Airports GIS

RFQ, Scoping and Statement-of-Work

Presented to | FAA Regions | Alaskan
By | Gil Neumann, APP-400 | Thomas Wade, ASW-611
Date | October 19-20, 2011

Agenda

- RFQ (5 min)
- Scoping (10 min)
- SOW (30 min)
- Plans (5 min)
- Best Practices/Lessons Learned (10 min)
Request for Qualifications (RFQs)

- Expertise with GIS; demonstrated knowledge of AC150/5300-18
- Demonstrated experience conducting Aeronautical Surveys
  - AC150/5300-16 and -17
  - NGS specifications, standards, and software
  - National Spatial Reference System (NSRS)
  - Continuously Operating Reference Stations (CORS)
  - High Accuracy Reference Network (HARN)
  - Aerial Photography
  - Photo Control Points, recovering and establishing Survey Marks
- Demonstrated experience developing Airport Layout Plans (ALP projects; Master Plans)
- Experience working on an operating airport (airside / landside development projects)

Airports GIS | Project Scoping Meeting

- Reference -18B, Table 2-1
  - Safety Critical Features?
  - Resolution/Accuracy?
  - Imagery Required? Photo Scale(s)?
  - Contour intervals?
  - Aeronautical Survey and Airspace Analysis Required? Which Runway(s)?
  - Design and As-Built Data?
  - On-going Projects
  - ALP Follow-on Project?
- Identify responsible party and data source for each feature and attribute
- Statement-of-Work; implementation plans
- Most airport development and planning projects require some GIS expertise
Airports GIS | Project Scope

- **AC 150/5300-18 (Table 2-1)**
  - Evaluate Existing Data
  - NGS (PACS/SACS, Obstruction Surveys)
  - Airports-GIS
  - FAA (5010/approach procedures)

- **Obstruction Survey/Airport Airspace Analysis (OS/AAA) → Safety Critical Data (Table 4-1)**
  - Primarily Obstacles, NAVAIDS and Runway Control Points (Ends, profile(s): near-term need
  - Virtually all attributes
  - Validate against existing “official” data

- **Robust Data Collection (eg., data for an “eALP” project)**
  - Feature-by-Feature, Attribute-by-Attribute determination
  - Runway AS/AAA: for near-term, needed development/approaches

Airports GIS | Project Scope (continued)

- **New Non Safety-Critical Project**
  - Taxiway/Apron/Hangar/Environmental
  - All Features/All Attributes associated with the project (eg. an apron project could include: apron, lighting, signage, marking, utilities, etc.)

- **Primary Airport Control Station (PACS)**
  - Secondary Airport Control Station (SACS)
  - Primary airports / non-primary airports (top tier): use/re-establish
  - Others: evaluate costs vs. benefits over next 5 years

- **Imagery**
  - Consider both initial and subsequent usage (multiple projects)
  - Image areas: airport core; airport periphery; obstacle evaluation surfaces
### Table 2-1: Aircraft-Carrying Unit

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<thead>
<tr>
<th>Feature</th>
<th>Attribute</th>
<th>Source</th>
<th>Provider</th>
<th>Connected By</th>
<th>Documentation</th>
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### eALP (Robust Data Collection) | Feature List Example

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Airports GIS | Statement of Work

**FRAMEWORK**
- FAA/Airport Agreement (What)
- Written from Airport Perspective
- Not Consultant Scope of Services
- NGS Compares Plans to SOW
- See Online Help Templates
- Pre Coordinate with Proj. Mgr.

**COMPONENTS**
- Background & Objective
  - RW extension (with or w/o safety-critical data)
- Requirements
- Plans
- Geodetic Control
- Imagery
  - Survey & QC; features; as-builts
- Graphic

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**SOW | Basics**

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<td>Date</td>
<td>October 9, 2009</td>
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<tr>
<td>Prepared For</td>
<td>Southwest International Airport (SWA), San Antonio, TX</td>
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<tr>
<td>FAA Contact</td>
<td>SWA Operations Center, SWA, 30000 SWA Dr, San Antonio, TX, 78201</td>
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<td>O. Broadway Administrator, 1720 N. Alcala, San Antonio, TX, 78201</td>
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**Purpose and Background**

The purpose of the project is to document and approve the SOW for the airport's GIS project. The SOW serves as the basis for the project's scope and serves as a reference for future projects. It outlines the project's objectives, scope, and methodology, providing a clear understanding of the project's requirements.
SOW | Basics (continued)

Georeferencing

The project will use existing PACTSACE. Existing PACTSACE will be revised to either re-establish, or as a temporary control.

Imagery

The consultant will coordinate with the Airport Traffic Control Tower (ATCT) for access to the ATCT and FAA Technical Operations for access to the AC 150/5009-7B imagery. Imagery will show full extent of coverage.

Color film to be used: Kodak 2444 or AGFA X-103, or better.

The following flight missions will be performed:

<table>
<thead>
<tr>
<th>Flying Height</th>
<th>Area</th>
<th>Photo right</th>
<th>Ground Coverage</th>
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<tbody>
<tr>
<td>1,000' AGL</td>
<td>A</td>
<td>1'' = 800''</td>
<td>12 inch</td>
</tr>
<tr>
<td>500' AGL</td>
<td>B</td>
<td>1'' = 200''</td>
<td>3 inch</td>
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</tbody>
</table>

A = Entire project area as shown in illustration
B = All Airport Property on flying 1,500' off the ends of Runway 9/27 (VQ)

Rectified orthomosaic will be submitted for both flight missions.

Detailed data and information to NPS for 1195330-17B, Paragraph 20 of a linear project data and information to NPS for 1195330-17B, Paragraph 20.
Implementation Plans

- An expansion of Statement-of-Work
- How Requirements will be met
- SOW touches on Geodetic Control, Imagery, and Airport Survey
- Plans support the Statement of Work and expand detail

Plan Overview

- **GEODETIC CONTROL PLAN**
  - Requirement of AC-150/5300-16A
  - Required when establishing new PACS/SACS
  - Details methodology for establishing PACS/SACS

- **IMAGERY PLAN**
  - Requirement of AC-150/5300-17B
  - Submission/Approval required before acquisition
  - Acquisition report if deviating from Imagery Plan
  - Details methodology for Imagery Acquisition and Use

- **SURVEY/QUALITY CONTROL PLAN**
  - Requirement of AC-150/5300-18B
  - Required for any survey project initiated through Airports GIS
  - Submission/Approval required before project commencement
  - Details methodology for data acquisition and quality control
Plan Overview (continued)

- THE STATEMENT OF WORK SETS UP THE PLOT OF THE STORY
  - SOW explains WHAT the Airport are going to do
- THE PLANS EXPAND ON THE “WHAT” AND ADD THE “HOW”
  - Explains in further detail what you are going to do
  - Explains the consultant/contractor methodologies in detail
- ADVISORY CIRCULAR REQUIREMENTS
  - What are the AC requirements for the particular project?
  - How do the methodologies adhere to the AC requirements?
  - How do the methodologies ensure required accuracies?
- TOGETHER, PROJECT PLANS TELL THE STORY FROM BEGINNING TO END
  - Provides background and purpose
  - Provides a timeline
  - Provides a work plan
  - Defends methodologies and ties to Advisory Circulars

What information is NGS looking for?

- GEODETIC CONTROL PLAN
  - Existing NGS monuments and reconnaissance
  - Observation Scheme
  - Methodologies and GPS observation requirements of 16A
  - All monument recovery documentation

- IMAGERY PLAN
  - Discuss purpose of the imagery
  - How do your chosen photo scales ensure required accuracies will be met?
  - Demonstrate your understanding of 17B requirements
  - Overview of processing and quality assurance procedures

- SURVEY/QUALITY CONTROL PLAN
  - Remote Sensing, Field Survey or both?
  - Collection Methodologies for Field Survey
  - Extraction methods for Remote Sensing
  - Emphasis on safety-critical data (obstructions, runways, NAVAIDs)
  - If using both remote sensing and field survey, how will you combine this data?
Creating Custom Plan Templates

- **NGS/FAA SAMPLE TEMPLATES**
  - Available at [https://airports-gis.faa.gov](https://airports-gis.faa.gov)

- **DEVELOP CUSTOM PLAN TEMPLATES**
  - FAA templates create a great base
  - Initial time investment, but streamlines plan-writing process
  - Customize depending on the type of project

- **COVER ALL AREAS CALLED OUT IN ADVISORY CIRCULARS**
  - Geodetic Control Plan (AC-16A, Section 8.3)
  - Imagery Plan (AC-17B, pages 3-7)
  - Survey/Quality Control Plan (AC-18B, Section 2.6.2)

- **INCLUDE SOURCE OF PLAN INFORMATION**
  - Planning
  - Project Management
  - Quality Assurance
  - Field Surveyors

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Basic Airports GIS templates are available on-line
Lessons Learned/Best Practices

- The SOW is the foundation – make sure it’s complete!
- Must include runways ends/profiles for all runways even if only one runway is being evaluated in order to calculate ARP and Airport Elevation
- Using Templates (SOW and Plans) improves the chance of success – Greatly making everyone’s life easier
- Consultants should understand SOW requirements when negotiating Scope of Services with Airport
- Persons responsible for plans should have input into SOW
- For “eALP” projects – A thorough Scoping exercise with Sponsor, Consultant and FAA is critical to ensure agreement and develop a good cost model.