing imagery for Design Imagery)

➤ Rehabilitation

➤ AGIS - Depends...Are you exceeding tolerances.

➤ Imagery – AB Only

➤ Decommission – None



Aeronautical Surveys in Construction Projects

- Stand-Alone Taxiways
 - New, Reconstruction, Rehabilitation or Removal
 - AGIS - AB Only
 - Imagery – AB Only
- NAVAIDS
 - Installation or Relocation
 - Visual (PAPIs, REILs, Beacons, Etc.)–
 - ◇ Ground Survey and VGIS Submittal Only
 - Electronic (Glide Slope, Localizer, etc.)–
 - ◇ AGIS – DAB including Airspace
 - ◇ Imagery – DAB



NOTE: Part 139 Requires AB Only AGIS Data Collection for all projects that revise airfield geometry (Aprons, Taxilanes, Parking Lots, Etc.)



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AC18 - Design/As-Built Survey Requirements

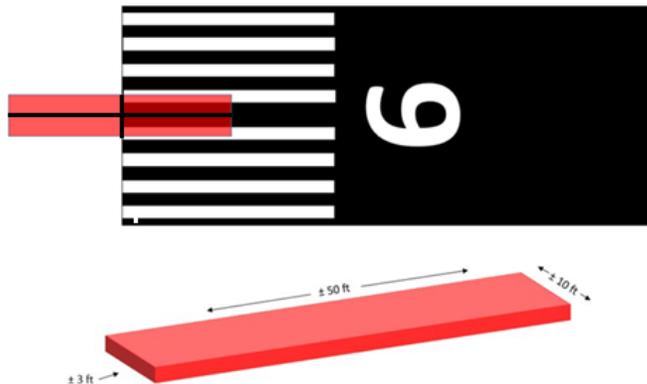
IMPORTANT NOTICE: The FAA Flight Procedures Team (FPT) requires AGIS Design/As-Built survey data in order to develop new or amend existing Instrument Flight Procedures. (ref. FAA Order 8260.19).

The 50-10-3 Rule

Solely designed to evaluate for IFP impacts during bi-annual reviews. See FAA Order 8260.19I.

“The following runway threshold parameter changes are deemed to have no impact on instrument approach procedures:

- ± 50 feet or less longitudinally
- ± 10 feet or less laterally
- ± 3 feet or less vertically”



The 50-10-3 Rule Does Not Apply to the AGIS Survey Program

2022 AGIS Policy Guidance Letter

“An AGIS Safety-Critical Data Collection, Including Design Data survey is required for all runways with established or planned instrument flight procedures where a runway threshold, or displaced threshold, location and/or elevation changes by more than:

- ±1-foot longitudinally (along the runway centerline),
- ±1-foot transversely (left or right of runway centerline),
- or ±6-inches vertically

from its existing/published position.”



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AC17 - Imagery Phases



AGIS “Design Phase” Imagery

Used to show planned feature data locations and identify possible hazards to flight operations (objects/obstacles).

Survey data used for IFPD Prototyping.



Construction Occurs



AGIS “As-Built Phase” Imagery Update

Used to verify locations/elevations of Critical Design Features.

After Verification approval, new IAPs can be published.



Design/As-Built Project Data Deliverables

Design Phase

- Safety Critical Data – All data required for IFPD (See AC18 for list of Safety Critical features)
- Imagery – See AC17C for requirements
- Required Data Pairs
 - Runway(s) & Associated Runway End Points
 - NAVAIDS & Associated Airport Control Points (ACP) – Runway Perpendicular Points (RPP)
- Obstacles (include current OAS Dataset Objects and New OIS Associated Objects)
- AAA OIS Surfaces
- NAVAIDS
- Lighting Systems – Approach Lighting / VGSI + ACP RPPs
- Runway Centerline Profile Points (50' w/ no offsets, 10' w/ 10' offsets)
- Additional Critical ACPs
 - ARP / Airport Elevation / Touchdown Zone Elevations (TDZE - for each Runway) / Displaced Thresholds

This is NOT a complete list!
See AC 150/5300-18B Table 2-1
for a complete listing of all
features required for
“Instrument Flight Procedures
Development (IFPD)”.

As-Built Phase

- New Aerial Imagery (see AC17C for requirements)
- Field Validated Design Data / Updates Safety Critical Data (***This could negate prototype IAPs based on Design data!***)
- Runway Markings
- Any Additional Airport Planimetric or Changed Obstacle Data Not Submitted in the Design Phase
- Final Report
- **NOTE: Significant Obstacle Data Changes In As-Built Phase May Affect IFP Design Times/Forecasted IFP Charting Pub Dates**



Money, Money, Money



Note: If you've seen one airport, you've seen one airport...these can change based on project.

Project Type	Aerial Imagery	Est. Cost	Comments
Non-Safety Critical (Apron, Hangars, Fences)	No	5k to 15k	Ground Survey, ADIP Admin., and GIS features
New Taxiway Construction (Safety Critical)	Yes As-Built Taxiway Area Only	15k to 30k	Ground Survey, ADIP Admin., As-Built Taxiway Imagery acquisition, and GIS features
Runway Extension (Safety Critical)	Yes Design & As-Built	50k to 80k	Ground Survey, ADIP Admin., Imagery for Design with Obstacles, As-built Imagery of runway only with As-Built GIS features
ALP MP (Safety Critical Not Including Design)	Yes for -18B OIS	80k to 150k	Ground Survey, ADIP Admin., Imagery, Obstacles, and GIS features (all planimetric features on airport)
ALP Update (Safety Critical Not Including Design)	Yes for -18B OIS	70k to 130k	Ground Survey, ADIP Admin., Imagery, Obstacles, and GIS features (only updated features and those not included in previous ALP)

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