Facility Management Information Technology
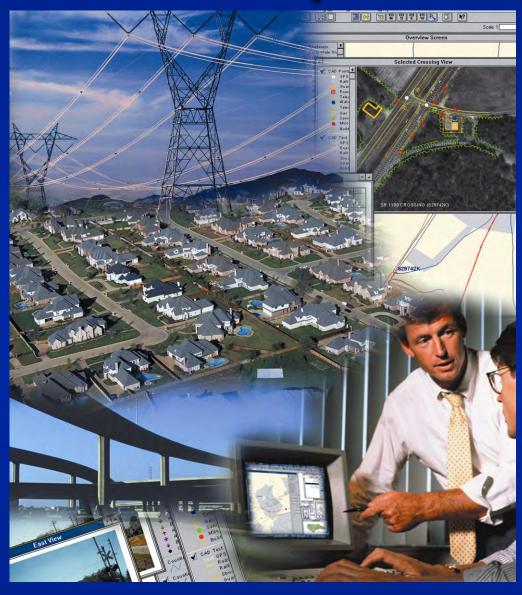
FM-IT
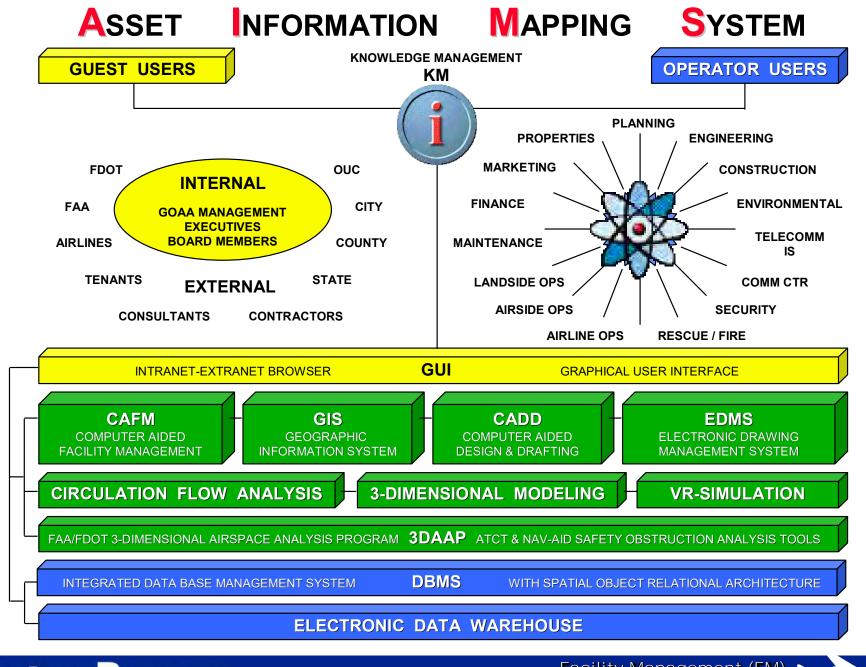
Using an Asset Information Mapping System (AIMS)

Presented Feb 2001

To FAA Southern Region

By David Tamir, FM/IT Program Manager
Carter & Burgess, Orlando, Florida
Tel. (407) 514-1445 / -1400, tamirdx@c-b.com

Integrated Knowledge Management Solutions

Carter & Burgess Resources & Experience

ASSET INFORMATION MAPPING SYSTEM

GUEST USERS

KNOWLEDGE MANAGEMENT
KM

OPERATOR USERS

INTERNAL
GOAA MANAGEMENT
EXECUTIVES
BOARD MEMBERS

FDOT

OUC

FAA

CITY

AIRLINES

COUNTY

TENANTS

STATE

EXTERNAL

CONSULTANTS   CONTRACTORS

PLANNING
PROPERTIES   ENGINEERING
MARKETING   CONSTRUCTION
FINANCE   ENVIRONMENTAL
                    TELECOMM IS
MAINTENANCE
LANDSIDE OPS   COMM CTR
AIRSIDE OPS   SECURITY
AIRLINE OPS   RESCUE / FIRE

INTRANET-EXTRANET BROWSER	**GUI**	GRAPHICAL USER INTERFACE

CAFM COMPUTER AIDED FACILITY MANAGEMENT	**GIS** GEOGRAPHIC INFORMATION SYSTEM	**CADD** COMPUTER AIDED DESIGN & DRAFTING	**EDMS** ELECTRONIC DRAWING MANAGEMENT SYSTEM

CIRCULATION FLOW ANALYSIS   **3-DIMENSIONAL MODELING**   **VR-SIMULATION**

FAA/FDOT 3-DIMENSIONAL AIRSPACE ANALYSIS PROGRAM **3DAAP** ATCT & NAV-AID SAFETY OBSTRUCTION ANALYSIS TOOLS

INTEGRATED DATA BASE MANAGEMENT SYSTEM **DBMS** WITH SPATIAL OBJECT RELATIONAL ARCHITECTURE

ELECTRONIC DATA WAREHOUSE

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Facility Management (FM)
Information Technology (IT)

Airport Configuration Management

Using a
Technical Information Mapping System
(TIMS)

Presented
Oct. 2000

To Federal Aviation Administration (FAA)
NAS Information Architecture Committee

By Tech-Data, Planning & Special Projects
Greater Orlando Aviation Authority
Orlando International & Executive Airports
Tel. (407) 825-4034 / -4002, dtamir@goaa.org

The Owner's Perspective

Presentation Outline

- Introduction to the Airport's Perspective

- Airport Configuration Management (CM)

- TIMS Approach

- Implementation Challenges

- FAA Airport Layout Plan (ALP) is Key to CM Process

- CM Process Improvement via Standards

Presentation Outline

➡️ **Introduction to the Airport's Perspective**

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Introduction to the Owner's Perspective

The Owner
(Aviation Authority)

- Plans
- Develops
- Markets
- Leases
- Operates
- Maintains

Airports

Products

Airports

Facility Management (FM)
Information Technology (IT)

Managing a Delicate Balance

Two Competing Factors to Balance:

- Maximizing Passenger Service

  while

- Minimizing Tenant Costs

Tenants

Passengers

Balance Achieved by Adjusting Airport's Configuration

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Facility Management (FM)
Information Technology (IT)

Airports are Multi-Faceted Complex Products

Passenger Terminals
Aircraft Aprons
Aircraft Taxiways
Aircraft Runways

Signage
Parking Lots
Garages
Roadways
Automated People Movers

Facilities & Systems
Utility Infrastructure
Environmental Features
Land & Properties

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Owner Business Drivers

- **Data Re-Creation:** **Consultants and contractors often have to "reverse engineer" data via physical inspections and archived documents, re-creating data that they or someone else previously created for the owner. The facility owner is paying more than once for the same information.**

- **Data Duplication & Verification:** **Different versions of the same facility information exist as individual data "islands". Ascertaining which dataset is most up-to-date and accurate is costly. The facility owner needs up-to-date consolidated information with traceable meta-data tags shared by the owner's enterprise.**

- **Cumbersome Data Retrieval & Presentation:** **The facility owner's staff is regularly spending hours or days obtaining facility asset information for business decision support that should take only minutes to retrieve and present using electronic web-network means.**

- **Opportunity Costs:** **In quick-response situations (i.e., if a potential customer inquires for facility information, if a critical decision maker requires facility data, or if an accident occurs with life-or-death balancing on quick information response) critical political deadlines highly visible to the owner can be missed with consequent costs.**

Approximate Cost Benefit

- Data Re-Creation: *1% of a 5-year capital improvement program (CIP) cost, (e.g., $50M savings on a $5B CIP)*

- Data Duplication & Verification: *5% of annual operation & maintenance (O&M) costs, (e.g., $5M savings on a $100M O&M)*

- Cumbersome Data Retrieval: *5% of O&M costs, (e.g., $5M savings on a $100M O&M)*

- Opportunity Costs/Risk Management: *Difficult to quantify, (i.e., a single lawsuit can cost $$$ Millions)*

TIMS Cost Benefit is $Ms per Year for a Major Facility

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Presentation Outline

- Introduction to the Airport's Perspective

➡ **Airport Configuration Management (CM)**

- TIMS Approach

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Lifecycle Configuration Management (CM) Definition / Background

Configuration Management is

"... a simple, fast, accurate, systematic and well understood approach to planning, identifying, controlling, and tracking a product's configuration from its inception throughout its life."

(by Frank Watts, Engineering Documentation Control Handbook: Configuration Management for Industry, 1993)

- CM was born in the 1950s with US space and military programs

- Originally used for development, operation, and maintenance of high performance hazardous systems

- CM has evolved to become a cost-effective decision support tool for proactive lifecycle management -- replacing reactionary troubleshooting

DEVELOPMENT **OPERATION** **MAINTENANCE**

AIRPORT

LIFECYCLE

Development Lifecycle Phase

CM Starts with:

- Planning & Conceptual Layout Drawings & EA/EIS (10-20% Design)

- Engineering Drawings (30-60-90% Design)

- Construction Doc's (100% Design) Environmental Permits

- As-Built Drawings (Built Results Reflecting All Change Orders)

However, As-Built Configuration will Evolve During Upcoming Phases

Airfield Development

Operation Lifecycle Phase

Use / Update CM Drawings and Database Attributes to:

- Manage Equipment and Labor Resources

- Troubleshoot Problems

- Plan for Contingencies

- Contemplate More Efficient Operations

- Ensure Effective Way-finding Signage

- Market Airport Features

- Manage Tenant Leases

- Manage Balanced Facility Requirements (BFRs) while Maximizing Facility Utilization

Airfield Operation

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Maintenance Lifecycle Phase

Use / Update CM Drawings and Database Attributes
to Describe and Track Maintenance Tasks & Schedules:
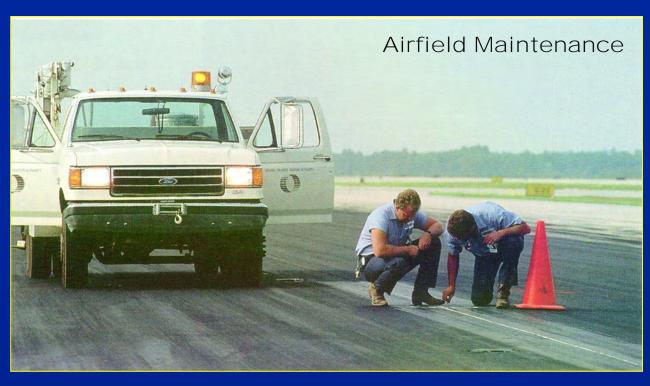
- Janitorial Cleaning
- Carpet Replacement
- Painting
- Lighting
- Utilities
- Telecom
- HVAC
- Elevators & Escalators
- Misc. Systems
- Roofing

- Airfield
- Roadway

- Landscaping
- Irrigation

Airfield Maintenance

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Configuration Management (CM) Methodology

- Effective airport management requires understanding of past, present, and future configurations

- Airport configuration is described using technical drawings and attribute databases

- Configuration changes need to be tracked throughout lifecycle

- Continually updated CM basedrawings and corresponding databases reflecting configuration changes are made available enterprise wide

AIRLINE GATE ASSIGNMENTS

CHANGING TENANTS & RELOCATION

RENEWAL & REPLACEMENT

PROPERTY DEVELOPMENT

AIRPORT LIFECYCLE CONFIGURATION CHANGES

FACILITY EXPANSIONS

ROAD IMPROVEMENTS

NEW FACILITIES & SYSTEMS

TELECOM NETWORK UPGRADES
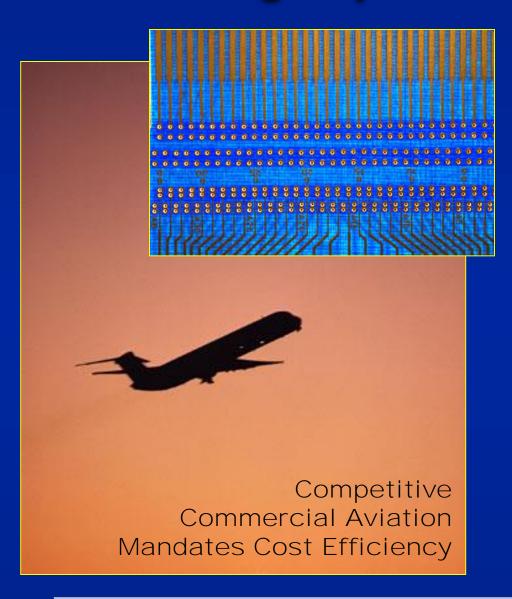
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Welcome to ORLANDO INTERNATIONAL AIRPORT

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Achieving Airport CM Cost Effectively

Competitive Commercial Aviation Mandates Cost Efficiency

Today's Digital Information Processing, Distribution, and Query Technology is Key to Cost Effective CM:

- Modular Open Architecture Commercial-Off-The-Shelf (COTS) Software & Hardware

- Web Networked Desktop Computers

- Common Internet-Style Graphical User Interface (GUI) Browser for Accessing & Manipulating Information

- Spatial-Object-Relational Integrated DataBase Management System (DBMS)
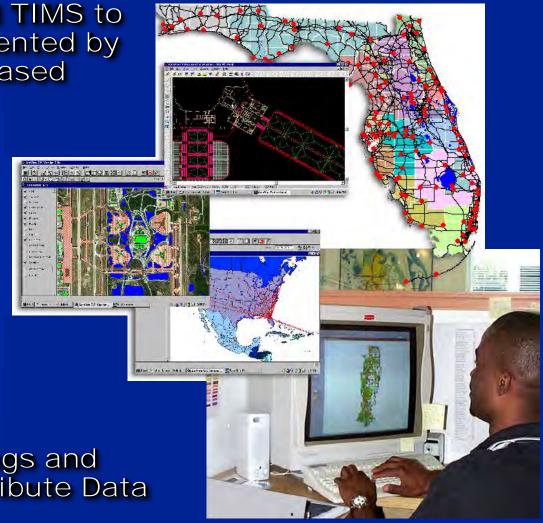
Technical Information Mapping System (TIMS) Concept

In 1997, GOAA Conceived TIMS to Consist of Staff Supplemented by a Networked Computer-Based System Enabling:

- Storage

- Organization
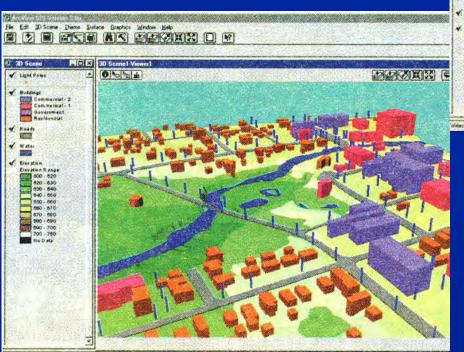
- Query & Retrieval

- Manipulation

- Analysis

- Visualization

- Presentation

of Various Airport Drawings and Spatially Referenced Attribute Data

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TIMS is Based on Computer Spatial Modeling
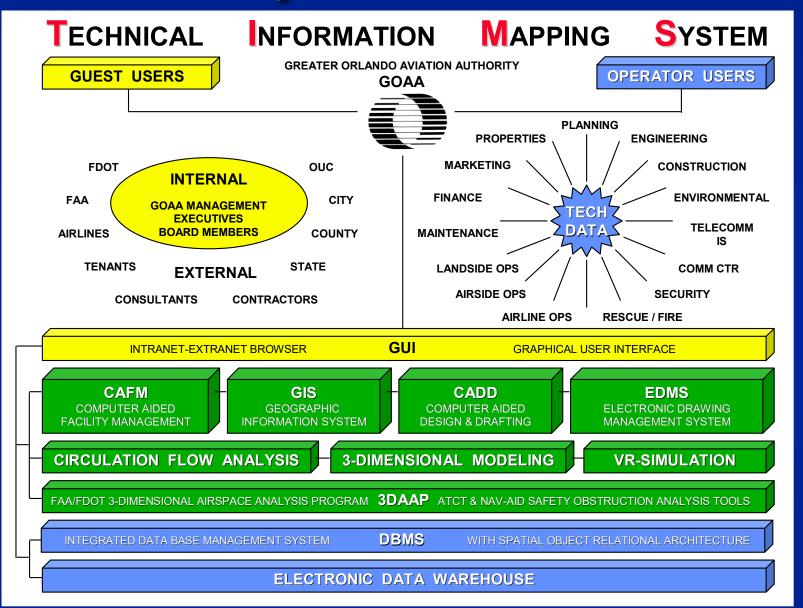
All physical elements have a spatial relationship to one another that can be accurately replicated (modeled) using computer tools
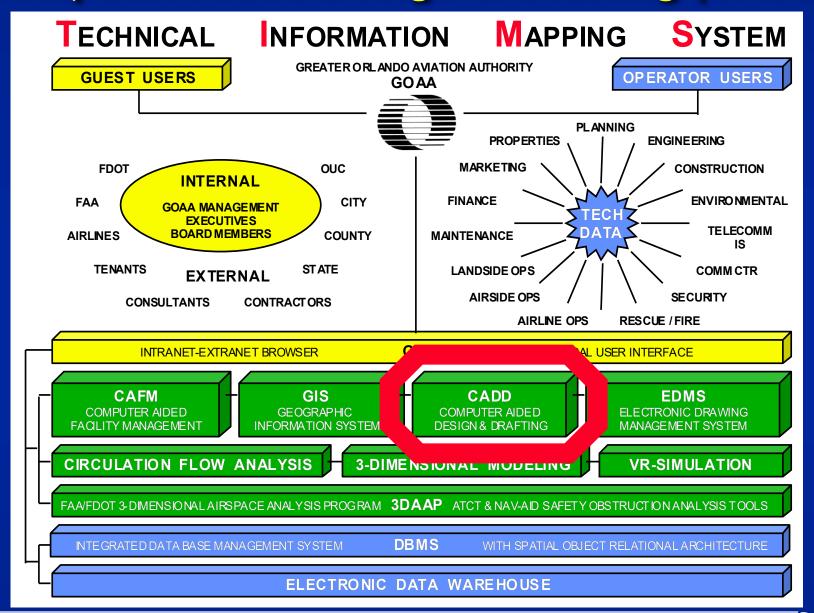
Various information attributes pertaining to the airport's physical elements can be electronically linked and then intuitively retrieved / queried

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Computer Aided Design & Drafting (CADD)

TECHNICAL   INFORMATION   MAPPING   SYSTEM

GREATER ORLANDO AVIATION AUTHORITY
GOAA

| GUEST USERS | | OPERATOR USERS |

INTERNAL
GOAA MANAGEMENT
EXECUTIVES
BOARD MEMBERS

FDOT   OUC
FAA   CITY
AIRLINES   COUNTY
TENANTS   STATE

EXTERNAL

CONSULTANTS   CONTRACTORS

PLANNING   ENGINEERING
PROPERTIES   CONSTRUCTION
MARKETING
FINANCE   ENVIRONMENTAL
TECH DATA   TELECOMM IS
MAINTENANCE
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INTRANET-EXTRANET BROWSER   GRAPHICAL USER INTERFACE

| CAFM | GIS | CADD | EDMS |
| COMPUTER AIDED FACILITY MANAGEMENT | GEOGRAPHIC INFORMATION SYSTEM | COMPUTER AIDED DESIGN & DRAFTING | ELECTRONIC DRAWING MANAGEMENT SYSTEM |

| CIRCULATION FLOW ANALYSIS | 3-DIMENSIONAL MODELING | VR-SIMULATION |

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ELECTRONIC DATA WAREHOUSE

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Facility Management (FM)
Information Technology (IT)

CADD Component

- CADD Software Enables Precision Drawing and Spatial Measurement

- CADD Enables Geometric Modeling in 2D and 3D

- The Airport CADD Model Involves Two Distinct Domain Types:

    - 'Outside' Buildings

    - 'Inside' Buildings

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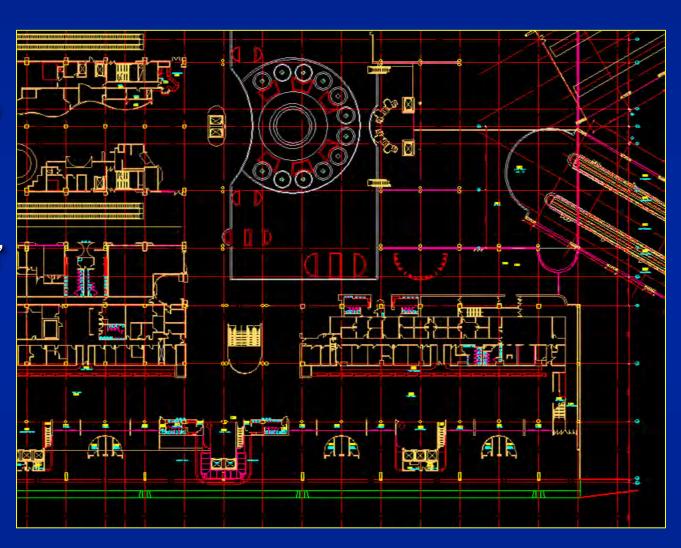
CADD Modeling (Outside Domain)

- Outside Domain Encompasses the Entire Airport's Property & Airspace

- Outside CADD Standards Have a 'Civil' Character
  - Layers (Levels)
  - Symbology
  - Reference Grid

- Outside Domain Contains All Building Footprints which Delineate Inside Domains

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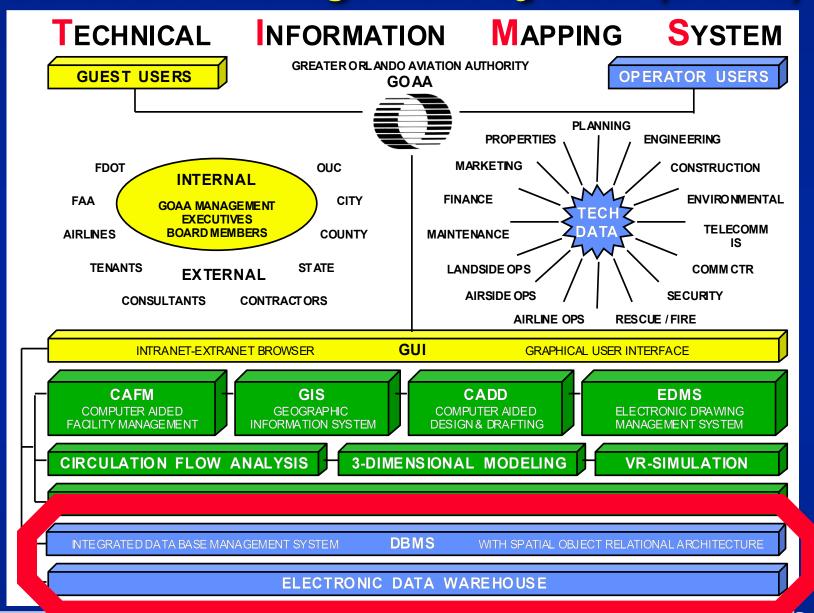
CADD Modeling (Inside Domain)

- Each Building Has Its Own Inside Domain

- Inside CADD Standards Have an 'Architectural' Character

  - Layers (Levels)

  - Symbology

  - Reference Grid

DataBase Management System (DBMS)

TECHNICAL **I**NFORMATION **M**APPING **S**YSTEM

GREATER ORLANDO AVIATION AUTHORITY
GOAA

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OPERATOR USERS

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ELECTRONIC DATA WAREHOUSE

Facility Management (FM)
Information Technology (IT)

DBMS & Electronic Data Warehouse Components

The Spatial CADD Modeled Airport Entities are made "Smart" via Links to Corresponding Data Attributes:

- Alpha-Numeric Information
- Descriptions
- Photos
- As-Builts
- Lease Doc's
- Maintenance Schedules

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Geographic Information System (GIS)

TECHNICAL   INFORMATION   MAPPING   SYSTEM

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ELECTRONIC DATA WAREHOUSE

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Facility Management (FM)
Information Technology (IT)

GIS Component

GIS Facilitates:

- Linkage
- Maintenance
- Query
- Manipulation
- Analysis
- Visualization

of Spatially Referenced Attribute Data
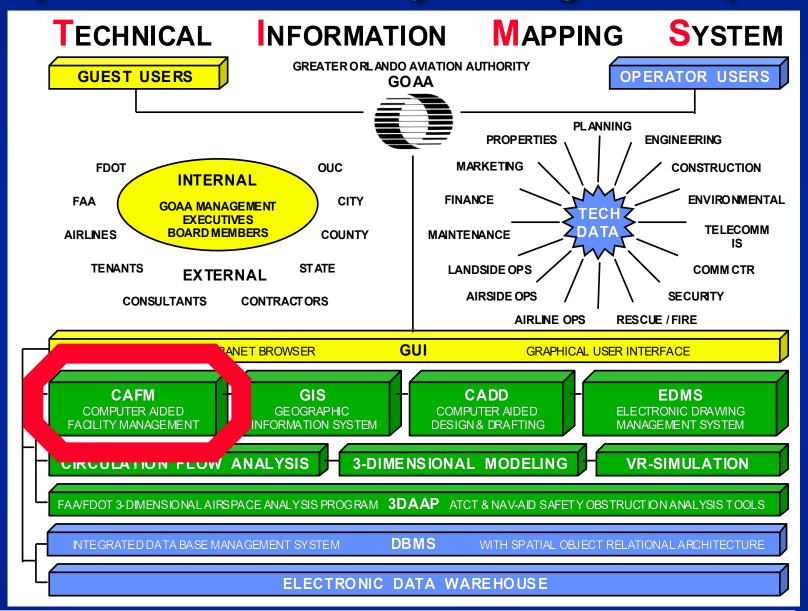
for the Outside (Civil) Domain

GIS Tends to Graphically Simplify the CADD Details

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Computer Aided Facility Management (CAFM)

TECHNICAL   INFORMATION   MAPPING   SYSTEM

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CAFM Component

CAFM Facilitates:

- Linkage
- Maintenance
- Query
- Manipulation
- Analysis
- Visualization

of Spatially Referenced Attribute Data

for the Inside (Architectural) Domain

CAFM Accounts for all Building Assets (e.g., Space, Equipment, Systems, Cabling)
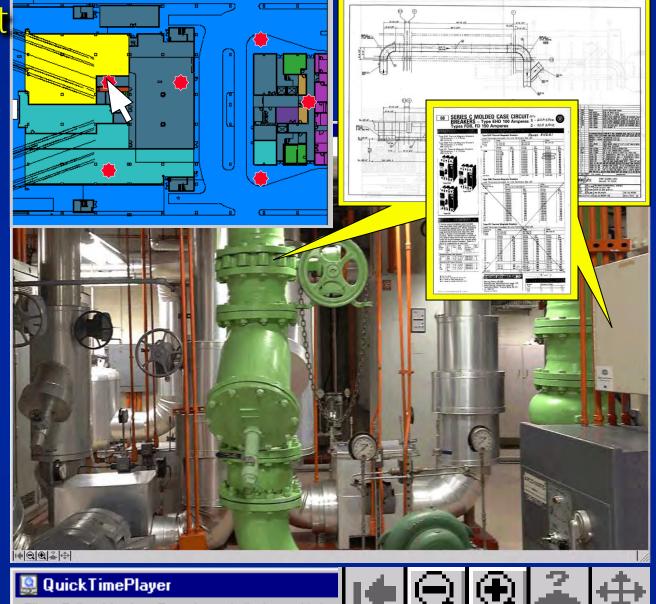
VR Component

Quick Time VR Technology with Stitched Digital Panoramas Provide Cost Effective 3D Visualization of Facility Assets for:

- Facility Familiarization & Training

- Evaluating Passenger Field of View (Signage)

- Operation & Maintenance

- Emergency Response

- Decision Support

QuickTimePlayer

File Edit Movie Favorites Window Help

Three Dimesional (3D) Modeling

TECHNICAL   INFORMATION   MAPPING   SYSTEM

GUEST USERS

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ELECTRONIC DATA WAREHOUSE

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Facility Management (FM)
Information Technology (IT)

3D Modeling Component

3D Modeling Supports:

l **FAA Safety Obstruction Analysis**

l **Value Engineering**

3-Dimensional Airspace Analysis Program

TECHNICAL   **I**NFORMATION   **M**APPING   **S**YSTEM

GUEST USERS

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Facility Management (FM)
Information Technology (IT)

3-Dimensional Airspace Analysis Program (3DAAP)

Purpose:

Computer-Based Tool for analyzing Planned, Permanent, and Temporary Changes to an Airport's FAA Approved Airport Layout Plan (ALP) for potential obstruction to:

- FAA Protected Airspace

- FAA Navigational Aids

- FAA Underground Cabling

- FAA Tower Line of Sight

- Airfield Operations Area (AOA)

3DAAP Component

Potential Obstruction Data Entry

Almost 30 Safety Obstruction Test Criteria and Growing

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Facility Management (FM)
Information Technology (IT)

3DAAP Obstruction Analysis & Visualization

Circulation Flow Analysis

TECHNICAL **I**NFORMATION **M**APPING **S**YSTEM

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Facility Management (FM)
Information Technology (IT)

Circulation Flow Analysis Component

Using Spatial Graphic Objects, Circulation Flow Analysis Software Simulates Effects of Facility Configuration Changes on Flux (Flow Capacity):

- Flow of Ground Transportation

- Passenger Flow

- Aircraft Flow

- Information Flow

A/S-4
FIS Study

TIMS Users

TECHNICAL INFORMATION MAPPING SYSTEM

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COMMERCIAL-OFF-THE-SHELF   **COTS**   **SOFTWARE**   **APPLICATIONS**

INTEGRATED DATABASE MANAGEMENT SYSTEM   **DBMS**   WITH OBJECT SCALEABLE OPEN ARCHITECTURE

ELECTRONIC DATA WAREHOUSE

Facility Management (FM)
Information Technology (IT)

Information Visualization & Presentation
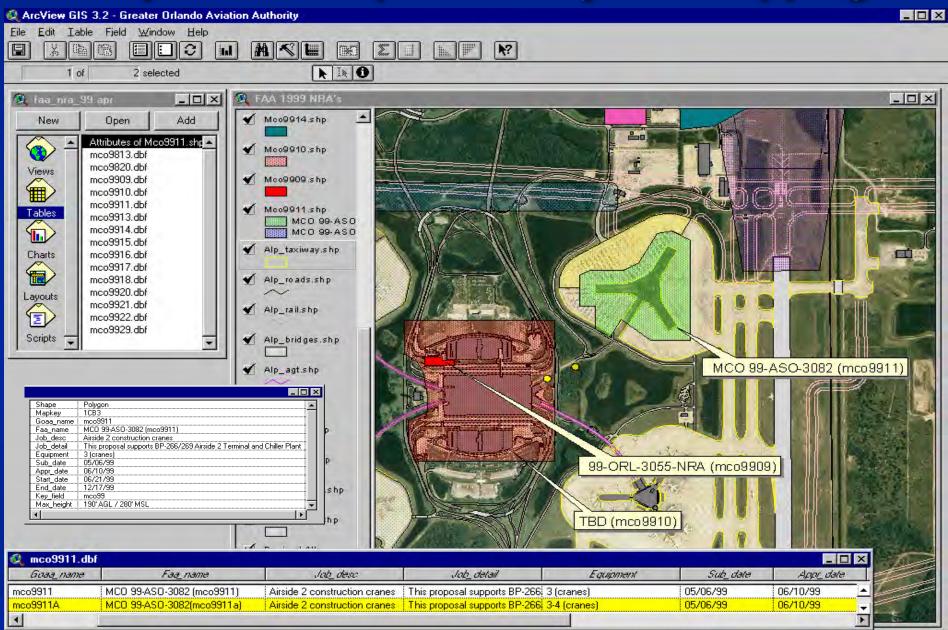
To the guest user, TIMS is a "Decision Support Tool" which enables visualization and presentation of facility owner business issues via information mapping:

- Development Projects Mapping
- FAA Airspace & Navaids Mapping
- Aircraft Noise Mapping
- Utility Infrastructure Mapping
- Emergency Response Mapping
- Operations & Systems Mapping
- Information Flow Mapping
- Facility Assets, Cabling, and Hazardous Materials Mapping
- Facility Condition Mapping
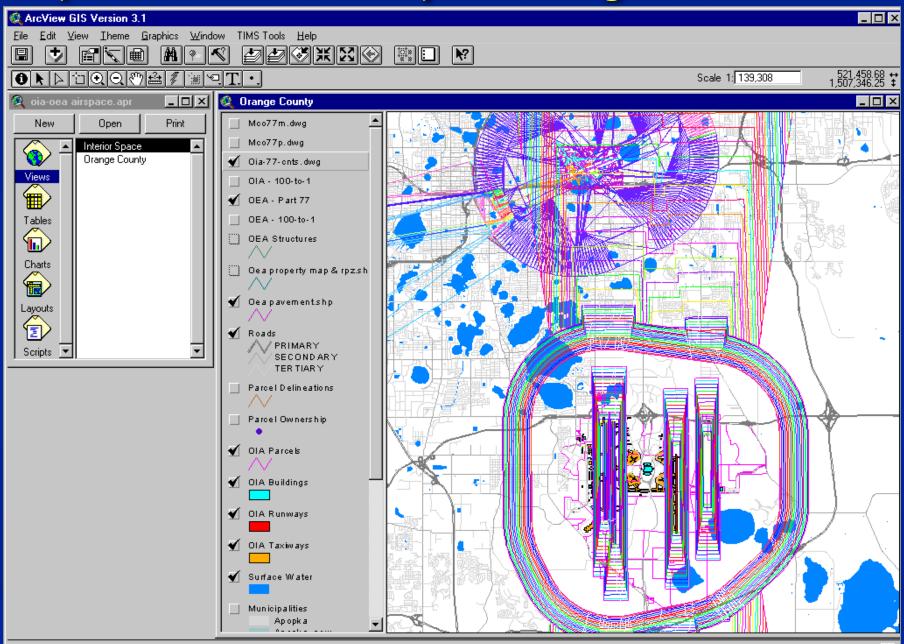
- Airfield & Roadway Pavement Condition Index (PCI) Mapping
- Repair & Renovation Projects Mapping
- Tenant Property Leases Mapping
- Land Use & DRI Mapping
- Environmental Permits & Wetlands Mapping
- Marketing & Passenger Demographics Mapping
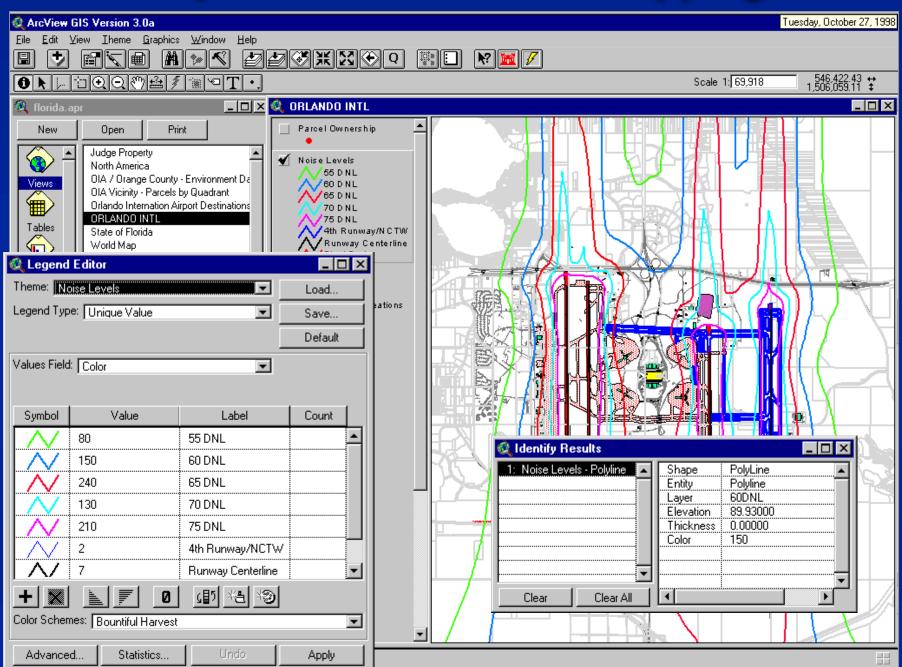
Airport Development Projects Mapping
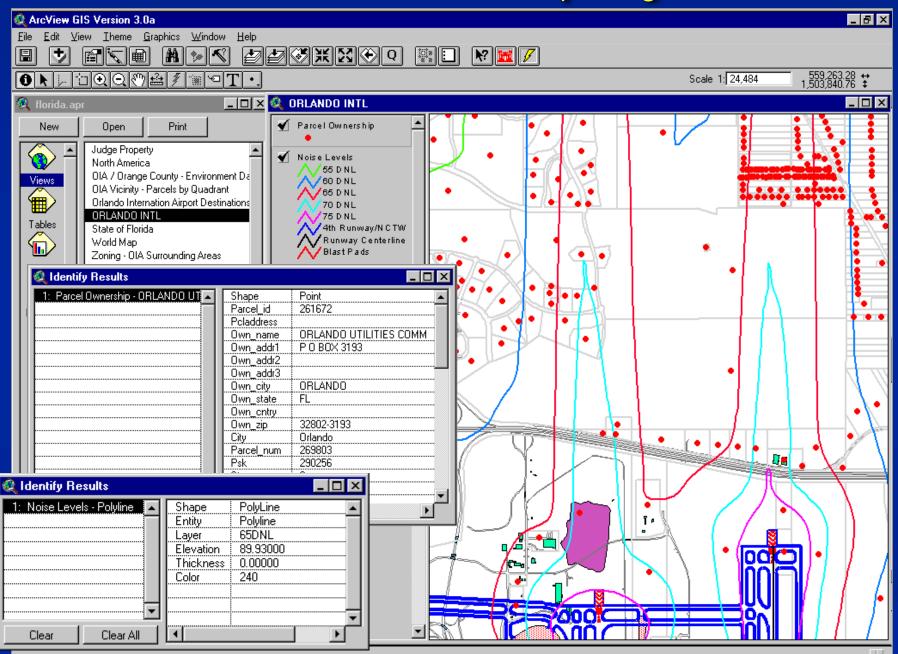
Airports Part 77 Airspace Height Constraints
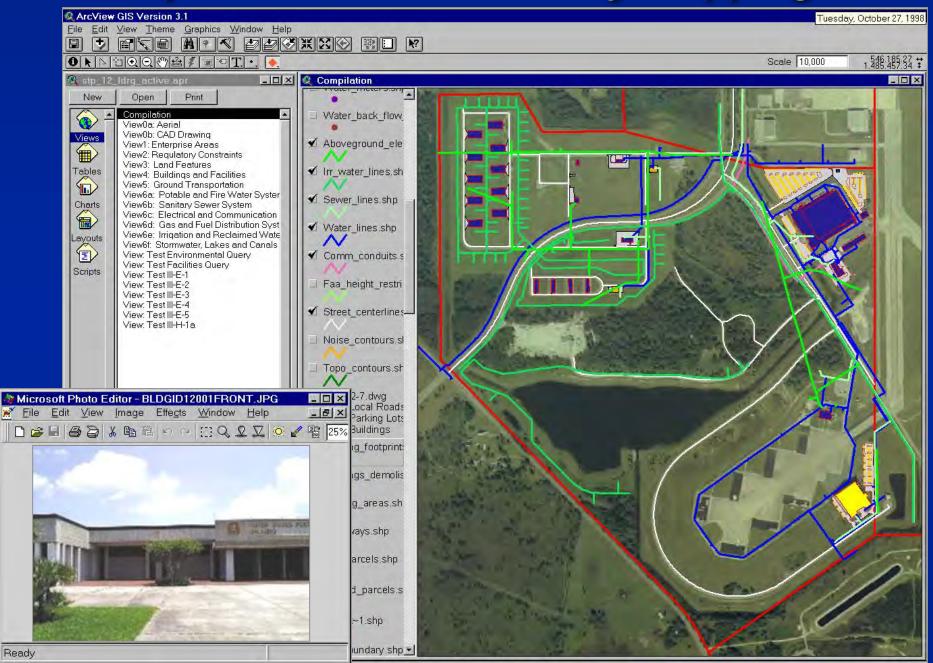
Airport Noise Contour Mapping
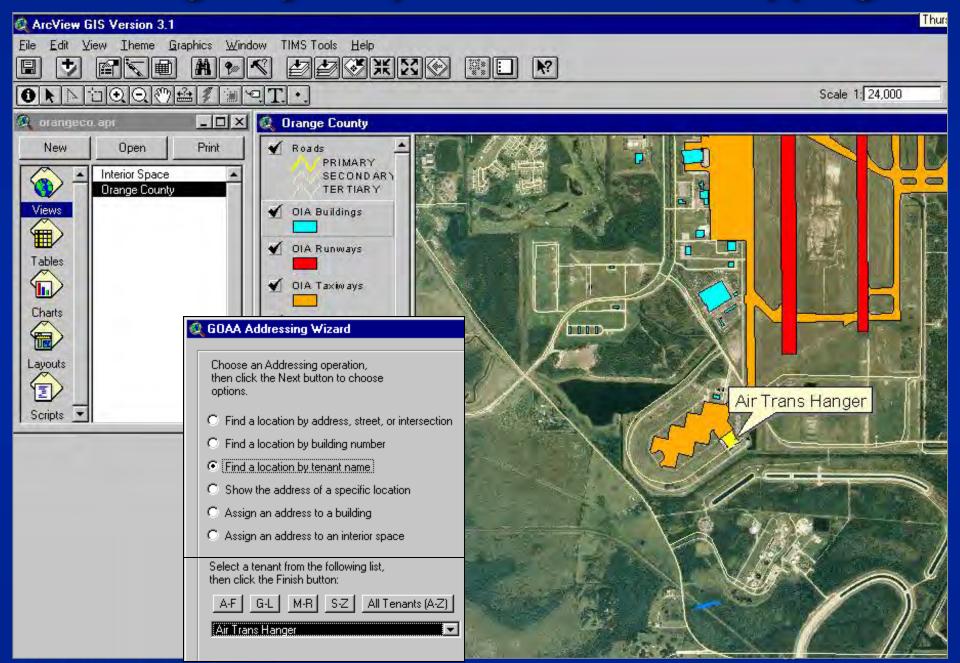
Noise Contours Over Property Parcels
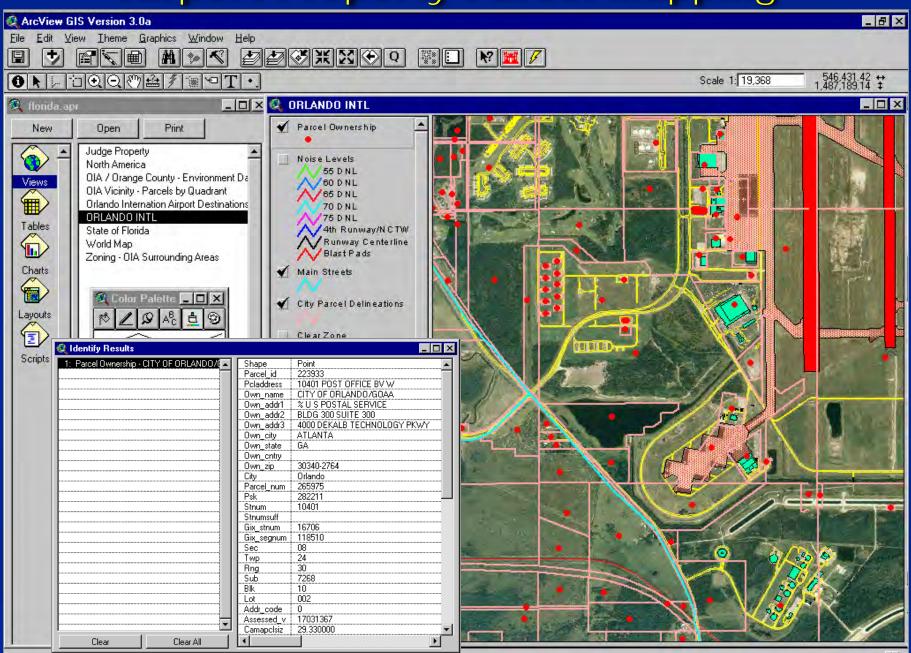
Airport Utilities & Facility Mapping
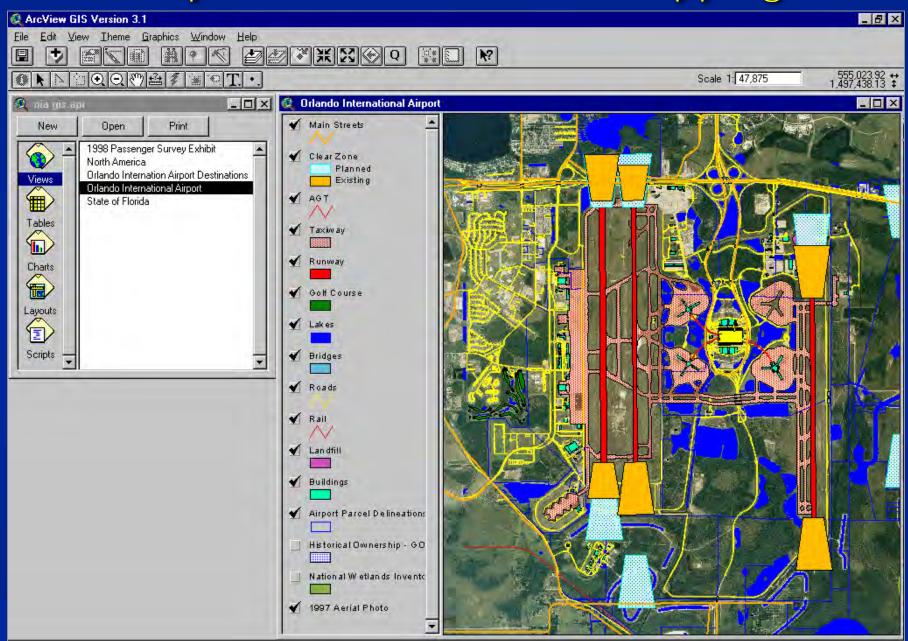
Emergency Response Address Mapping
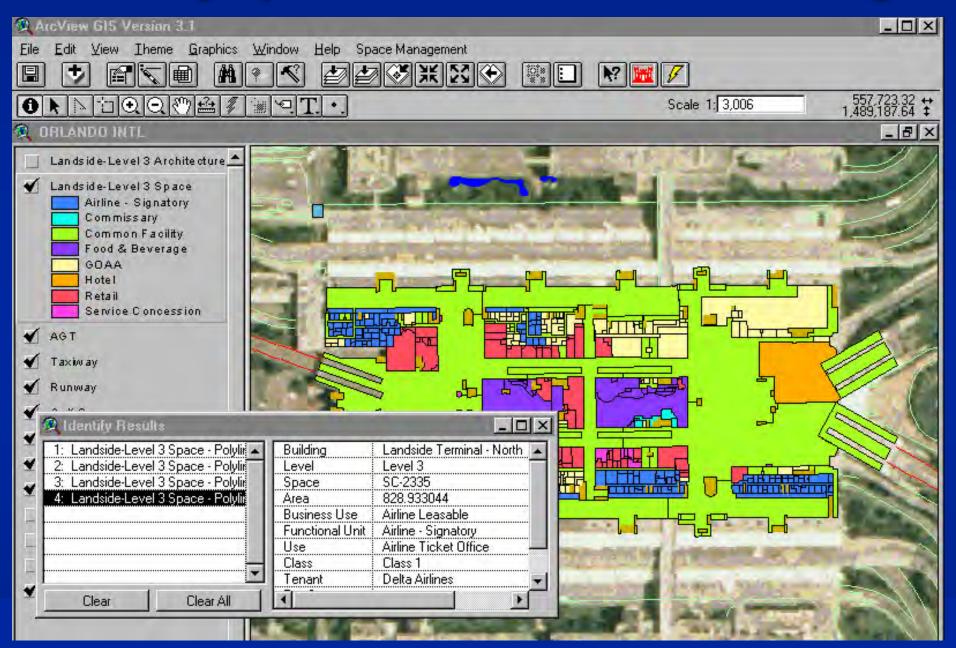
Airport Property Parcel Mapping
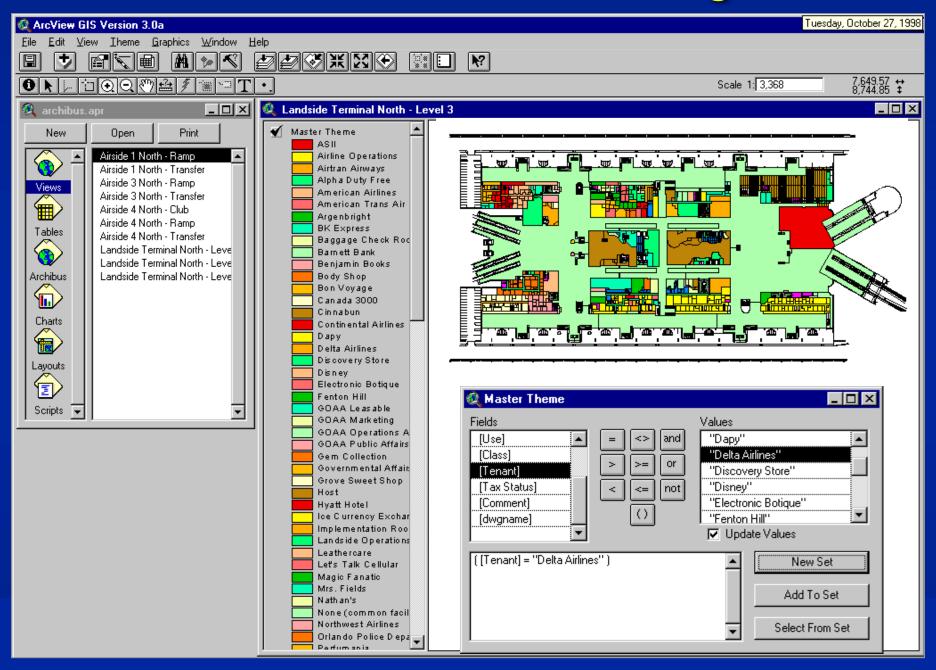
Airport Facilities Asset Mapping
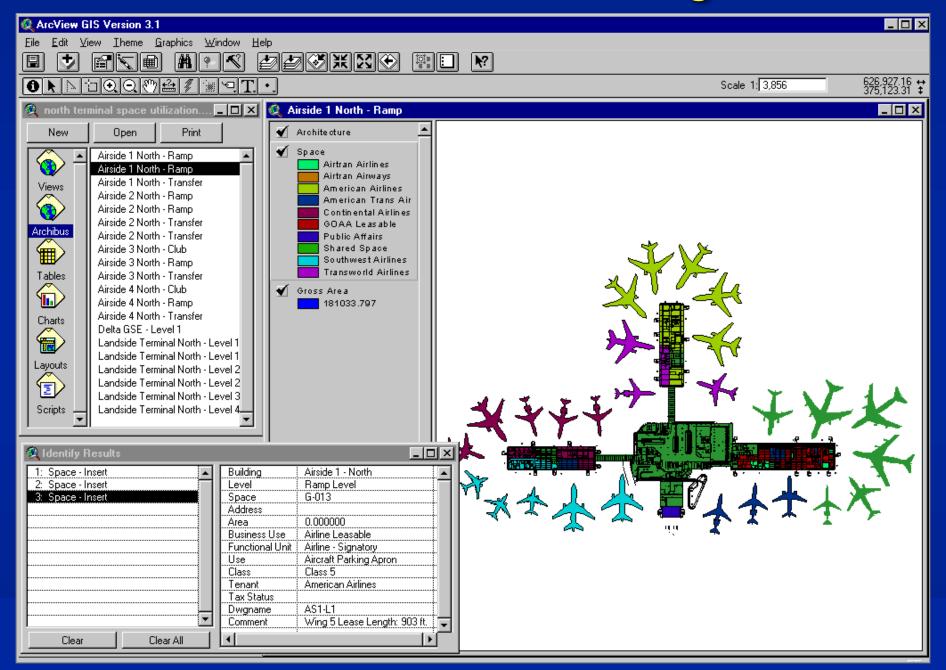
Facility Space Use & Condition Tracking
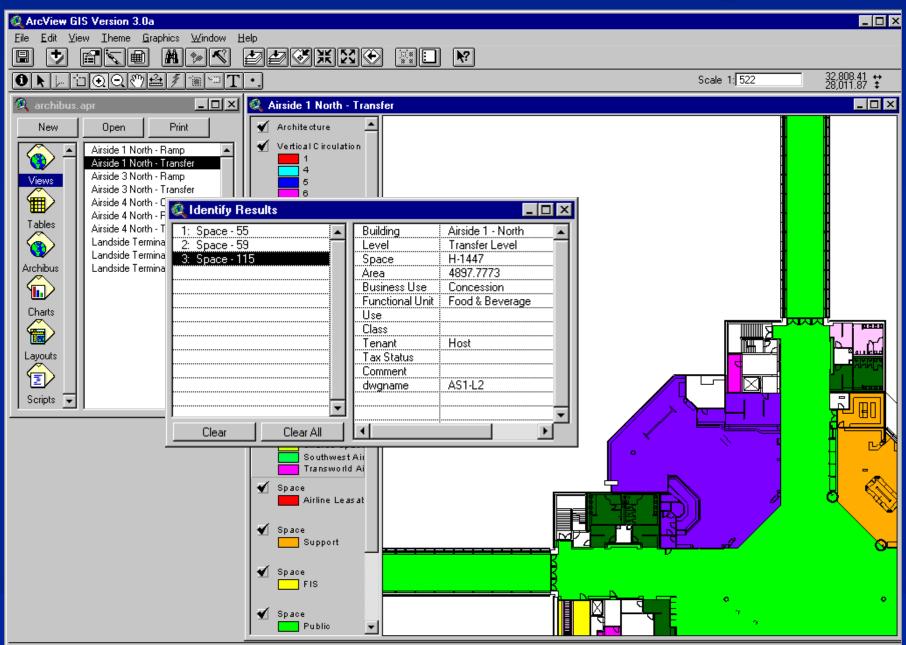
Landside Aviation Lease Management
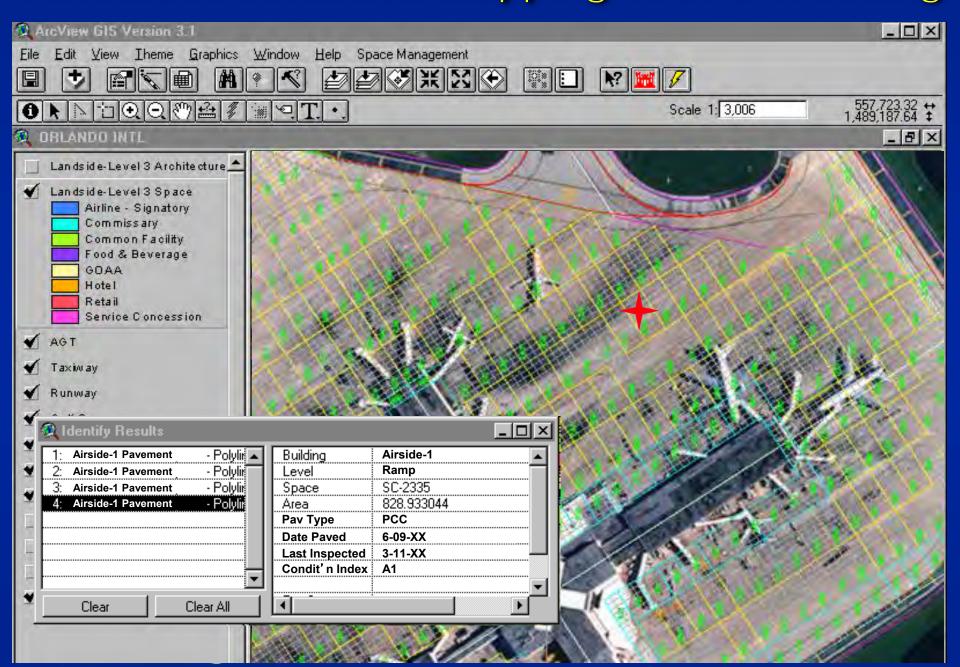
Airside Aviation Lease Management
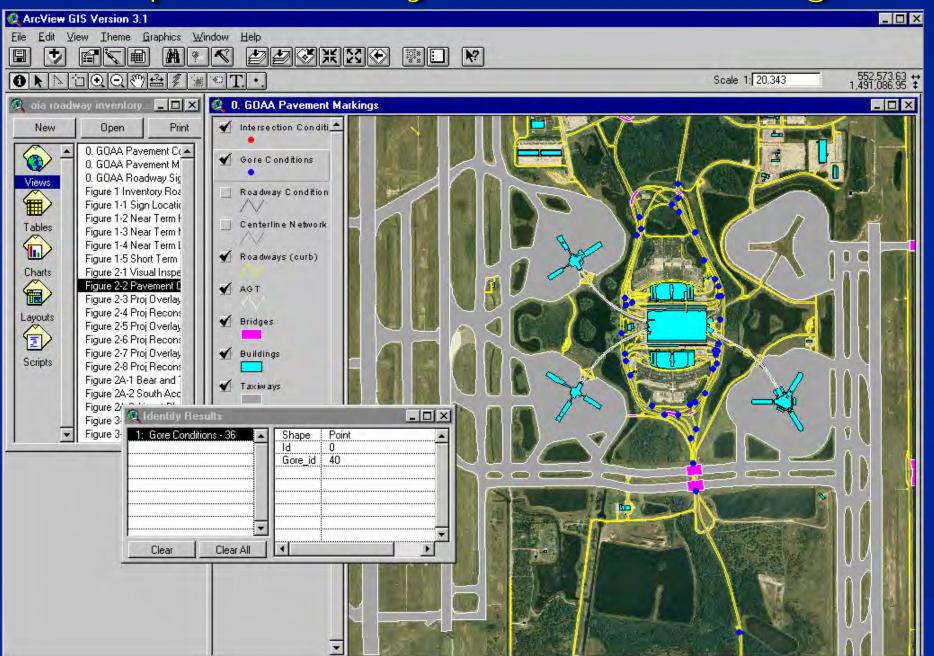
Airside Concessions Lease Management
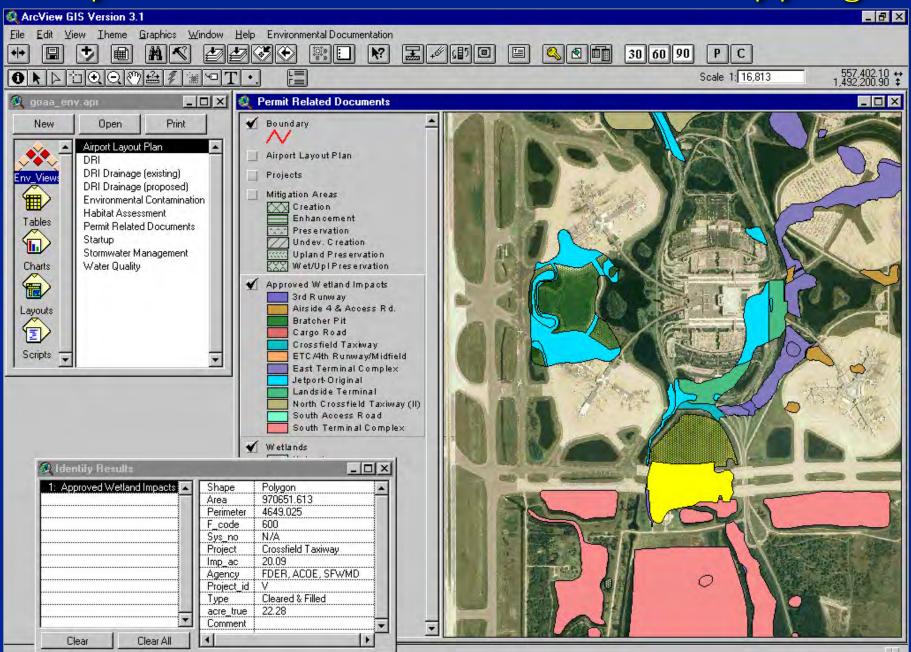
Pavement Condition Mapping w/GPS Tracking
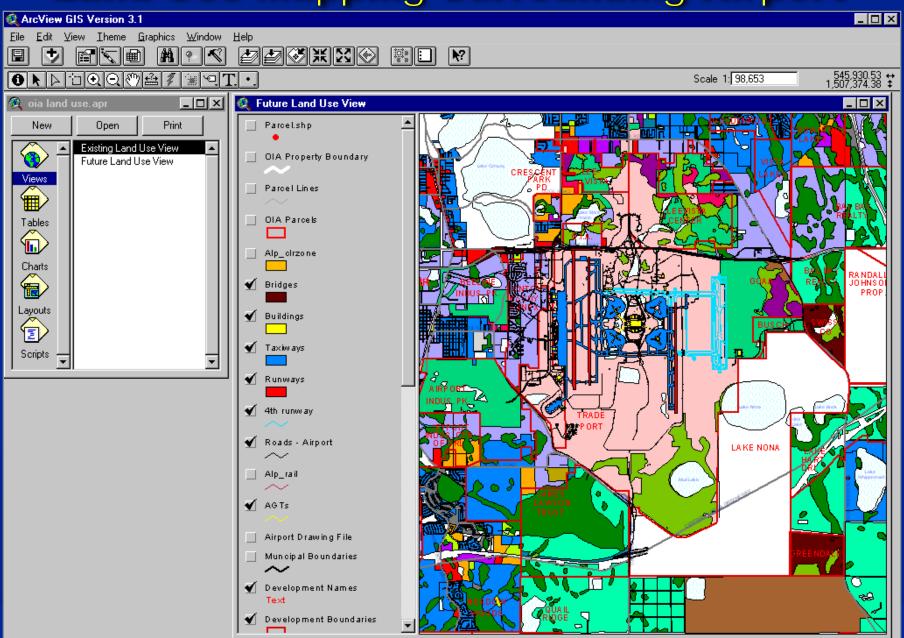
Airport Roadway Condition Tracking
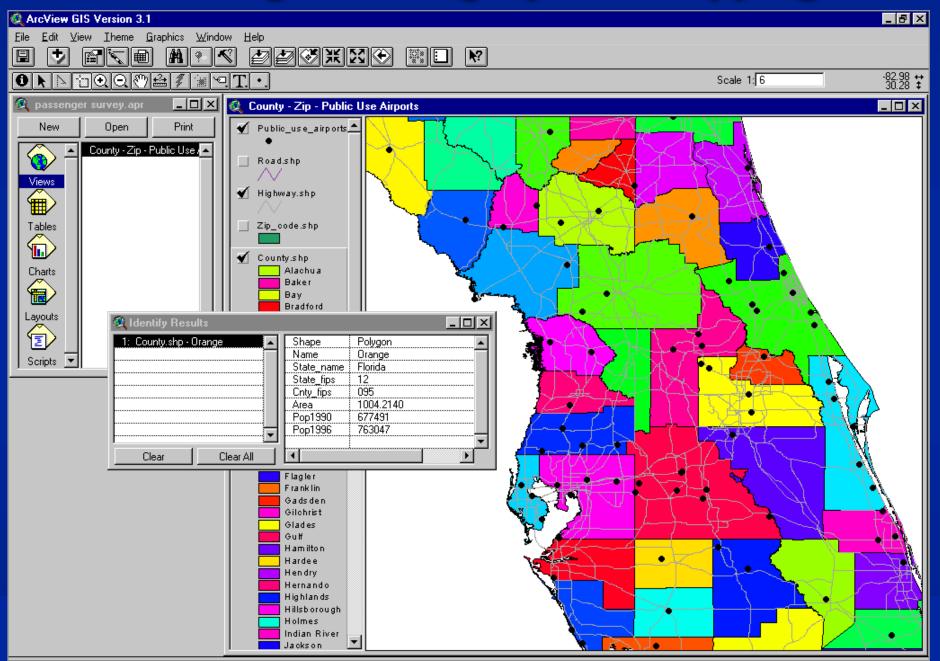
Airport Environmental Wetlands Mapping

Land Use Mapping Surrounding Airport

Passenger Demographics Mapping

Data Accessibility

TIMS users need to drill-down to the required information quickly. If TIMS data will not be easily accessible at the User's fingertips, then TIMS will fail.

However, Security Must Be in Place!
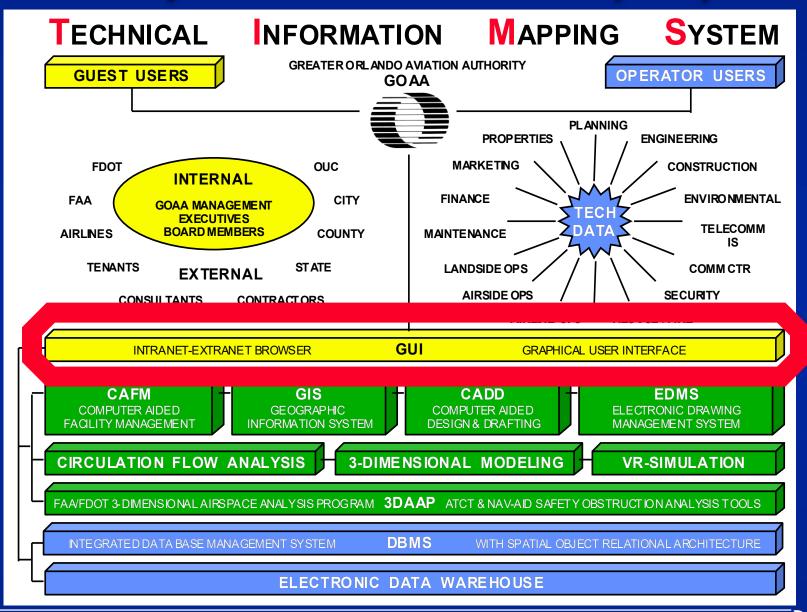
Federal & State Regulations Restrict Access to Security Sensitive Data

The GUI & EDMS
- Facilitate
- Control
Data Access

Graphical User Interface (GUI)

TECHNICAL INFORMATION MAPPING SYSTEM

GREATER ORLANDO AVIATION AUTHORITY
GOAA

GUEST USERS

OPERATOR USERS

FDOT

OUC

INTERNAL

GOAA MANAGEMENT
EXECUTIVES
BOARD MEMBERS

CITY

FAA

AIRLINES

COUNTY

TENANTS

STATE

EXTERNAL

CONSULTANTS   CONTRACTORS

PLANNING
PROPERTIES   ENGINEERING
MARKETING   CONSTRUCTION
FINANCE   ENVIRONMENTAL

TECH DATA

MAINTENANCE   TELECOMM IS

LANDSIDE OPS   COMM CTR
AIRSIDE OPS   SECURITY

INTRANET-EXTRANET BROWSER   **GUI**   GRAPHICAL USER INTERFACE

CAFM
COMPUTER AIDED
FACILITY MANAGEMENT

GIS
GEOGRAPHIC
INFORMATION SYSTEM

CADD
COMPUTER AIDED
DESIGN & DRAFTING

EDMS
ELECTRONIC DRAWING
MANAGEMENT SYSTEM

CIRCULATION FLOW ANALYSIS   **3-DIMENSIONAL MODELING**   **VR-SIMULATION**

FAA/FDOT 3-DIMENSIONAL AIRSPACE ANALYSIS PROGRAM **3DAAP** ATCT & NAV-AID SAFETY OBSTRUCTION ANALYSIS TOOLS

INTEGRATED DATA BASE MANAGEMENT SYSTEM   **DBMS**   WITH SPATIAL OBJECT RELATIONAL ARCHITECTURE

ELECTRONIC DATA WAREHOUSE

Carter :: Burgess

Intranet-Extranet Browser GUI Component

Interface between the User and the Data

Mouse Point & Click

Visual Interactive Screen Display

TIMS GUI Requirements:

☐ Little to No Training (Extremely Intuitive)

☐ Minimize Drill-Downs via Detailed Queries

☐ Customized for Each User Type

Carter ▪▪ Burgess

Personal Digital Assistant (PDA) GUI
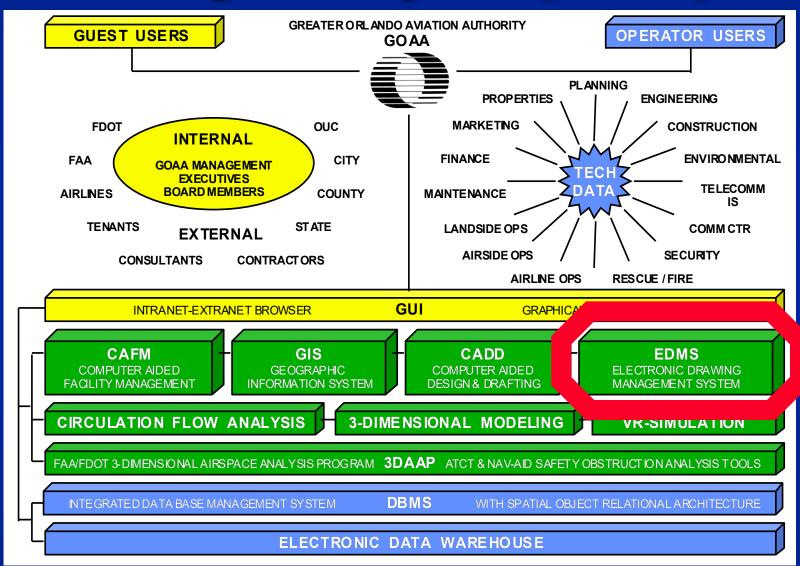
Mapping Information Technology Has Reached the Executive's Handheld PDA

The PDA also serves the data maintainer with integrated:

- Global Positioning System (GPS)

- Bar Code Reader

- Digital Camera

- Wireless Read-Write Access to Spatial Data Server

Carter :: Burgess

Electronic Drawing-Data-Document Management System (ED3MS)

ED3MS Component
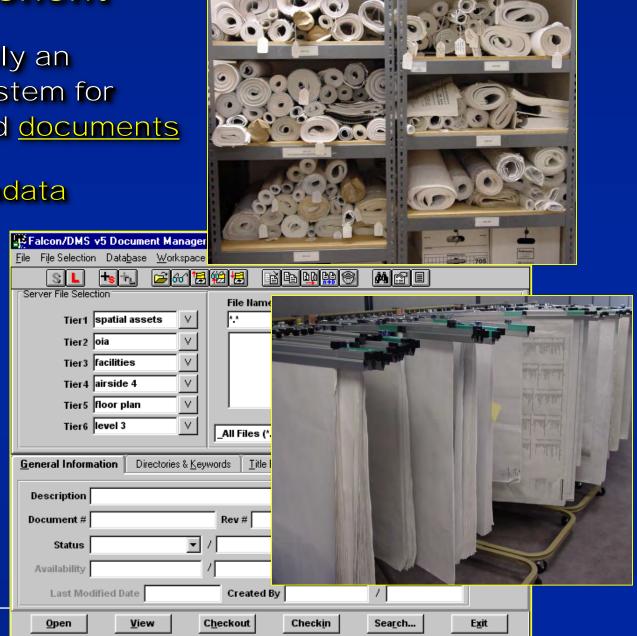
ED3MS is essentially an electronic filing system for <u>drawings</u>, <u>data</u>, and <u>documents</u>

ED3MS keeps metadata (data about data)
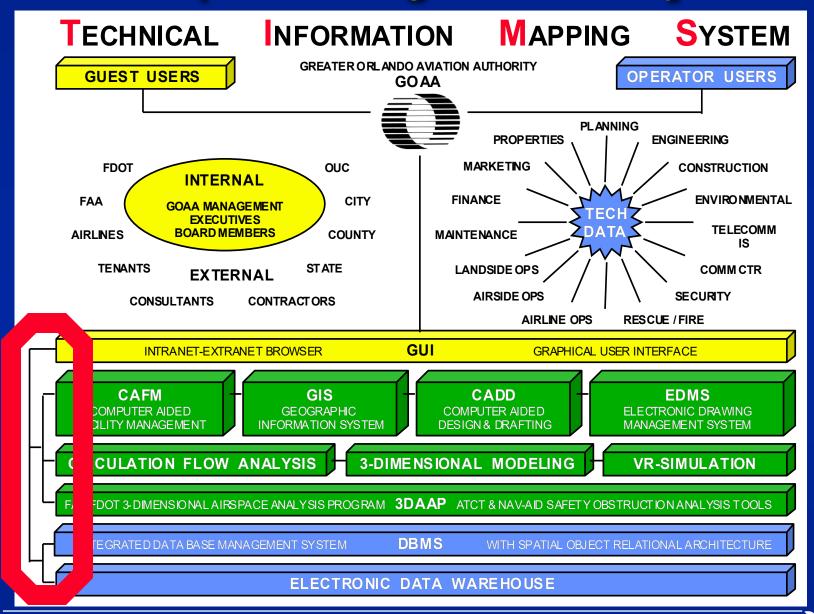
ED3MS is used to:

- Inventory Data

- Categorize Data

- Qualify Data

- Track & Control Data Revision

Carter :: Burgess
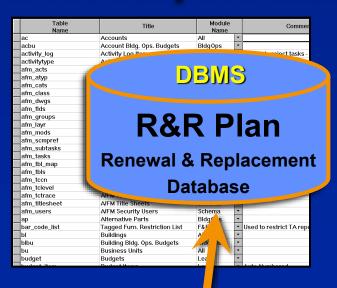
TIMS Requires Integrated Sub-Systems

TECHNICAL **I**NFORMATION **M**APPING **S**YSTEM

GUEST USERS

GREATER ORLANDO AVIATION AUTHORITY
GOAA

OPERATOR USERS

INTERNAL
GOAA MANAGEMENT
EXECUTIVES
BOARD MEMBERS

FDOT

FAA

AIRLINES

TENANTS

OUC

CITY

COUNTY

STATE

EXTERNAL

CONSULTANTS   CONTRACTORS

PLANNING

PROPERTIES   ENGINEERING

MARKETING   CONSTRUCTION

FINANCE   ENVIRONMENTAL

TECH
DATA

MAINTENANCE   TELECOMM
IS

LANDSIDE OPS   COMM CTR

AIRSIDE OPS   SECURITY

AIRLINE OPS   RESCUE / FIRE

INTRANET-EXTRANET BROWSER	**GUI**	GRAPHICAL USER INTERFACE

CAFM COMPUTER AIDED FACILITY MANAGEMENT	GIS GEOGRAPHIC INFORMATION SYSTEM	CADD COMPUTER AIDED DESIGN & DRAFTING	EDMS ELECTRONIC DRAWING MANAGEMENT SYSTEM

CIRCULATION FLOW ANALYSIS   **3-DIMENSIONAL MODELING**   **VR-SIMULATION**

FAA-FDOT 3-DIMENSIONAL AIRSPACE ANALYSIS PROGRAM **3DAAP** ATCT & NAV-AID SAFETY OBSTRUCTION ANALYSIS TOOLS

INTEGRATED DATA BASE MANAGEMENT SYSTEM **DBMS** WITH SPATIAL OBJECT RELATIONAL ARCHITECTURE

ELECTRONIC DATA WAREHOUSE

Carter :: Burgess

Facility Management (FM)
Information Technology (IT)

Integration for Airport Maintenance

Objective:
Provide facility staff with effective tools and procedures to achieve a continuous systematic R&R life-cycle management program
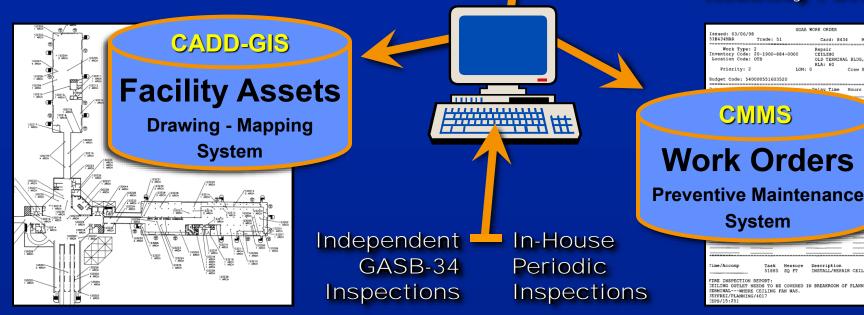
Sample Datasets:

Carpeting   Painting

Finishes   Lighting
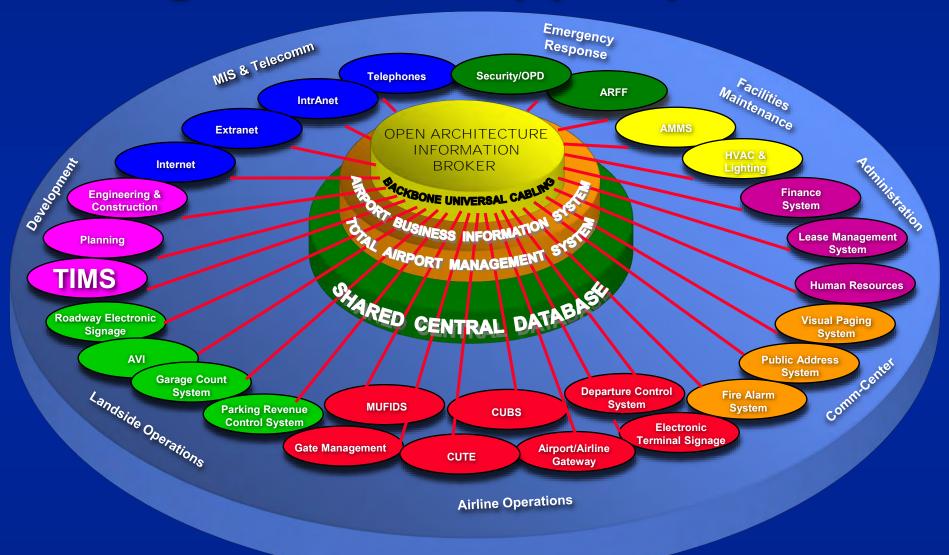
Air Handling Units

Display Monitors

Roofing

Airfield Pavement

Roadway Pavement

DBMS

R&R Plan

Renewal & Replacement Database

CADD-GIS

Facility Assets

Drawing - Mapping System

CMMS

Work Orders

Preventive Maintenance System

Independent GASB-34 Inspections

In-House Periodic Inspections

TIMS Integrates with other Airport Systems Serving as an Intuitive (Spatial) Data Portal

Emergency Response

MIS & Telecomm

Facilities Maintenance

Telephones

Security/OPD

ARFF

IntrAnet

Extranet

Internet

AMMS

HVAC & Lighting

OPEN ARCHITECTURE INFORMATION BROKER

BACKBONE UNIVERSAL CABLING

AIRPORT BUSINESS INFORMATION SYSTEM

TOTAL AIRPORT MANAGEMENT SYSTEM

SHARED CENTRAL DATABASE

Development

Engineering & Construction

Planning

TIMS

Roadway Electronic Signage

AVI

Garage Count System

Parking Revenue Control System

Landside Operations

Finance System

Lease Management System

Human Resources

Visual Paging System

Public Address System

Fire Alarm System

Electronic Terminal Signage

Administration

Comm-Center

MUFIDS

Gate Management

CUBS

CUTE

Airport/Airline Gateway

Departure Control System

Airline Operations

Carter :: Burgess

Facility Management (FM)
Information Technology (IT)

Presentation Outline

- Introduction to the Airport's Perspective

- Airport Configuration Management (CM)

- TIMS Approach

➡️ Implementation Challenges

- FAA Airport Layout Plan (ALP) is Key to CM Process

- CM Process Improvement via Standards

Welcome to ORLANDO INTERNATIONAL AIRPORT

CM-TIMS Implementation Challenges
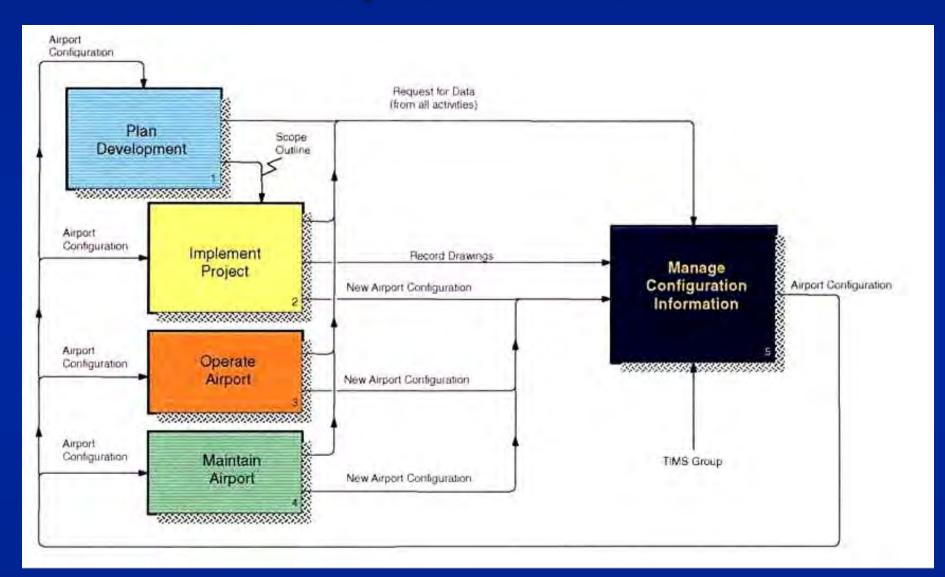
- Airport Configuration Data Ownership

- Consolidation of Multiple Overlapping Data-Sets

- Data Change Notification

- Dedicated CM / TIMS Service Center with Specialized Staff to Coordinate Data Maintenance

- Electronic Data Interchange (EDI) Standards Enforcement

- Data Accessibility & Security

- Constantly Changing Information Technology

- Enterprise-Wide Process Improvement

No Airport CM Process

Airport CM Process

Airport Configuration Management Process

Airport Configuration Elements

Airport Configuration Elements	Accountable Enterprise Data Owners
Airline Ticket Counters, Offices, Baggage Makeup / Claim, Gates, Aprons, Hangars, Cargo	Aviation Leasing
Retail, Food & Beverage, Hotel, RAC, Tradeport, Janitorial, Signage	Concessions & Real Estate
FIS , Gates, Ramp Level, Hard Stands, FIDS	Airside & Airline Ops
Roadways, Curbs, Parking, Wayfinding, Revenue Control	Landside Ops
Doors, Locks, Floor Plans, Gates, Fences, Tug Roads, Check-Points	Security
Fire Alarms, Floor Plans, Doors, Elevators, Streets, Hydrants	ARFF
Telephones, Networks, Servers Computers, Peripherals	IT
DRI, Land Use, Noise, Roadways, TDP, ALP, 3DAAP	Planning
Wildlife Habitats, Wetlands, Hazmat, Asbestos	Environmental
A&E Project Drawings	Engineering & Construction
Landscaping, Irrigation, Roadways, Airfield Pavement, Floor Plans, Central Plant, Roofs	Maintenance

Communication of Airport Configuration Changes

Submit Configuration Change Notifications (CCN) Form

ENGINEERING

TECH-DATA

Engineering & Construction Drawings Server

Information Exchange and Coordination

TIMS
Spatial DBMS Asset Management Drawings & Attributes Server

Continuous Update of Spatial Object-Relational Airport CADD Model and Attribute Data Links Reflecting Ongoing Configuration Changes

CADD
GIS
CAFM
DBMS
Staff

Sample Products
Airport Layout Plan (ALP)
Roadway Master Plan
Signage Master Plan
Pavement Condition Plans
Fire Plans / Floor Plans
Lease & Janitorial Exhibits

Airport Configuration Drawings Accessible by Staff

Facility Management (FM)
Information Technology (IT)

Airport Layout Plan (ALP) Change Request

TIMS Liaisons - Operator User Base

Richard Osborne
Jennifer Harlan
Jackie Chin
PROPERTIES

PLANNING
Mikko Huttenen   **Carla Bell**
Tom Blanton   **Mike Simon**
Jim Sheppard

Jerry Harris
Tracy Connors
Barbara Mita
MARKETING

ENGINEERING
Mark Birkebak   **Chuck Westhart**
Tuan Nguyen   **John Carlson**
Edna Boyles   **Satish Mohe**

Cathy Donato
Jackie Chrchill
(Roy Block)
FINANCE

CONSTRUCTION
Bob Broley

TECH-DATA
(TIMS Custodian)

David Tamir
George Draper
Eric Bowen
Pedro Blanco
Summer Williams

Andy Pacha
Tom Draper
JP Cunningham
MAINTENANCE

ENVIRONMENTAL
Bill Barnard
Mark Daly

Matt Bauer
Jim Miles
Darrell Brantley
LANDSIDE OPS

INFORMATION TECHNOLOGY
Joe Ambrose
Lew Felker

Bill Nail
Bill Wilken
Verne Johnson
AIRSIDE OPS

COMM CTR
Vicki Pegram

Brian McQuigan
AIRLINE OPS

SECURITY
Jerry Fahey
Keith Schoeppler

FIRE & RESCUE
Chief Chancey
Ray Hurn

Airport Configuration Tracking Information Organization Network (ACTION) Team

| Able to Perform Basemap Updates | Able to Redline Basemap Drawings | Able to Update Attribute Data |

Carter :: Burgess

Facility Management (FM)
Information Technology (IT)

Presentation Outline

- Introduction to the Airport's Perspective

- Airport Configuration Management (CM)

- TIMS Approach

- Implementation Challenges

➡️ FAA Airport Layout Plan (ALP) is Key to CM Process

- CM Process Improvement via Standards

Changes to Airport Layout Plan (ALP)

- FAA Projects

- Airport Projects

- Tenant Projects

- Utilities Commission Projects

- Expressway Authority Projects

- Rail Projects

ALP Changes

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Facility Management (FM)
Information Technology (IT)

3DAAP ALP Change Request Process

Incoming Requests for ALP Changes

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Facility Management (FM)
Information Technology (IT)

Incoming Requests for ALP Changes

Planned Changes
Long-Term
Future Development

Maintained Changes
Near-Term
Pending Construction

Temporary Changes
Near-Term
Pending Construction

Greater Orlando Aviation Authority

Conceptual Drawings
Site Location & Layout

30% Engineering Drawings

60% Engineering Drawings

(100%) Construction Bid Package Drawings

Construction Equipment Plans & Specifications Perimeter of Operation Equipment Dimensions

Engineering Drawings for Temporary Structures

GOAA Planning coordinates with GOAA Airside Op obstructions via operation

Airport Layout Plan (ALP) Change Request

The following information needs to be submitted in order to obtain FAA Approval, coordinate operations, and update TIMSbasemap drawings

Proponent must submit "Safety During Construction Plans" separately to PabloAuffant of FAA-ADO for approval prior to work within

DESCRIPTION OF CHANGE:_____

PHYSICAL ADDRESS:
O New   O Change
O N/A
Current Address

SUBMITTAL DATE:_____
Required 60 Days Prior to NTP

PROPONENT / COMPANY:

TYPE OF CHANGE:
(Check that apply)
O StructureBuilding
O Tower/Antenna
O Roadways/Pavement
O Utilities/Substations
O Fencing
O Vegetation
O Water Feature
O Construction Equip.
O Stockpile

LOCATION OF CHANGE:
(Check applicable and provide coordinates)
O Orlando International Airport (OIA-MCO)
O Orlando Executive Airport (OEA-ORL)
O Location Shown on CADD File / Site Plan
(Use NAD83 Datum)
O Latitude:
O Longitude:
O State Plane X:
O State Plane Y:
O Additional coordinate points are attached

ELEVATION / HEIGHT:
(Provide applicable data)
Above Mean Sea Level (AMSL)
Above Ground Level (AGL)
(Use NAVD88 Datum)
Maximum Site Elevation:_____AMSL
Maximum Structure Height:_____AGL
Maximum Equip'nt Height:_____AGL

ADDRESS:_____
CONTACT:_____
TELEPHONE:_____
FAX:_____
E-MAIL:_____
SUBMIT TO: David Tamir, GOAA
Tel:(407)825-4034, Fax-4050,dtamir@g
OTHER DISTRIBUTION:

ADDITIONAL REQUIRED INFORMATION: (Check and/or fill if applicable)
StructureBuilding: Use(___) Length(___ft) Width(___ft) Material(___)
Tower/Antenna: Freestanding( ) or Guyed( ) Radiated Power(___watts) Frequency(___Hz)
Roadways/Pavement: Light Pdes( ) Bridges( ) Airfield( ) Square Feet(___) Use(___)
Utilities/Substations: Number of Lines(___) Size(___) Underground( ) Overhead( ) Pole Mt'l(___)
Fencing: Type(___) Material(___) Height(___ft) Total Length(___ft)
Vegetation: Type(___) Number(___) Height(___ft) Width(___ft) Growth Rate(___ft/yr)
Water Feature: Size(___ac) 24hr-Drain-Dry( ) or Wet( ) Side-Slope(_:1) Bank-Slope(_:1) Anti-Bird(___)
Construction Equipment: Describe(___) Crane( ) Horizontal( ) Vertical( ) Guyed( )
Stockpile: Describe(___) Height(___ft) Width(___ft) Length(___ft)

REFERENCES: (e.g. Drawing Name, Sheet No.)

CADD FILE / SITE PLAN: (check one)
O E-Mailed to dtamir@goaa.org
O Computer Disk / Drawing Attached

CHANGE TIMEFRAME:
☐ PLANNED (Date):_____
☐ PERMANENT (Date):_____
☐ TEMPORARY
(Duration in Weeks):_____
(Begin..End Dates):_____to_____
(Daily Work Hours):_____

Form No: GOAA-CMT-IMS-01 98   Revised: 02-23-00

Proponent submits GOAA ALP Change Request Form (in-lieu of FAA 7460-1) with all required data and drawings to David Tamir at GOAA Planning (Tech-Data) A

If design change is required

GOAA Planning (Tech-Data) utilizes CADD basemap with 3DAAP to test FAA protection criteria B

Does ALP Change Request violate any FAA criteria ? C

Yes

No

GO

3DAAP

GOAA's ALP Change Request Form

Planned Changes — Long-Term Future Development → Maintained Changes — Near-Term Pending Construction

Temporary Changes — Near-Term Pending Construction

Greater Orlando Aviation Authority

Planned Changes → Conceptual Drawings Site Location & Layout

Maintained Changes → 30% Engineering Drawings → 60% Engineering Drawings → (100%) Construction Bid Package Drawings

Temporary Changes → Construction Equipment Plans & Specifications Perimeter of Operation Equipment Dimensions

Temporary Changes → Engineering Drawings for Temporary Structures

GOAA Planning coordinates with GOAA Airside Operations obstructions via operations

Proponent submits GOAA ALP Change Request Form (in-lieu of FAA 7460-1) with all required data and drawings to David Tamir at GOAA Planning (Tech-Data) — A

If design change is required

GOAA Planning (Tech-Data) utilizes CADD basemap with 3DAAP to test FAA protection criteria — B

Does ALP Change Request violate any FAA criteria? — C

Yes / No

3DAAP

Airport Layout Plan (ALP) Change Request

Facility Management (FM)
Information Technology (IT)

Carter :: Burgess

Airport Layout Plan (ALP) Change Request

The following information needs to be submitted in order to attain FAA Approval, coordinate operations, and update TIMS basemap drawings

Greater **O**rlando **A**viation **A**uthority

Proponent must submit "Safety During Construction Plans" separately to Pablo Auffant of FAA-ADO for approval prior to work within AOA

DESCRIPTION OF CHANGE: _____
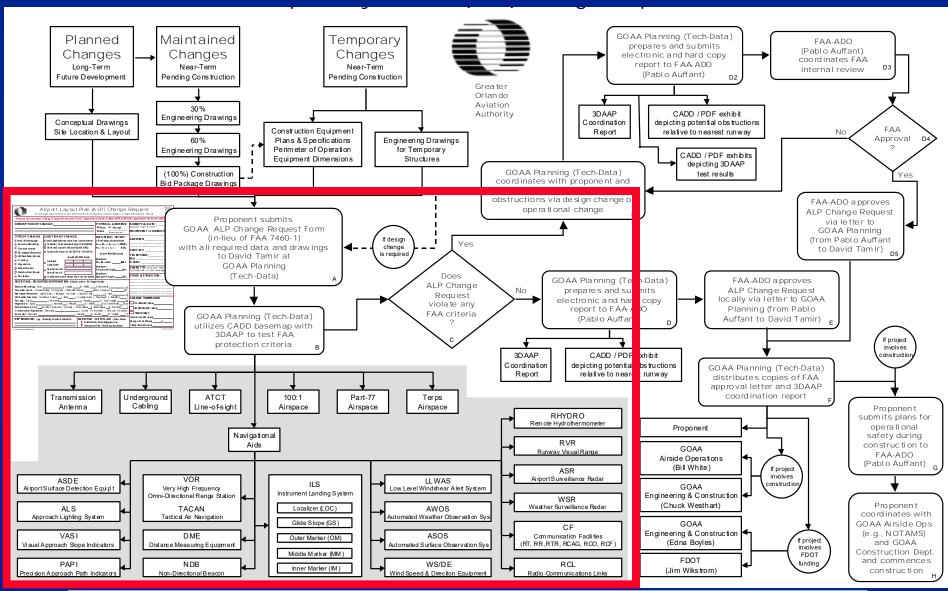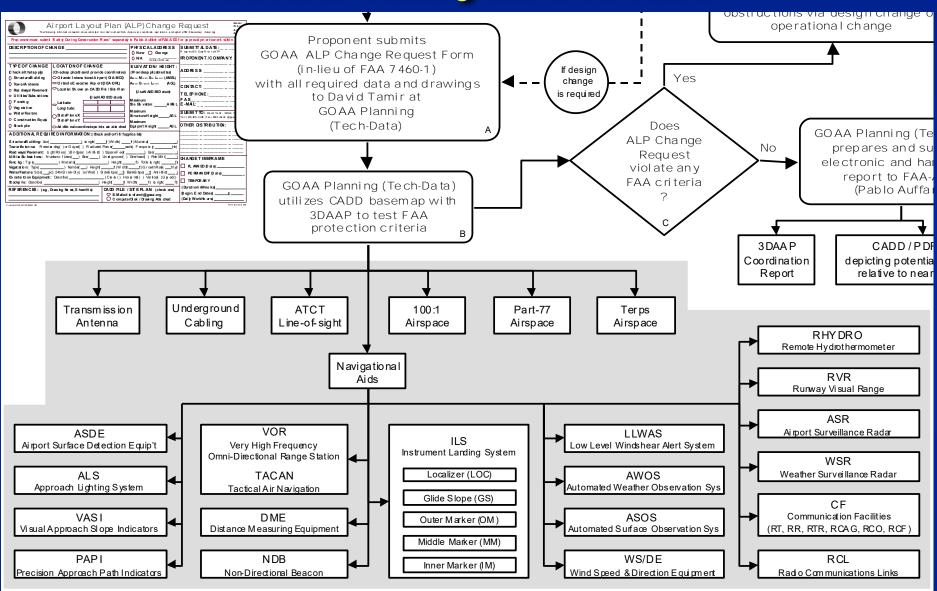_____
_____

PHYSICAL ADDRESS:
O **New**   O **Change**
O **N/A**   _____
Current Address

SUBMITTAL DATE: _____
Required 60 Days Prior to NTP

PROPONENT / COMPANY:
_____

ADDRESS: _____
_____
_____

CONTACT: _____

TELEPHONE: _____
FAX: _____
E-MAIL: _____

SUBMIT TO: David Tamir, GOAA Planning
Tel: (407) 825-4034, Fax: 4050, dtamir@goaa.org

OTHER DISTRIBUTION:
_____
_____
_____
_____
_____
_____

TYPE OF CHANGE:
(Check all that apply)
O **Structure/Building**
O **Tower/Antenna**
O **Roadways/Pavement**
O **Utilities/Substations**
O **Fencing**
O **Vegetation**
O **Water Feature**
O **Construction Equip.**
O **Stockpile**

LOCATION OF CHANGE:
(Check applicable and provide coordinates)
O **Orlando International Airport (OIA-MCO)**
O **Orlando Executive Airport (OEA-ORL)**
O **Location Shown on CADD File / Site Plan**

(Use NAD83 Datum)
O **Latitude:** [___][___][___]
   Longitude: [___][___][___]
O **State Plane X:** [_____]
   State Plane Y: [_____]
O **Additional coordinate points are attached**

ELEVATION / HEIGHT:
(Provide applicable data)
Above **M**ean **S**ea **L**evel **(AMSL)**
Above **G**round **L**evel **(AGL)**

(Use NAVD88 Datum)

Maximum Site Elevation: _____ **AMSL**

Maximum Structure Height: _____ **AGL**

Maximum Equipm't Height: _____ **AGL**

ADDITIONAL REQUIRED INFORMATION: (Check and/or fill if applicable)

Structure/Building: Use(_____) Length(_____ft) Width(_____ft) Material(_____)
Tower/Antenna: Freestanding( ) or Guyed( ) Radiated Power(_____watts) Frequency(_____Hz)
Roadways/Pavement: Light Poles( ) Bridges( ) Airfield( ) Square Feet(_____) Use(_____)
Utilities/Substations: Number of Lines(___) Size(____) Underground( ) Overhead( ) Pole Mtr'l(_____)
Fencing: Type(_____) Material(_____) Height(_____ft) Total Length(_____ft)
Vegetation: Type(_____) Number(___) Height(_____ft) Width(_____ft) Growth Rate(___ft/yr)
Water Feature: Size(___ac) 24hr-Drain-Dry( ) or Wet( ) Side-Slope(_:1) Bank-Slope(_:1) Anti-Bird(_____)
Construction Equipment: Describe(_____) Crane( ) Horizontal ( ) Vertical( ) Guyed( )
Stockpile: Describe(_____) Height(_____ft) Width(_____ft) Length(_____ft)

CHANGE TIMEFRAME:
☐ **PLANNED (Date):** _____
☐ **PERMANENT (Date):** _____
☐ **TEMPORARY**
(Duration in Weeks): _____
(Begin...End Dates): _____ to _____
(Daily Work Hours): _____

REFERENCES: (e.g., Drawing Name, Sheet No.)
_____
_____

CADD FILE / SITE PLAN: (check one)
O **E-Mailed to dtamir@goaa.org**
O **Computer Disk / Drawing Attached**

3DAAP Analysis Process

3DAAP Analysis Process

Airport Layout Plan (ALP) Change Request

Proponent submits
GOAA ALP Change Request Form
(in-lieu of FAA 7460-1)
with all required data and drawings
to David Tamir at
GOAA Planning
(Tech-Data) **A**

If design
change
is required

obstructions via design change or
operational change

Yes

Does
ALP Change
Request
violate any
FAA criteria
? **C**

No

GOAA Planning (Tech-Data)
prepares and submits
electronic and hard copy
report to FAA-ADO
(Pablo Auffant)

GOAA Planning (Tech-Data)
utilizes CADD basemap with
3DAAP to test FAA
protection criteria **B**

3DAAP
Coordination
Report

CADD / PDF
depicting potential obstructions
relative to nearby NAVAIDS

- Transmission Antenna
- Underground Cabling
- ATCT Line-of-sight
- 100:1 Airspace
- Part-77 Airspace
- Terps Airspace

Navigational Aids

ASDE — Airport Surface Detection Equip't
ALS — Approach Lighting System
VASI — Visual Approach Slope Indicators
PAPI — Precision Approach Path Indicators

VOR — Very High Frequency Omni-Directional Range Station
TACAN — Tactical Air Navigation
DME — Distance Measuring Equipment
NDB — Non-Directional Beacon

ILS — Instrument Landing System
- Localizer (LOC)
- Glide Slope (GS)
- Outer Marker (OM)
- Middle Marker (MM)
- Inner Marker (IM)

LLWAS — Low Level Windshear Alert System
AWOS — Automated Weather Observation Sys
ASOS — Automated Surface Observation Sys
WS/DE — Wind Speed & Direction Equipment

RHYDRO — Remote Hydrothermometer
RVR — Runway Visual Range
ASR — Airport Surveillance Radar
WSR — Weather Surveillance Radar
CF — Communication Facilities (RT, RR, RTR, RCAG, RCO, RCF)
RCL — Radio Communications Links

FAA Review Process

Planned Changes — Long-Term Future Development

Maintained Changes — Near-Term Pending Construction

Temporary Changes — Near-Term Pending Construction

Conceptual Drawings Site Location & Layout

30% Engineering Drawings

60% Engineering Drawings

(100%) Construction Bid Package Drawings

Construction Equipment Plans & Specifications Perimeter of Operation Equipment Dimensions

Engineering Drawings for Temporary Structures

Greater Orlando Aviation Authority

GOAA Planning (Tech-Data) prepares and submits electronic and hard copy report to FAA-ADO (Pablo Auffant) — D2

FAA-ADO (Pablo Auffant) coordinates FAA internal review — D3

3DAAP Coordination Report

CADD / PDF exhibit depicting potential obstructions relative to nearest runway

CADD / PDF exhibits depicting 3DAAP test results

FAA Approval? — D4 — No / Yes

GOAA Planning (Tech-Data) coordinates with proponent and GOAA Airside Operations to avoid obstructions via design change or operational change — D1

FAA-ADO approves ALP Change Request via letter to GOAA Planning (from Pablo Auffant to David Tamir) — D5

Proponent submits GOAA ALP Change Request Form (in-lieu of FAA 7460-1) with all required data and drawings to David Tamir at GOAA Planning (Tech-Data)

If design change is required — Yes

Airport Layout Plan (ALP) Change Request

GOAA Planning (Tech-Data) utilizes CADD basemap with 3DAAP to test FAA protection criteria — B

Does ALP Change Request violate any FAA criteria? — C — No

GOAA Planning (Tech-Data) prepares and submits electronic and hard copy report to FAA-ADO (Pablo Auffant) — D

FAA-ADO approves ALP Change Request locally via letter to GOAA Planning (from Pablo Auffant to David Tamir) — E

If project involves construction

3DAAP Coordination Report

CADD / PDF exhibit depicting potential obstructions relative to nearest runway

GOAA Planning (Tech-Data) distributes copies of FAA approval letter and 3DAAP coordination report — F

Proponent submits plans for operational safety during construction to FAA-ADO (Pablo Auffant) — G

Transmission Antenna

Underground Cabling

ATCT Line-of-sight

100:1 Airspace

Part-77 Airspace

Terps Airspace

Navigational Aids

RHYDRO — Remote Hydrothermometer

RVR — Runway Visual Range

ASR — Airport Surveillance Radar

WSR — Weather Surveillance Radar

CF — Communication Facilities (RT, RR, RTR, RCAG, RCO, RCF)

RCL — Radio Communications Links

Proponent

GOAA Airside Operations (Bill White)

GOAA Engineering & Construction (Chuck Westhart)

GOAA Engineering & Construction (Edna Boyles)

FDOT (Jim Wikstrom)

If project involves construction

If project involves FDOT funding

Proponent coordinates with GOAA Airside Ops (e.g., NOTAMS) and GOAA Construction Dept. and commences construction — H

ASDE — Airport Surface Detection Equip't

ALS — Approach Lighting System

VASI — Visual Approach Slope Indicators

PAPI — Precision Approach Path Indicators

VOR — Very High Frequency Omni-Directional Range Station

TACAN — Tactical Air Navigation

DME — Distance Measuring Equipment

NDB — Non-Directional Beacon

ILS — Instrument Landing System
- Localizer (LOC)
- Glide Slope (GS)
- Outer Marker (OM)
- Middle Marker (MM)
- Inner Marker (IM)

LLWAS — Low Level Windshear Alert System

AWOS — Automated Weather Observation Sys

ASOS — Automated Surface Observation Sys

WS/DE — Wind Speed & Direction Equipment

FAA Review Process

Temporary Changes
Near-Term Pending Construction

Greater Orlando Aviation Authority

Engineering Drawings for Temporary Structures

GOAA Planning (Tech-Data) prepares and submits electronic and hard copy report to FAA-ADO (Pablo Auffant) **D2**

FAA-ADO (Pablo Auffant) coordinates FAA internal review **D3**

3DAAP Coordination Report

CADD / PDF exhibit depicting potential obstructions relative to nearest runway

CADD / PDF exhibits depicting 3DAAP test results

GOAA Planning (Tech-Data) coordinates with proponent and GOAA Airside Operations to avoid obstructions via design change or operational change **D1**

FAA Approval ? **D4**

No

Yes

If design change is required

Yes

Does ALP Change Request violate any FAA criteria ? **C**

No

GOAA Planning (Tech-Data) prepares and submits electronic and hard copy report to FAA-ADO (Pablo Auffant) **D**

FAA-ADO approves ALP Change Request via letter to GOAA Planning (from Pablo Auffant to David Tamir) **D5**

FAA-ADO approves ALP Change Request locally via letter to GOAA Planning (from Pablo Auffant to David Tamir) **E**

3DAAP Coordination Report

CADD / PDF exhibit depicting potential obstructions relative to nearest runway

GOAA Planning (Tech-Data) distributes copies of FAA approval letter and 3DAAP

If project involves construction

A

Approval Distribution/Notification Process

Approval Distribution/Notification Process

Flowchart:

- **D**: (...ch-Data) ...bmits ...rd copy ...ADO ...nt) → **E**: FAA-ADO approves ALP Change Request locally via letter to GOAA Planning (from Pablo Auffant to David Tamir)

- **E** → **F**: GOAA Planning (Tech-Data) distributes copies of FAA approval letter and 3DAAP coordination report

- (...F exhibit ...l obstructions ...est runway)

- **F** → *If project involves construction* → **G**: Proponent submits plans for operational safety during construction to FAA-ADO (Pablo Auffant)

- **G** → **H**: Proponent coordinates with GOAA Airside Ops (e.g., NOTAMS) and GOAA Construction Dept. and commences construction

- **F** → Proponent

- **F** → *If project involves construction* → GOAA Airside Operations (Bill White); GOAA Engineering & Construction (Chuck Westhart)

- **F** → *If project involves FDOT funding* → GOAA Engineering & Construction (Edna Boyles); FDOT (Jim Wikstrom)

Sample 3DAAP Report for Airside-2 Cranes

Airspace Review Coordination Program 97-B

File Input Output Print

Status: ○ No Conflict   ◉ Conflict - Waiver Requested

For FAA Use Only
Aeronautical Study No.
99-ASO-3083-NRA

For Airport Use Only
Airport Study #
MCO9911

Airport Owner   Airport Name: Orlando International Airport (MCO)   Code: MCO

Name	Greater Orlando Aviation Authority	Phone	(407)825-4034
Contact	David Tamir	FAX	(407)825-4050
Address	One Airport Blvd.	Modem	( ) -
		Internet Email	dtamir@goaa.org
	Orlando FL 32827-4328		

Airport Operator and/or Proponent (If different than owner)

Name	Copeland Steel Erectors, Inc.	Phone	(813)715-0404
Contact	Rick Bailey or Tom Cunningham	FAX	(813)715-0066
Address	3620 Copeland Dr.	Modem	( ) -
		Internet Email	
	Zephyrhills FL 33540		

Type
- ☐ New Construction
- ☐ Alteration

Class
- ☐ Permanent
- ☒ Temporary

Work Schedule
Begin 06/21/99   End 12/17/99
Hours of Construction 6:00 am - 6:00 pm

Type of Object
- ☐ Structure/Building(s)
- ☐ Tower/Antenna
- ☐ Stockpile
- ☐ Pavement
- ☐ Utilities/Substations
- ☒ Construction Equipment
- ☐ Vegetation
- ☐ Fencing
- ☐ Major Water Features

General Data / Specific Data / Criteria List / Supporting Data / Review/Approval / Exit

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Facility Management (FM)
Information Technology (IT)

Sample 3DAAP Report for Airside-2 Cranes

Airspace Review Coordination Program 97-B

File   Input   Output   Print

Location of Structure

Latitude   28°26'80.09 "
Longitude   81°17'58.59 "

Source
● NAD 83/WGS84
○ NAD 27

State Plane X   559876.85
State Plane Y   1491188.28

Airport Grid X   0.00
Airport Grid Y   0.00

Structure Elevation

Site (MSL)   91.00
Structure Height (AGL)   200.00
Overall (MSL)   291

Distance to Nearest Runway

Runway Name   17 R

☐ Threshold Displaced   0   Ft.

Runway Elevation   90.00

Distance Down   0.00
Distance Over   1199.17   ?

Other Information

Critical Aircraft   Group V
Approach Type   Precision

☒ Consistent with Approved ALP
☒ Consistent with AC 150/5300-13

Known Deviations to Standards/Comments

Location of structure point above is the end point of the Over distance as shown on the "Plan View" graphic. This point is the closest point in the crane work area boundary to the threshold of 17R.

Note: For structures with multiple points, utilitize highest point for input on this page.
Include locating diagrams as supporting data.

General Data \ Specific Data \ Criteria List \ Supporting Data \ Review/Approval \ Exit

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Sample 3DAAP Report for Airside-2 Cranes

Airspace Review Coordination Program 97-B

File   Input   Output   Print

FAA Evaluation		Criteria	3DAAP Analysis Not Required	3DAAP Analysis Conducted	
☐	?	FAA Electronic Underground Cables	☒	☐	
☐	?	Radio Frequency	☒	☐	
☐	?	Airport Traffic Control Towers	☐	☒	View
☐	?	Airport Surface Detection Equipment	☒	☐	
☐	?	Approach Lighting Systems	☒	☐	
☐	?	Visual Approach Slope Indicators	☒	☐	
☐	?	Precision Approach Path Indicators	☒	☐	
☐	?	VOR/TACAN/DME	☐	☒	View
☐	?	Non-Directional Beacon	☒	☐	
☐	?	ILS - Localizer	☐	☒	
☐	?	ILS - Glideslope	☒	☐	
☐	?	ILS - Markers	☒	☐	
☐	?	Low Level Windshear Alert System	☐	☒	
☐	?	AWOS/ASOS	☒	☐	
☐	?	Wind Speed/Direction Equipment	☒	☐	
☐	?	Remote Hydrothermometer	☒	☐	
☐	?	Runway Visual Range	☒	☐	
☐	?	Communications Facilities	☐	☒	View
☐	?	Airport Surveillance Radars	☒	☐	
☐	?	Radio Communications Links	☒	☐	
☐	?	Weather Surveillance Radar	☒	☐	
☐	?	Part 77	☐	☒	View
☐	?	TERPS	☐	☒	

General Data | Specific Data | Criteria List | Supporting Data | Review/Approval | Exit

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Sample 3DAAP Report for Airside-2 Cranes

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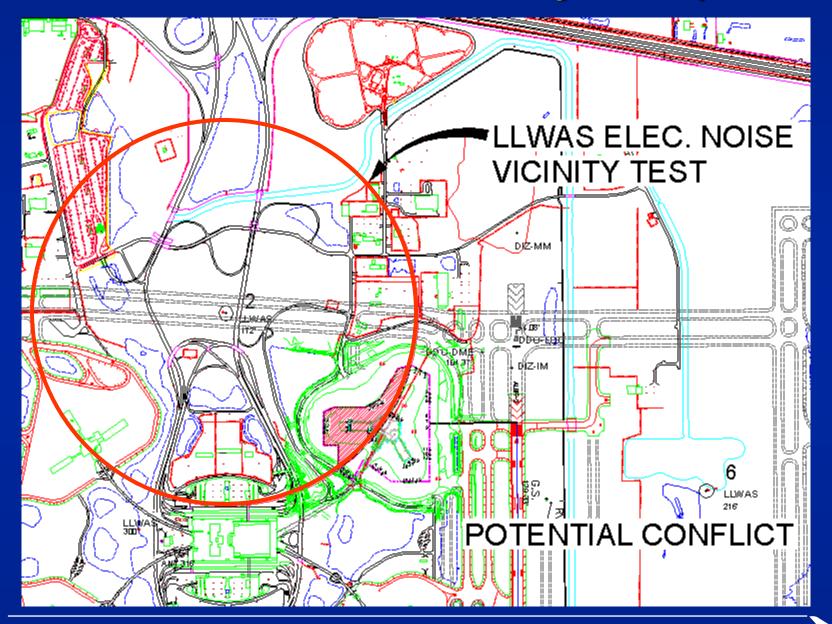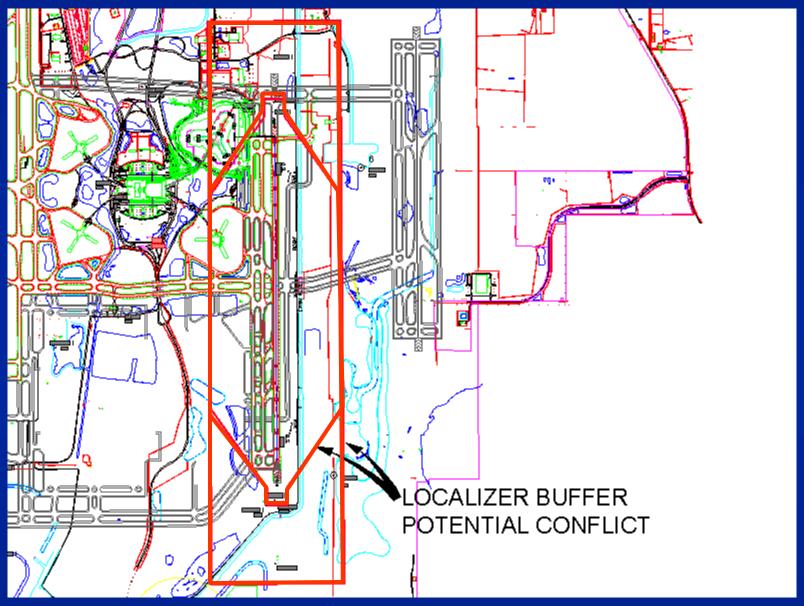
Distance Measuring Equipment (DME)

Low Level Windshear Alert System (LLWAS)

LLWAS ELEC. NOISE
VICINITY TEST

POTENTIAL CONFLICT

Instrument Landing System (ILS) Localizer

LOCALIZER BUFFER
POTENTIAL CONFLICT

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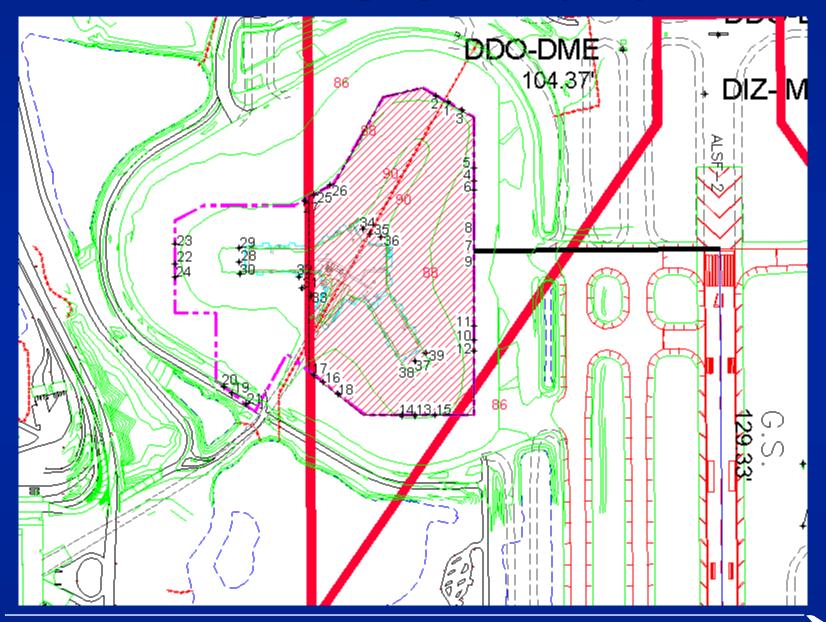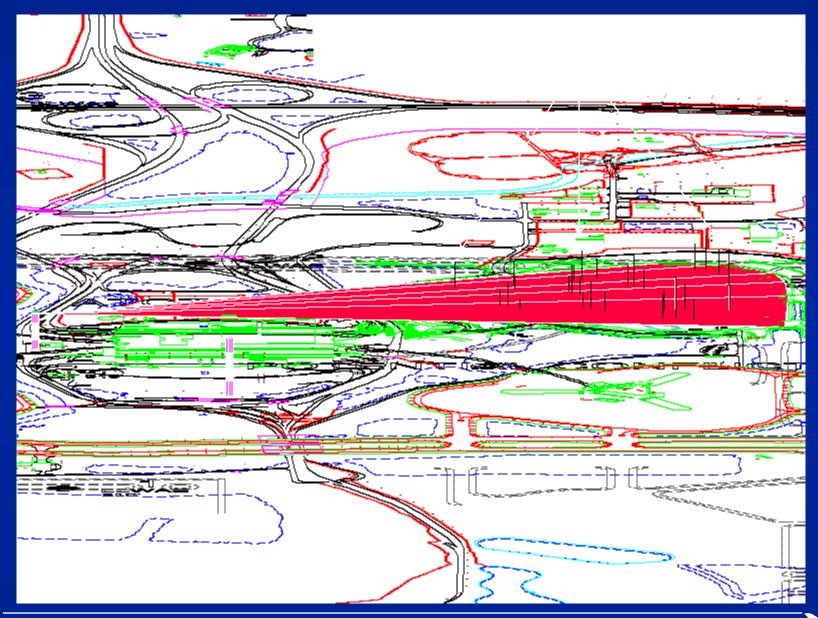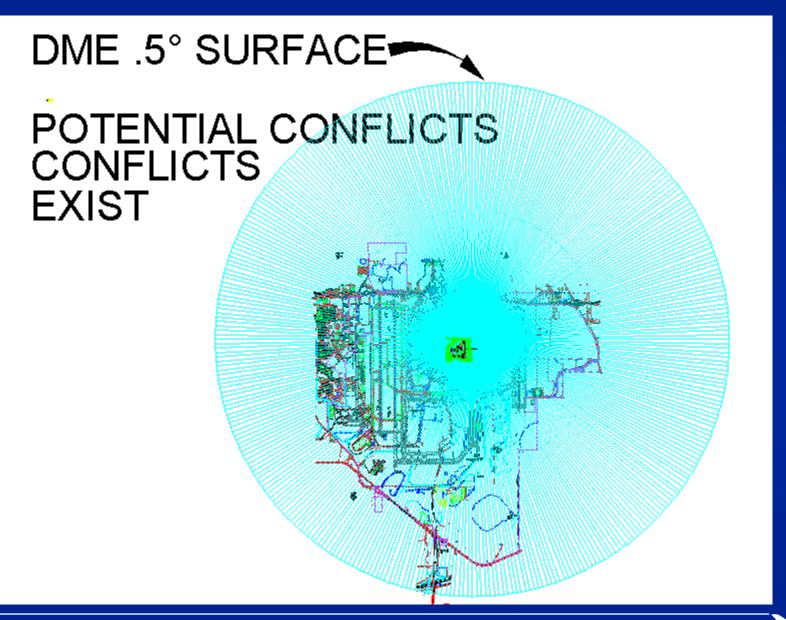
Instrument Landing System (ILS) Localizer

Airport Traffic Control Tower (3D) LOS
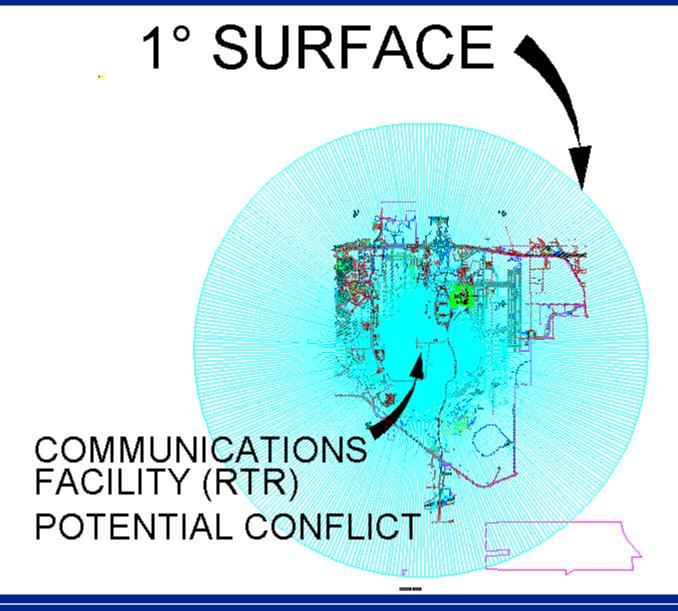
Facility Management (FM)
Information Technology (IT)

DME .5° SURFACE

POTENTIAL CONFLICTS
CONFLICTS
EXIST

1° SURFACE

COMMUNICATIONS
FACILITY (RTR)

POTENTIAL CONFLICT
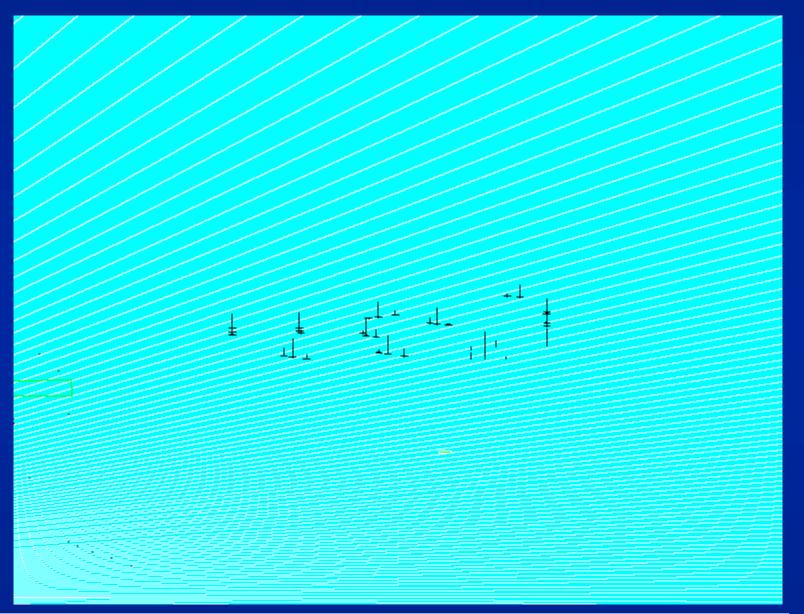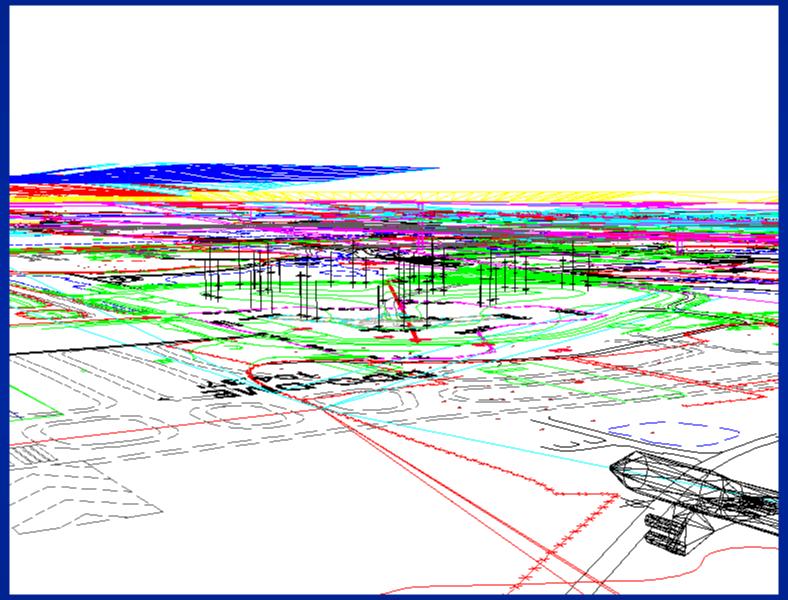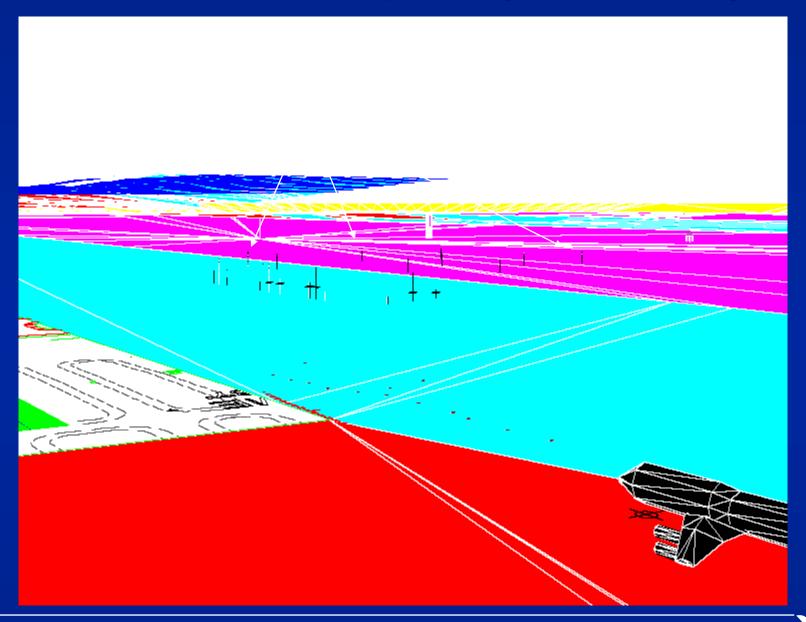
Communications Facility (3D)
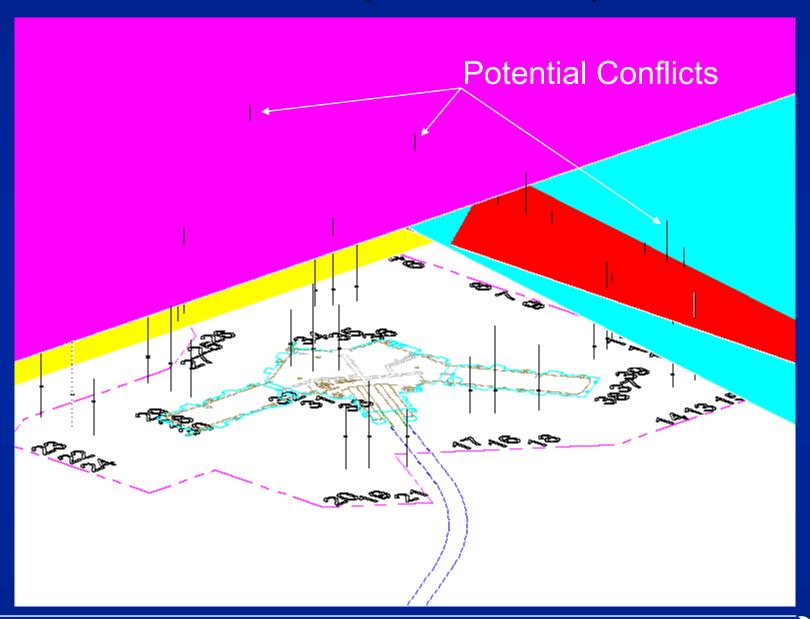
Far Part 77 Airspace (3D Wire Frame)
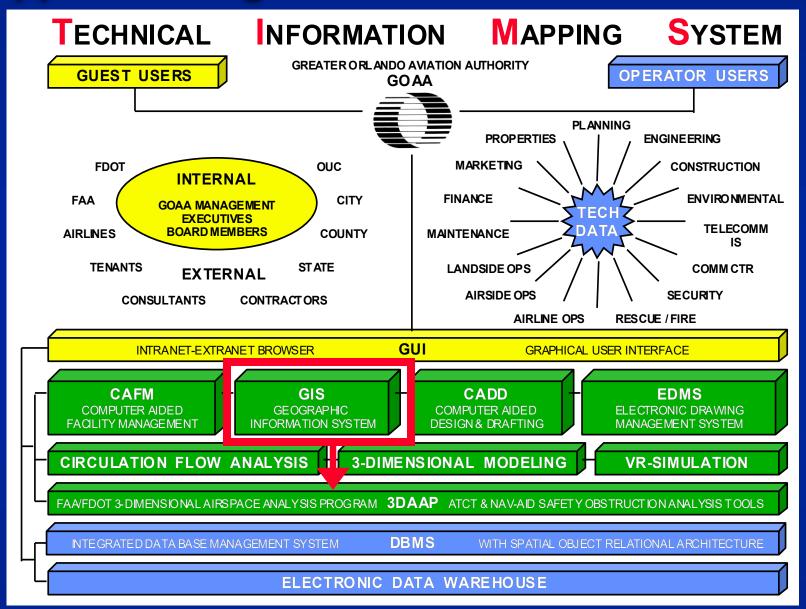
Far Part 77 Airspace (3D Shaded)

TERPS (3D Shaded)

Potential Conflicts
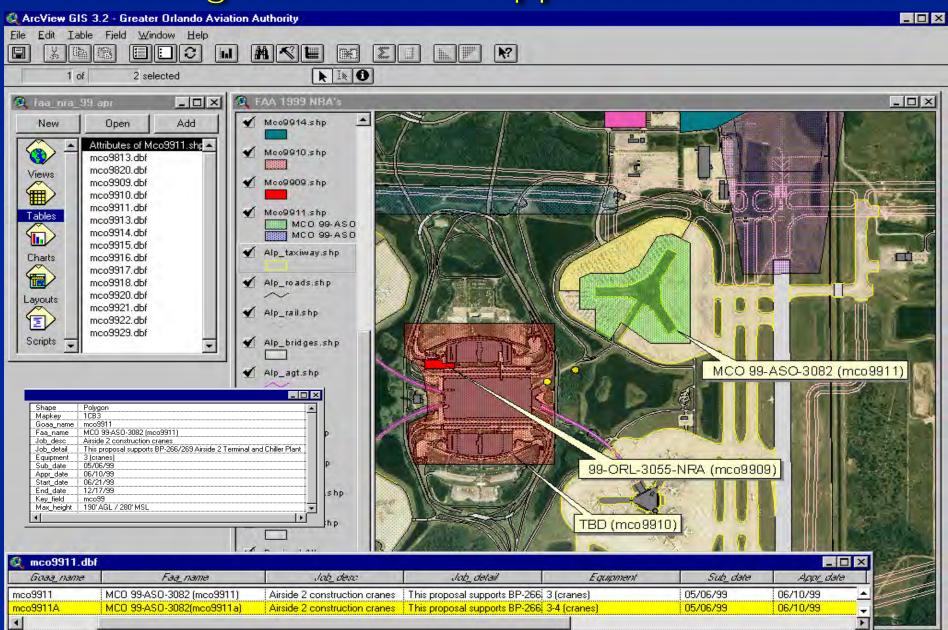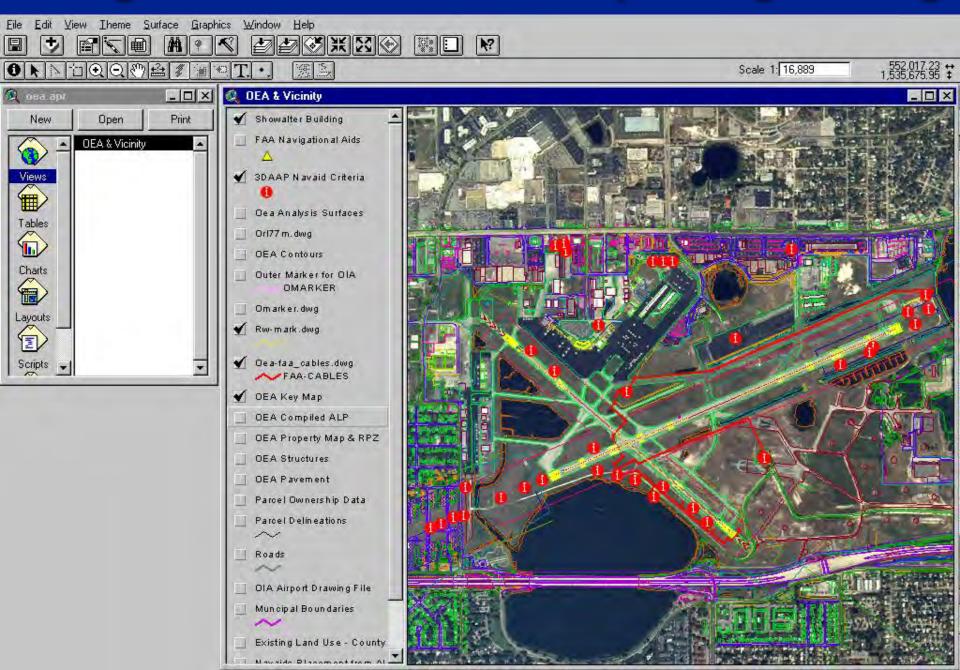
Supplementing 3DAAP with GIS Technology

TECHNICAL INFORMATION MAPPING SYSTEM

GUEST USERS

OPERATOR USERS

GREATER ORLANDO AVIATION AUTHORITY
GOAA

INTERNAL
GOAA MANAGEMENT
EXECUTIVES
BOARD MEMBERS

FDOT
FAA
AIRLINES
TENANTS
CONSULTANTS

EXTERNAL

OUC
CITY
COUNTY
STATE
CONTRACTORS

TECH DATA

PLANNING
PROPERTIES
ENGINEERING
MARKETING
CONSTRUCTION
FINANCE
ENVIRONMENTAL
MAINTENANCE
TELECOMM IS
LANDSIDE OPS
COMM CTR
AIRSIDE OPS
SECURITY
AIRLINE OPS
RESCUE / FIRE

INTRANET-EXTRANET BROWSER **GUI** GRAPHICAL USER INTERFACE

CAFM
COMPUTER AIDED
FACILITY MANAGEMENT

GIS
GEOGRAPHIC
INFORMATION SYSTEM

CADD
COMPUTER AIDED
DESIGN & DRAFTING

EDMS
ELECTRONIC DRAWING
MANAGEMENT SYSTEM

CIRCULATION FLOW ANALYSIS **3-DIMENSIONAL MODELING** **VR-SIMULATION**

FAA/FDOT 3-DIMENSIONAL AIRSPACE ANALYSIS PROGRAM **3DAAP** ATCT & NAV-AID SAFETY OBSTRUCTION ANALYSIS TOOLS

INTEGRATED DATA BASE MANAGEMENT SYSTEM **DBMS** WITH SPATIAL OBJECT RELATIONAL ARCHITECTURE

ELECTRONIC DATA WAREHOUSE

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Facility Management (FM)
Information Technology (IT)

Tracking FAA 3DAAP Approvals / NOTAMS
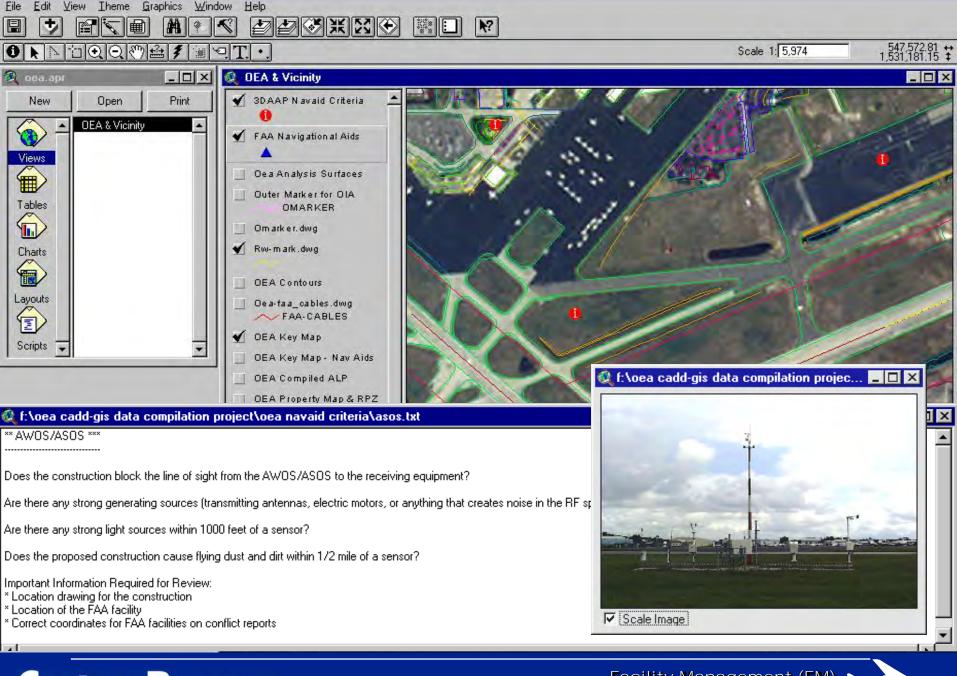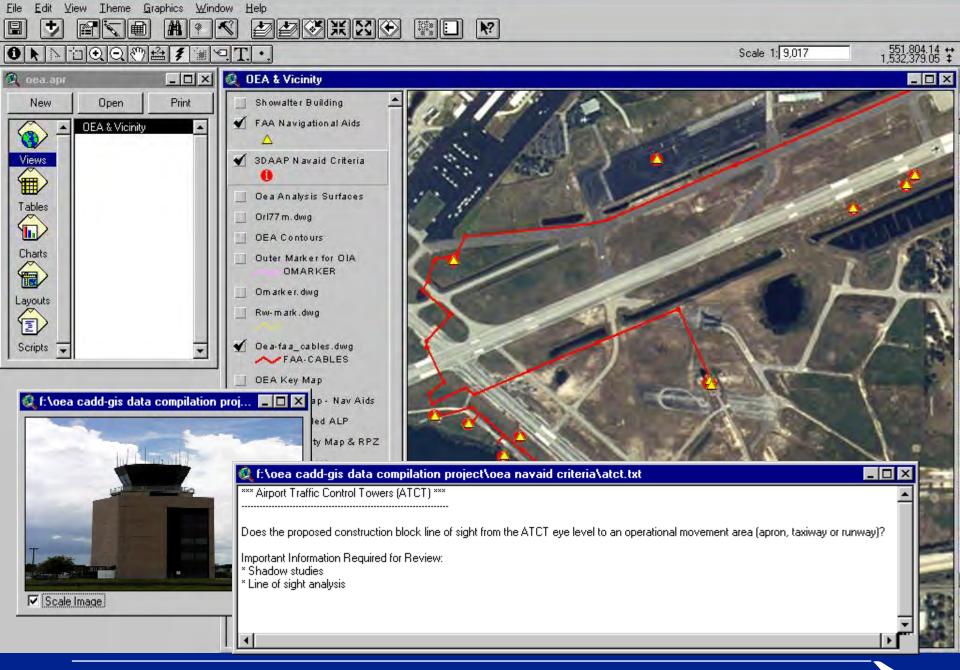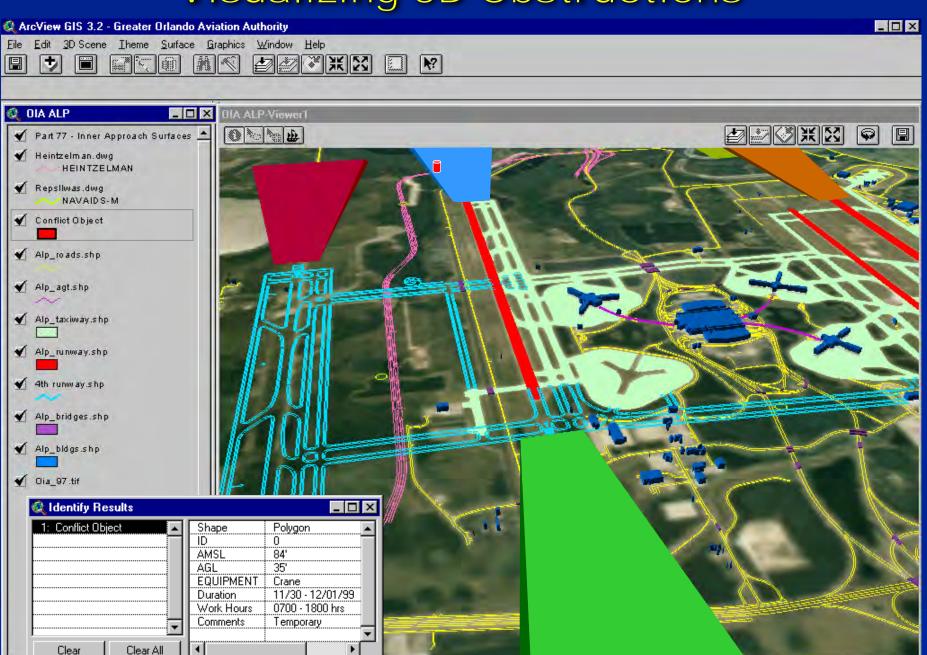
Airport Nav-Aid Obstruction Criteria

Visualizing 3D Obstructions

Presentation Outline

- Introduction to the Airport's Perspective

- Airport Configuration Management (CM)

- TIMS Approach

- Implementation Challenges

- FAA Airport Layout Plan (ALP) is Key to CM Process

➡ CM Process Improvement via Standards
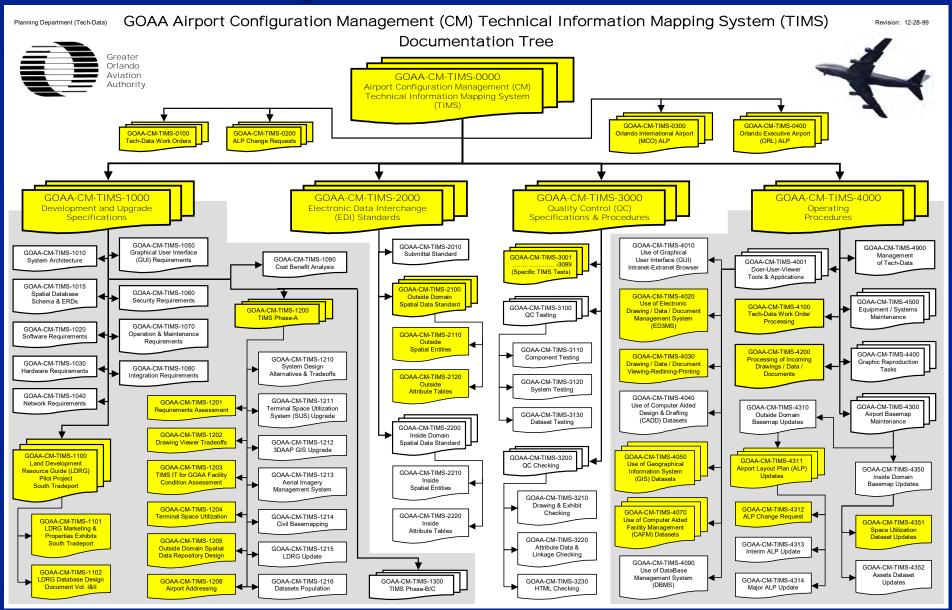
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Process Improvement via CM Standards

Scope of Airport CM Standards

- CM Documentation

- CM Strategic Plan & Business Process

- CM Staff Team Charter

- CM Products and Deliverables

- CM System Development & Upgrade Specs

- CM System Electronic Data Interchange (EDI)

- CM Quality Control (QC) Specs & Procedures

- CM System Operating Procedures

Scope of Airport CM Standards

- CM Documentation

- CM Strategic Plan & Business Process

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- CM System Development & Upgrade Specs

- CM System Electronic Data Interchange (EDI)

- CM Quality Control (QC) Specs & Procedures

- CM System Operating Procedures

GOAA-CM-TIMS-	**1000**	System Development and Upgrade Specifications
GOAA-CM-TIMS-	**1005**	System Architecture
GOAA-CM-TIMS-	**1010**	System Spatial Database Schema & Entity Relationship Diagrams
GOAA-CM-TIMS-	**1020**	System Integration Requirements / Interface Control Document (ICD)
GOAA-CM-TIMS-	**1030**	System Local Area Network (LAN) / Wide Area Network (WAN) Requirements
GOAA-CM-TIMS-	**1040**	System Software Requirements
GOAA-CM-TIMS-	**1050**	System Hardware Requirements
GOAA-CM-TIMS-	**1060**	System Graphical User Interface (GUI) Information Browser Requirements
GOAA-CM-TIMS-	**1070**	System Security Requirements
GOAA-CM-TIMS-	**1080**	System Operation & Maintenance (O&M) Requirements
GOAA-CM-TIMS-	**1090**	System Cost Benefit and Return On Investment (ROI)
GOAA-CM-TIMS-	**2000**	TIMS Electronic Data Interchange (EDI) Standards
GOAA-CM-TIMS-	**2010**	Submittal Standard
GOAA-CM-TIMS-	**2020**	Metadata Standard
GOAA-CM-TIMS-	**2100**	Outside Domain Spatial Data Standard
GOAA-CM-TIMS-	**2110**	Outside Domain Spatial Graphic Entities Standard
GOAA-CM-TIMS-	**2120**	Outside Domain Spatial Attribute Tables Standard
GOAA-CM-TIMS-	**2130**	Outside Domain Photogrammetry Standard
GOAA-CM-TIMS-	**2140**	Outside Domain CADD Basemap Standard
GOAA-CM-TIMS-	**2150**	Outside Domain AEC Construction Drawing Distillation into TIMS Basemap
GOAA-CM-TIMS-	**2160**	Outside Domain Airport Layout Plan (ALP) Standard
GOAA-CM-TIMS-	**2200**	Inside Domain Spatial Data Standard
GOAA-CM-TIMS-	**2210**	Inside Domain Spatial Graphic Entities Standard
GOAA-CM-TIMS-	**2220**	Inside Domain Spatial Attribute Tables Standard
GOAA-CM-TIMS-	**2230**	Inside Domain Photogrammetry Standard
GOAA-CM-TIMS-	**2240**	Inside Domain CADD Basemap Standard
GOAA-CM-TIMS-	**2250**	Inside Domain AEC Construction Drawing Distillation into TIMS Basemap

American Association of Airport Executives (AAAE) GIS Standards Sub-Committee

Mission

To Guide the Airport Industry with Implementation
of CADD/GIS Spatial Data Standards (SDS)
for Cost Effective Management
of Airport Assets and Facilities

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Facility Management (FM)
Information Technology (IT)

Helpful Definitions

- **Spatial –** relating to, occupying, or having the character of physical three dimensional space

- **SDS –** Spatial Data Standards including CADD, GIS, and CAFM graphic features and corresponding attribute data

- **Attribute Data –** Information about an entity or boundary in the physical spatial world; attribute data may be in the form of alpha-numeric information, graph, chart, document, record drawing, photographic imagery, etc.

- **A/E/C Drawings –** Architectural / Engineering / Civil drawings generated per project for construction purposes

- **ALP Drawings –** Airport Layout Plan drawing-set maintained by the airport owner; the ALP is an FAA required critical subset of the airport's overall basemap

- **Basemap –** a continuous composite drawing which maps all spatial graphic features of a base such as an airport

Coordinating Industry-Wide Standards

- American Association of Airport Executives (AAAE) CADD-GIS Data Standards Committee

- FDOT/FAA Southern Region 3DAAP Committee

- FAA NAS Information Architecture Committee (NIAC) GIS Workgroup

- Federal CADD/GIS Technology Center (Formerly Tri-Services)

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Information Technology (IT)

Recommendations to FAA NIAC

- Help AAAE fine tune National CADD-GIS Technology Center Spatial Data Standards

- Help AAAE by Updating ALP Advisory Circular Requirements with Spatial Data Standards

- Help AAAE Upgrade 3DAAP to GIS

- Help AAAE by Setting Up a Unified Secured FAA-ALP Spatial Database Serving CADD-GIS Users at Airports and the FAA