

Carlsbad Palomar Airport GIS for Asset and Facilities Management



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Introduction

Ø Who we are?

- **TDH Associates International**

- Provides asset management GIS solutions
- FAA registered consultant for the Airport GIS program
- 25 years of airport experience, including as a pilot

- **PSOMAS**

- Over 60 years on geospatial business
- Multi discipline consulting firm serving public agencies and municipalities
- Airport clients: LAWA/LAX, PHX, SAN, MKE, GTF

Ø Agenda

- Overview of GIS in asset/facilities management
- Business case for Airport GIS
- Case study: Carlsbad Palomar Airport GIS

Asset and Facilities Management (AFM)

- Ø Multi layer of information category
- Ø Detailed attributes and metadata
- Ø Geospatially referenced
- Ø Management system or applications
- Ø Inventory, monitoring, and maintenance
- Ø Workflow, processes, and protocols imbedded
- Ø Assessment, analysis, and reporting



San Diego Airport image courtesy of SDCRAA




AFM images courtesy of ESRI

Business Drivers for Airport AFM-GIS

- ∅ Entrusted with geospatial assets: macro & micro
- ∅ Entrusted with major economical infrastructure and public safety
- ∅ Technology advancement: economical, practical, proven, & expected
- ∅ Unified and centralized asset/facility information
- ∅ Timely and accurate information and its access
- ∅ Data security and management
- ∅ Business and operational efficiency
- ∅ Ultimately, safe and working airports =
efficient business engine =
thriving community and happy citizens



The FAA requires airports use GIS



U.S. Department
of Transportation

Federal Aviation
Administration

Advisory Circular

Subject: General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards

Date: DRAFT **AC No:** 150/5300-18B
Initiated by: AAS-100 **Change:** 1



**Large &
Medium
Hub**

**Small
Hub**

**Non
Hub**

**Non
Primary
Part 139**

Air side GIS vs Land side GIS

Air side

- ∅ Aircraft Operating Areas “AOA”
- ∅ Navigation facilities and markings
- ∅ Airside GIS is mandated by the FAA



Land side

- ∅ Asset and facilities management
- ∅ Non safety critical areas
- ∅ Concessions and ground transportation
- ∅ Planning and construction
- ∅ Land side GIS is not mandated, but desired by airport owner/operators



Carlsbad Palomar Airport GIS Project

Develop an Airport GIS

1. Land side GIS
2. Property and infrastructure data
3. Geo-coded maps, and photos

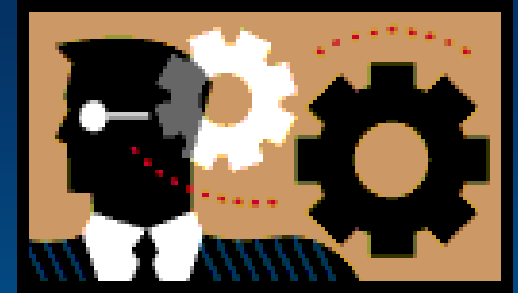
Provide training and support

1. How to maintain the Airport GIS
2. Additional uses



Carlsbad Palomar Airport

Project Challenges

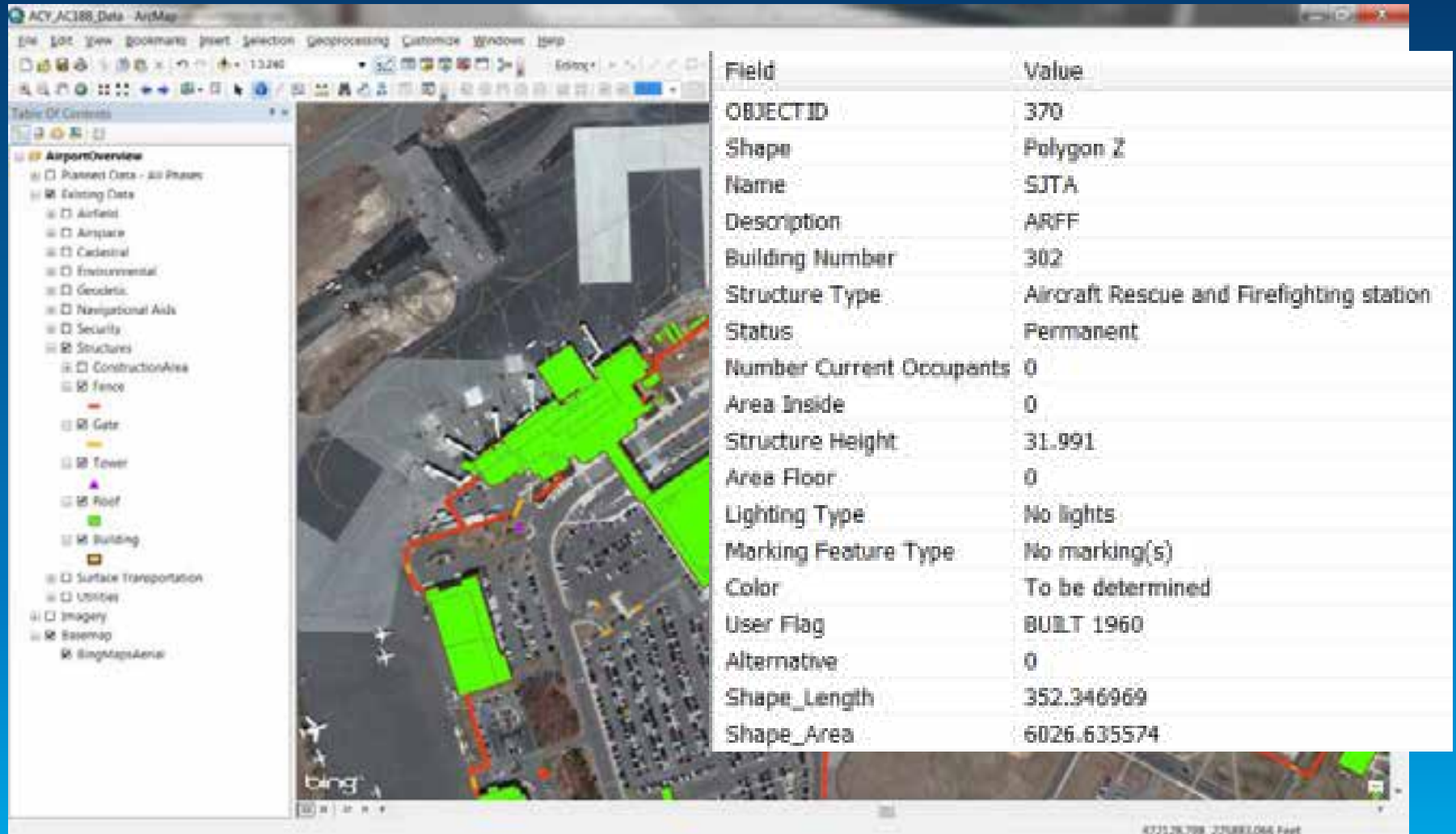


- ∅ Identifying airport operations
- ∅ Determining the scope of the Airport GIS
- ∅ Determine desired GIS layers
- ∅ Data collection and conversion
- ∅ Collaboration among agencies
- ∅ Access to GIS software/hardware
- ∅ Airport GIS user training

Develop Carlsbad Airport GIS layers

1. Collect existing airport drawings (AutoCAD)
2. Collect available GIS shapefiles
3. Review plans, ALUP, and other information
4. Create desired land side shapefiles
 - a. Buildings, property, facilities, and fencing
 - b. Infrastructure facilities and networks
 - c. Internet WIFI hotspots and video cameras
 - d. General Aviation FBO's and hangars
 - e. Fuel storage facilities and refueling areas
 - f. Green spaces and conservation areas
5. Create a GIS base map

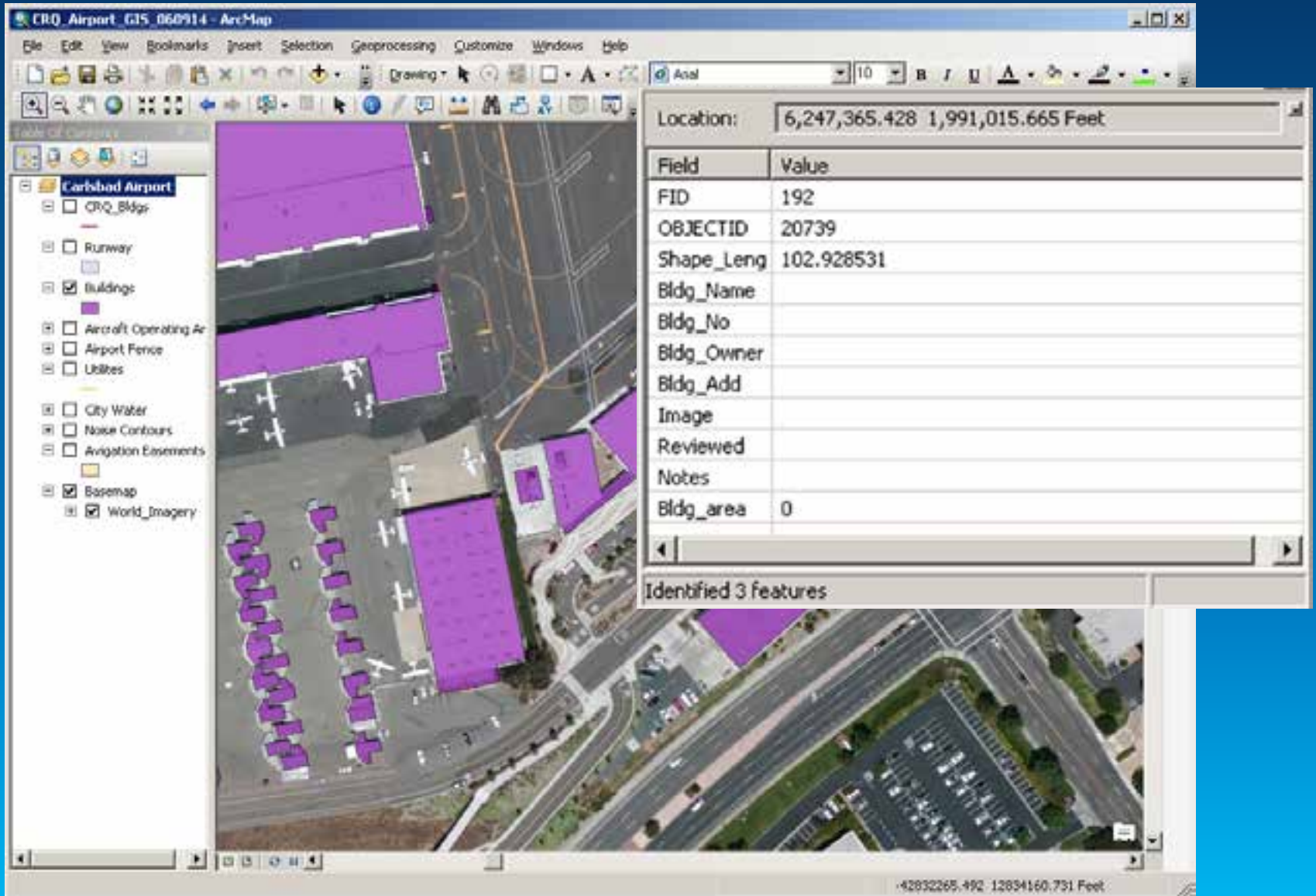
FAA Airport GIS Buildings Feature Class



The screenshot shows the ArcMap interface with a map of an airport. Buildings are highlighted in green. A pop-up window displays the attribute table for the selected feature.

Field	Value
OBJECTID	370
Shape	Polygon Z
Name	SJTA
Description	ARFF
Building Number	302
Structure Type	Aircraft Rescue and Firefighting station
Status	Permanent
Number Current Occupants	0
Area Inside	0
Structure Height	31.991
Area Floor	0
Lighting Type	No lights
Marking Feature Type	No marking(s)
Color	To be determined
User Flag	BUILT 1960
Alternative	0
Shape_Length	352.346969
Shape_Area	6026.635574

Carlsbad GIS Buildings Feature Class



CRQ_Airport_GIS_060914 - ArcMap

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

Table of Contents

- Carlsbad Airport
 - CRQ_Bldgs
 - Runway
 - Buildings
 - Aircraft Operating Ar
 - Airport Fence
 - Utilities
 - City Water
 - Noise Contours
 - Aviation Easements
 - Basemap
 - World_Imagery

Location: 6,247,365.428 1,991,015.665 Feet

Field	Value
FID	192
OBJECTID	20739
Shape_Leng	102.928531
Bldg_Name	
Bldg_No	
Bldg_Owner	
Bldg_Add	
Image	
Reviewed	
Notes	
Bldg_area	0

Identified 3 features

-42832265.492 12834160.731 Feet

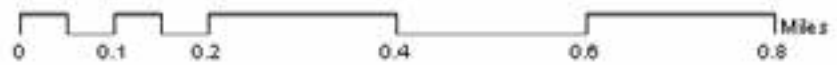
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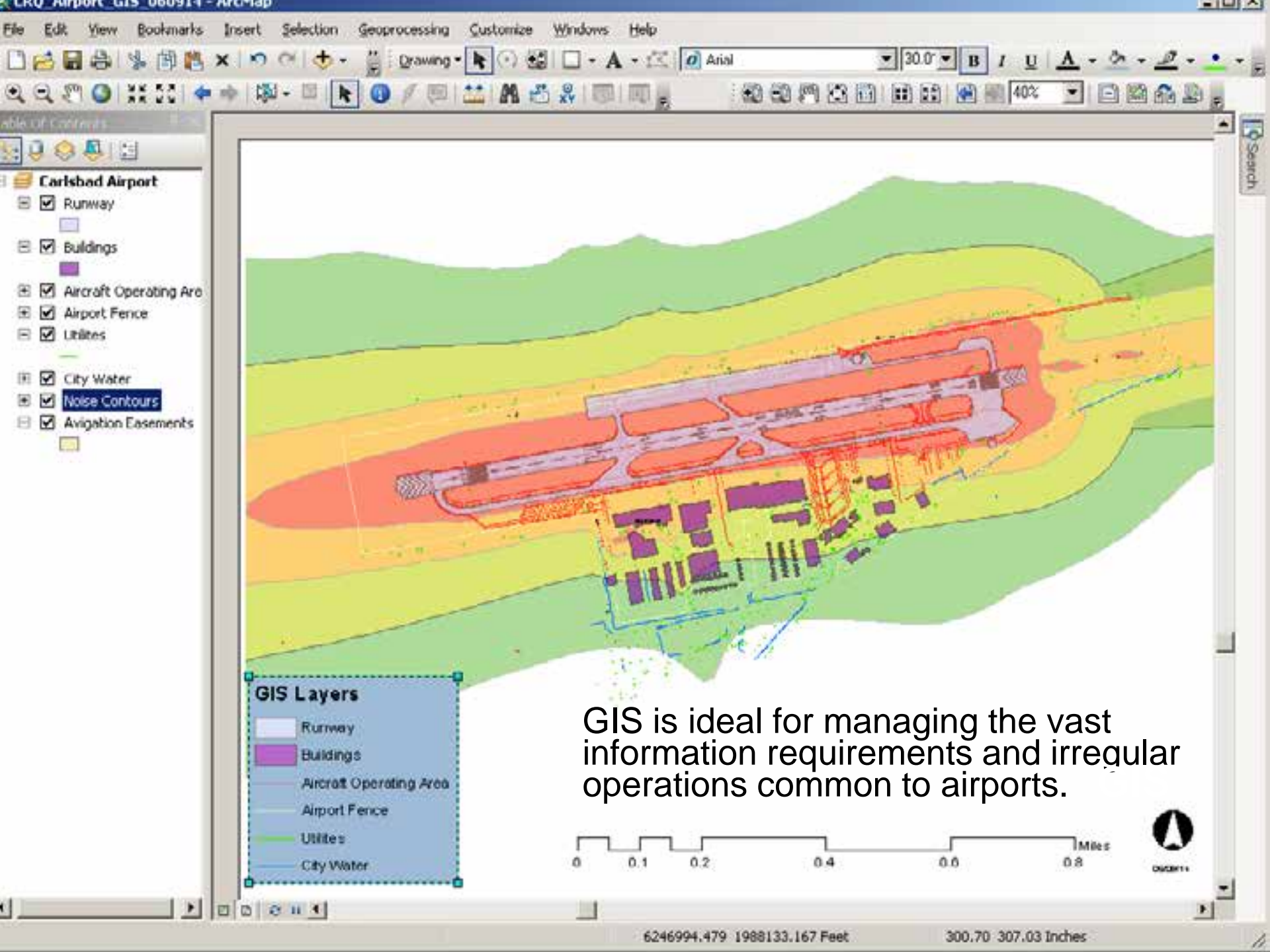


GIS Layers

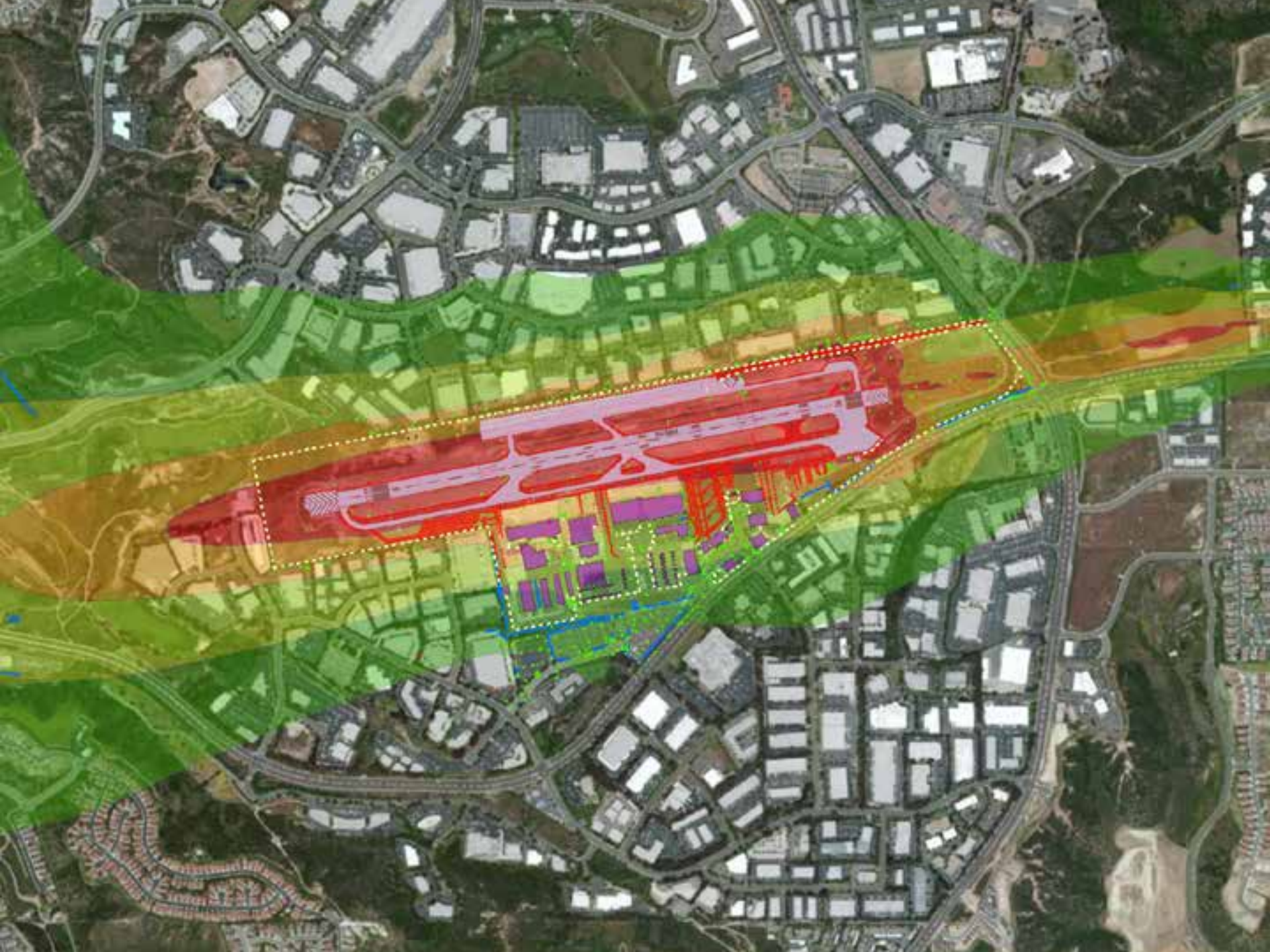
-  Runway
-  Buildings
-  Aircraft Operating Area
-  Airport Fence
-  Utilities
-  City Water





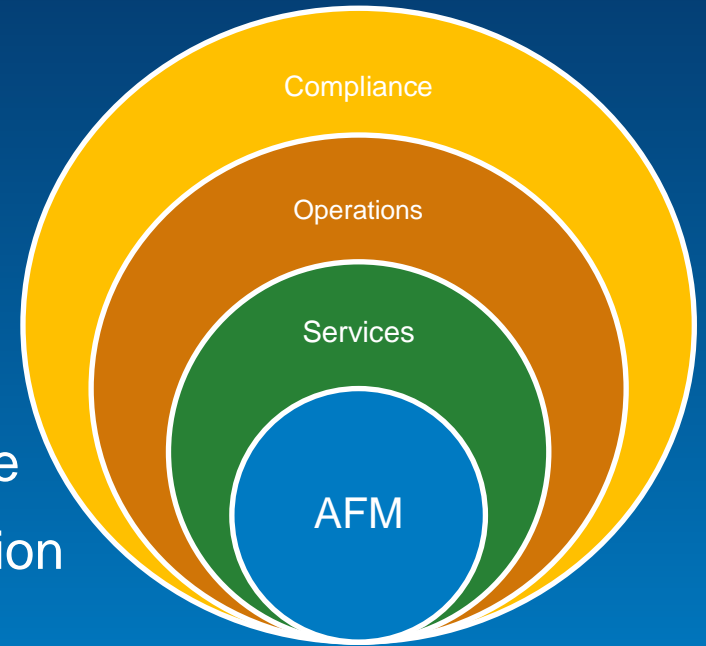


GIS is ideal for managing the vast information requirements and irregular operations common to airports.



Additional Value of GIS to Airports

- ∅ Provides improved situational awareness
- ∅ Emergency management and training
- ∅ Property management and security
- ∅ Model and monitor noise
- ∅ Sharing data with other agencies GIS
- ∅ Maintain airport historical knowledge base
- ∅ Support public and stakeholder participation
- ∅ Plan and manage surface transportation
- ∅ Ability to access many of the IT systems used at airports
- ∅ Track environmental compliance and sustainable reporting
- ∅ Preparation of studies, plans, maps, presentations, and marketing



The Big Picture

Moving people safely, efficiently, and timely



- ∅ AFM helps meet the many challenges airports face
- ∅ FAA mandates using GIS
- ∅ Manage irregular operations and emergencies
- ∅ Reduce operating costs
- ∅ Support operations, planning, and expansion

Questions & Answers

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