

Airports Division
Great Lakes Region

Regional Planning Updates

Prepared for: 24th Annual Great Lakes Airports Conference
Schaumburg, Illinois

Presented by: Paul Lo
Regional Planning Specialist

Date: Thursday, November 7, 2008



Federal Aviation
Administration



Objective

- **New Regional and HQ Planning Guidance**
 - **Planning Definitions**
 - **Forecast Guidance**
- **2009-2013 NPIAS Report Update**
- **GIS/eALP Implementation**
- **Benefit Cost Analysis for Navigational Aids**



Forecast Guidance

- **New Forecast Guidance Memorandum.**
— Effective June 6, 2008.
- **Local forecasts differ by less than 10% in the 5-year forecast period, and 15% in the 10-year forecast period for all classes of airports.**
- **FAA HQ review required for:**
 - Forecasts that are inconsistent with the TAF
 - Environmental Impact Statement (EIS) or Benefit/Cost Analysis (BCA), even if consistent with TAF.

Federal Aviation Administration
Airport Division, Great Lakes Region
Planning/Programming Branch

Resource Bulletin
No. 2008-03 (Published August 2008)

New FAA Forecast Guidance Memorandum (M) issued

The FAA published a new Forecast Guidance Memorandum effective June 6, 2008.

What's New or Changed?

- Forecast for total aircraft movements, based on arrival and total operations are considered consistent with the TAF if they differ by less than 10% in the 5-year forecast period, and 15% in the 10-year forecast period for all classes of airports.
- FAA headquarters review is required for forecasts that are inconsistent with the TAF, and for projects expected to require an Environmental Impact Statement (EIS) or Benefit/Cost Analysis (BCA) when it coincides with TAF.
- Classifications modified for an EIS or BCA. Headquarters review is no longer required for all-weather, non-towered GA airports that have less than 200 based aircraft and less than 200,000 annual operations.
- ADOC Regions may request FAA Headquarters review of forecasts involving significant changes in aircraft mix.
- As a minimum, forecasts submitted for TAF Headquarters review should include aircraft and forecast levels of enplanements, aircraft operations and based aircraft, completed Appendix B and D from the FAA's Office of Policy and Plans (APP) document "Forecasting Aircraft Activity by Airport", forecast assumptions, and methodology.

As FAA checks must be completed before forecasts are submitted for FAA Headquarters review.

Sponsors who wish to adopt the TAF should make a conscious decision to do so, understand how it was developed, and document the decision rationale.

For non-towered airports, the new guidance encourages the use of aircraft counting programs to obtain the most accurate baseline data possible.

The new guidance recognizes environmental requirements for the latest available planning information. Forecasts used in the NEPA process should be consistent with the latest published TAF or forecasts reviewed prior to the start of an Environmental Assessment (EA) or EIS.

Airport sponsors and FAA planners should be alert to national, regional or site specific trends that can affect the project's purpose and need. Forecasts used in an EA or EIS should be compared to the annual TAF when it review status.

Where Can I Learn More?
The Forecast Guidance Memorandum, and other forecast guidance, can be found at:
http://www.faa.gov/ops_aircraft/airports/regional_guidance/forecast_guidance/forecast_guidance.htm
APC guidance can be found at:
http://www.faa.gov/ops_aircraft/airports/regional_guidance/forecast_guidance/forecast_guidance.htm

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Planning Guidance

- Great Lakes Regional Guidance.
- What the FAA means by “planning” in various contexts.
 - *Airport master planning.*
 - *Airport facility planning.*
 - *State planning..*
 - *Airport system planning.*
 - *Capital planning (or financial planning).*

Federal Aviation Administration
Airports Division, Great Lakes Region
Planning/Programming Branch

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What Do We Mean When We Talk About “Planning”?

During Fiscal Year 2008, the FAA conducted a customer satisfaction survey to get input from key stakeholders on what processes are going well and where there is room for improvement. One area that emerged for further attention is planning. After reviewing some of the comments, it is important to clarify what the FAA means by “planning” in various contexts.

- **Airport system planning.** Particularly important in large cities with multiple airports, but can also involve a broader regional system. Involves demand forecasting as well as regional surface and intermodal transportation. May be undertaken by one or more state, county or municipal units of government, with participation by the Metropolitan Planning Organization.
- **Airport master planning.** Focused on balancing airside and landside demand and capacity at a single airport, with due consideration of surrounding land use and zoning, surface access, facility and infrastructure needs. Undertaken by the airport sponsor, typically with the help of a consultant. Should identify and consider environmental issues as well as financial feasibility. The approved forecast and Airport Layout Plan are among the most important components, along with the associated reports and documentation.
- **Airport facility planning.** Focused on a particular facility—such as a runway complex, passenger terminal or parking structure—with careful consideration of short- and long-term needs, project timing, environmental permitting and financial issues including justification. Also undertaken by the sponsor, typically with the help of a consultant.
- **State planning.** Typically focused on the existing inventory of airports and doesn’t normally involve a state-level forecast, but should consider forecasts and other factors affecting individual existing or proposed airports. Should establish the basis for proposed capital improvements based on demonstrated aeronautical need. Undertaken by the state, often supported by a consultant.
- **Capital planning (or financial planning).** The FAA, states and individual airport sponsors all have to conduct forward-looking financial planning in order to make well-informed decisions about limited capital resources. At every level, units of government have an obligation to make prudent use of limited funds, to maximize return on investment in terms of system performance. This needs to consider the costs of maintaining existing facilities as well as expansion or improvements. The methodologies, underlying assumptions and even conclusions can vary substantially from one process to the next. However, when different conclusions are reached, it is important to explain why.

FAA's capital planning processes (NPIAS and ACIP)

Where Can I Learn More?

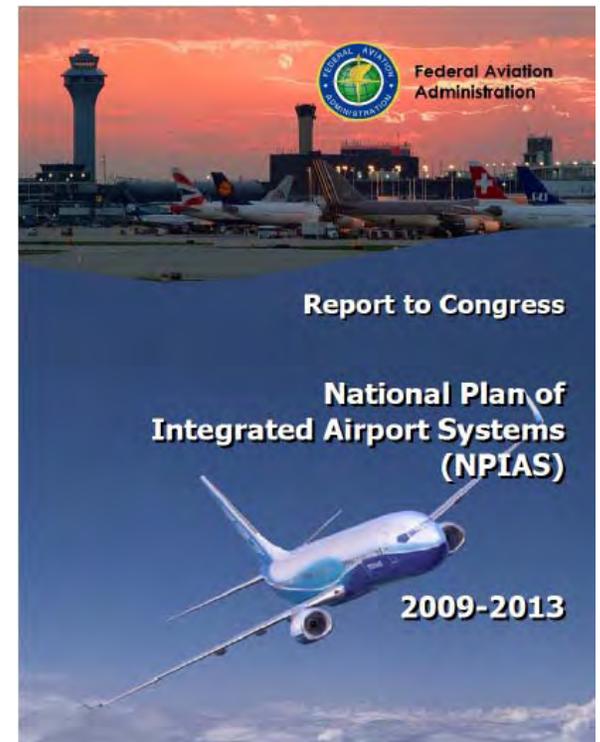
- FAA Advisory Circular 150/5070-6b, Change 1, “Airport Master Planning”
- FAA Advisory Circular 150/5070-7, “System Planning Process”
- FAA Order 5120.33A, (“Airports Capital Improvement Plan”)
- National Plan of Integrated Airport Systems (NPIAS) Report to Congress
- FAA Order 5030.3C, (“Field Formulation of the NPIAS”)

For further information on this or other topics, please contact the appropriate Airports District Office (ADO).



National Plan of Integrated Airports Systems Report

- **2009 to 2013 National Plan of Integrated Airports Systems Report sent to Congress on September 30, 2008.**
- **http://www.faa.gov/airports_airtraffic/airports/planning_capacity/npias/reports/**
- **National Plan of Integrated Airport Systems (NPIAS).**
- **Prepared since the mid 1940's.**
- **National picture of funding needs for the next 5 years.**



Current Development Needs

**Table 10: 2009 – 2013 NPIAS Cost by Airport and Development Category
(2008 \$ millions)**

Development Category	Large Hub	Medium Hub	Small Hub	Nonhub	Commercial Service	Reliever	GA	Total	Percent
Safety	\$457	\$290	\$174	\$692	\$46	\$65	\$161	\$1,885	3.8%
Security	\$386	\$166	\$59	\$66	\$22	\$43	\$224	\$966	1.9%
Reconstruction	\$2,484	\$1,106	\$988	\$1,360	\$367	\$863	\$2,441	\$9,610	19.3%
Standards	\$1,360	\$1,034	\$1,214	\$1,762	\$449	\$1,844	\$5,718	\$13,382	26.9%
Environmental	\$1,166	\$607	\$320	\$199	\$1	\$7	\$123	\$2,502	5.3%
Capacity	\$5,729	\$1,432	\$396	\$189	\$16	\$414	\$458	\$8,634	17.4%
Terminal	\$5,393	\$2,009	\$813	\$675	\$50	\$29	\$145	\$9,115	18.3%
Access	\$994	\$508	\$155	\$124	\$27	\$110	\$183	\$2,101	4.2%
Other	\$41	\$14	\$35	\$33	\$11	\$23	\$61	\$218	0.4%
New Airport	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,305	2.6%
Total New	\$18,009	\$7,165	\$4,155	\$5,101	\$990	\$3,476	\$9,516	\$49,717	100.0%
Percentage	36.2%	14.4%	8.4%	10.3%	2.0%	7.0%	19.1%		



NPIAS Trends

Figure 4: NPIAS Cost by Type of Development

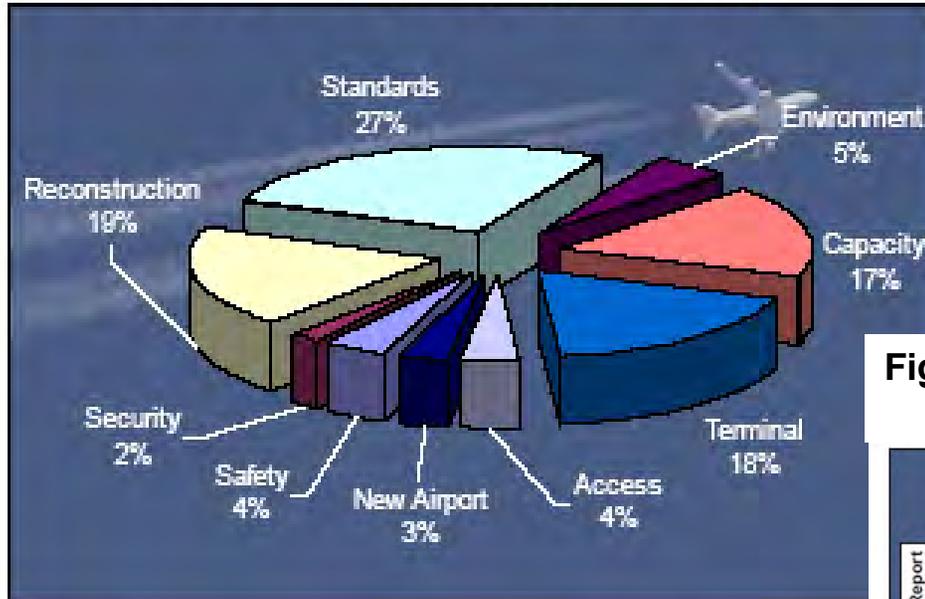
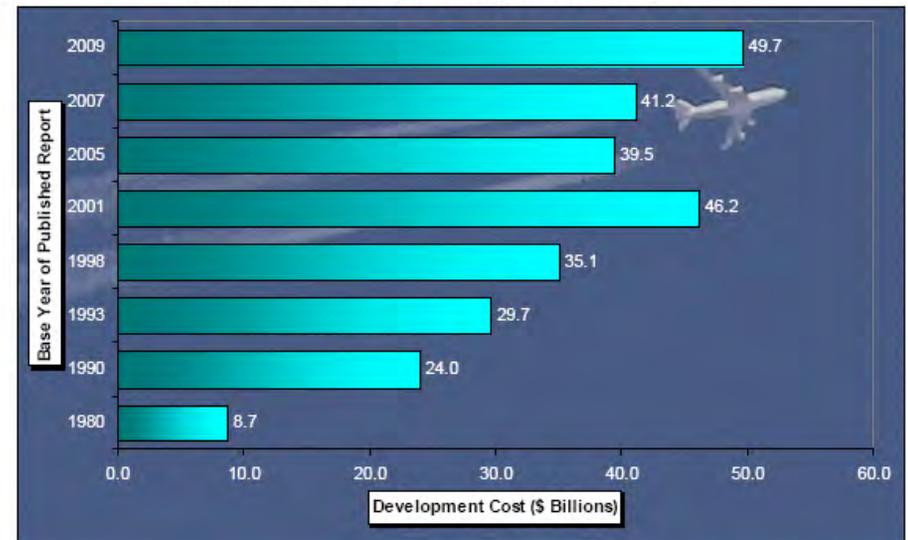
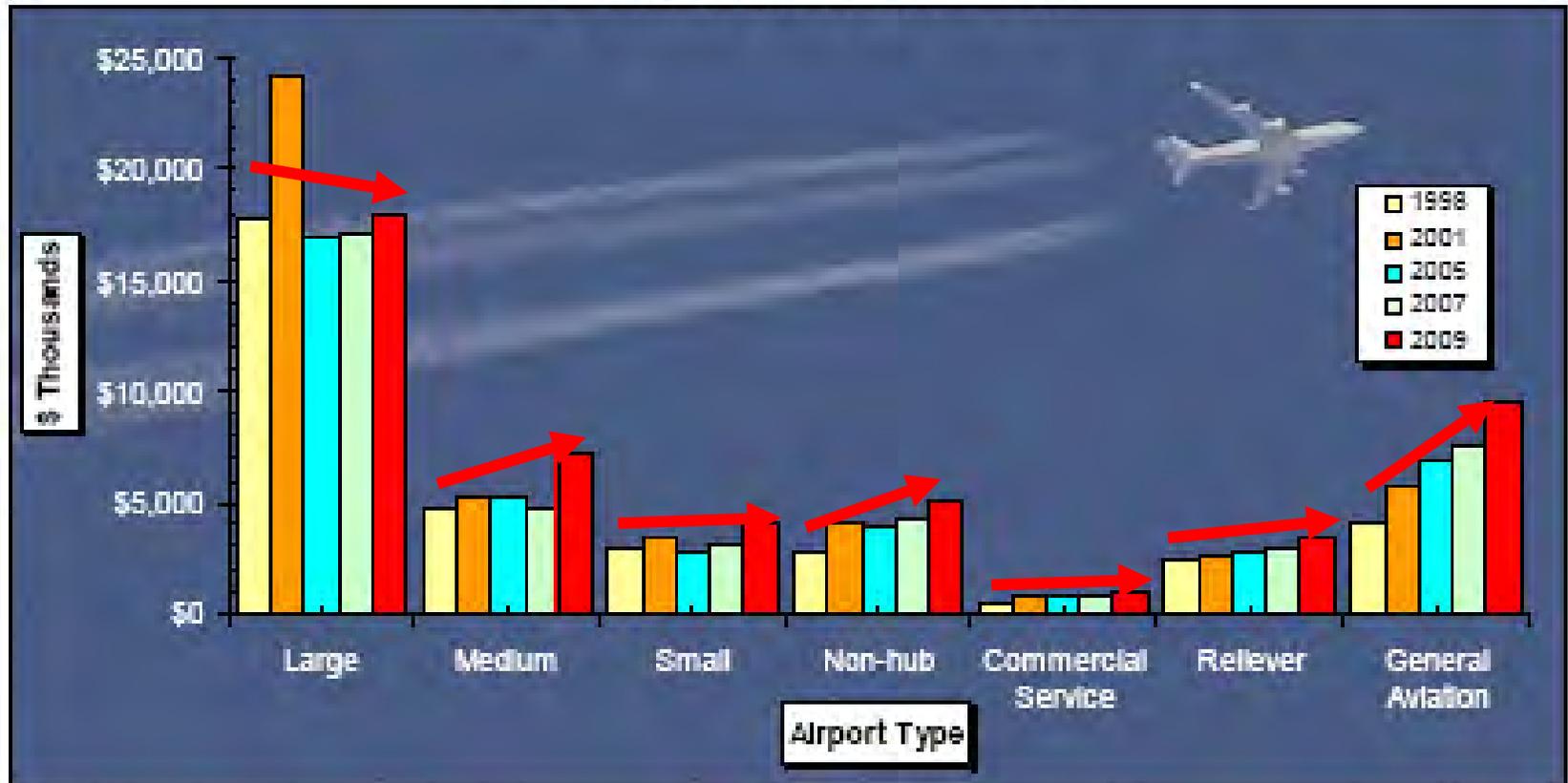


Figure 21: Five-Year Development Estimates from Published NPIAS Reports to Congress



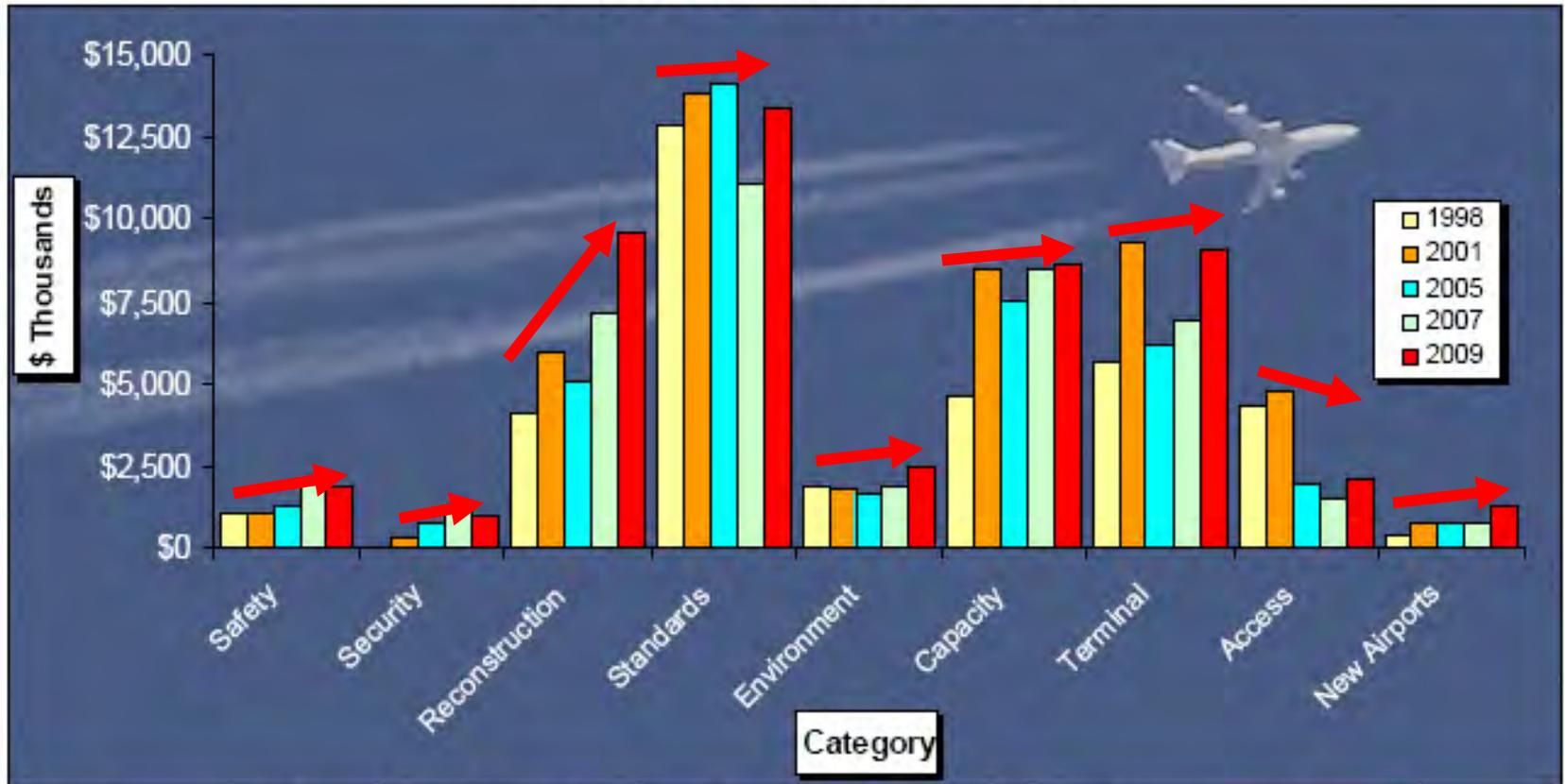
NPIAS Trends

Figure 22: Comparison of 5-Year Development Costs by Airport Type
Years 1998, 2001, 2005, 2007, and 2009



NPIAS Trends

Figure 23: Comparison of 5-Year Development Costs by Category⁴⁹
 Years 1998, 2001, 2005, 2007, and 2009



Note: Costs are not adjusted for inflation, they reflect the estimated cost at the time the report was prepared

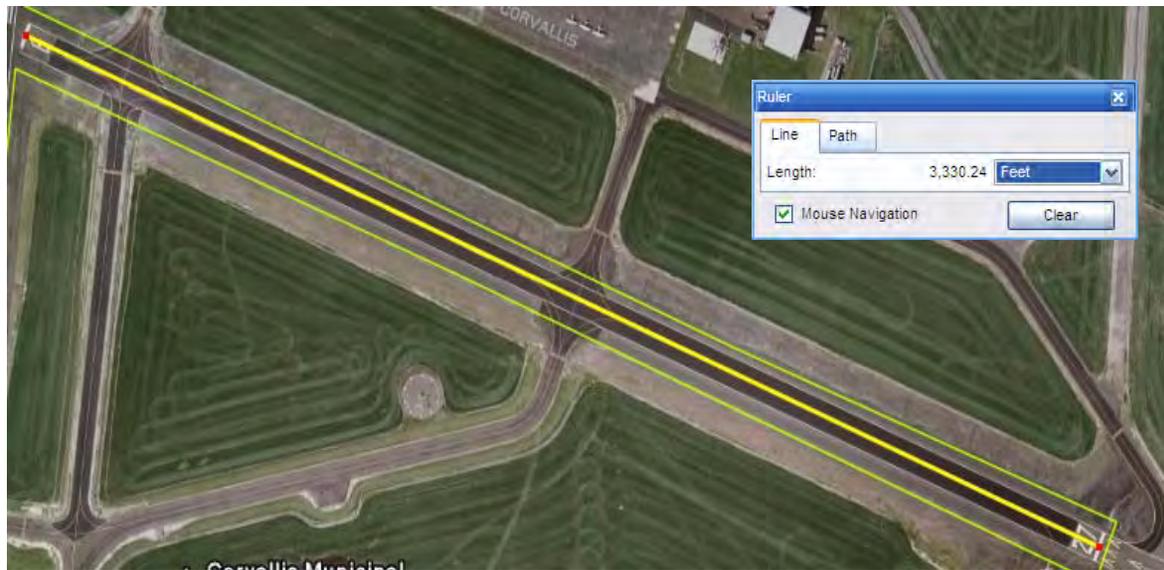


Types of Development Reported



Airports GIS

- Q. What's the length of this Runway?

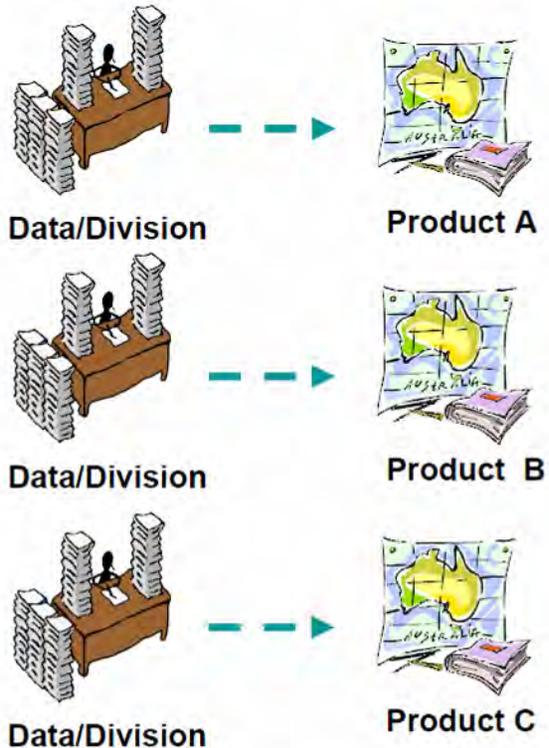


- A. The answer depends on who you ask.



Airports GIS

- **Aeronautical Data in the FAA Today?**
—“Product-centric”

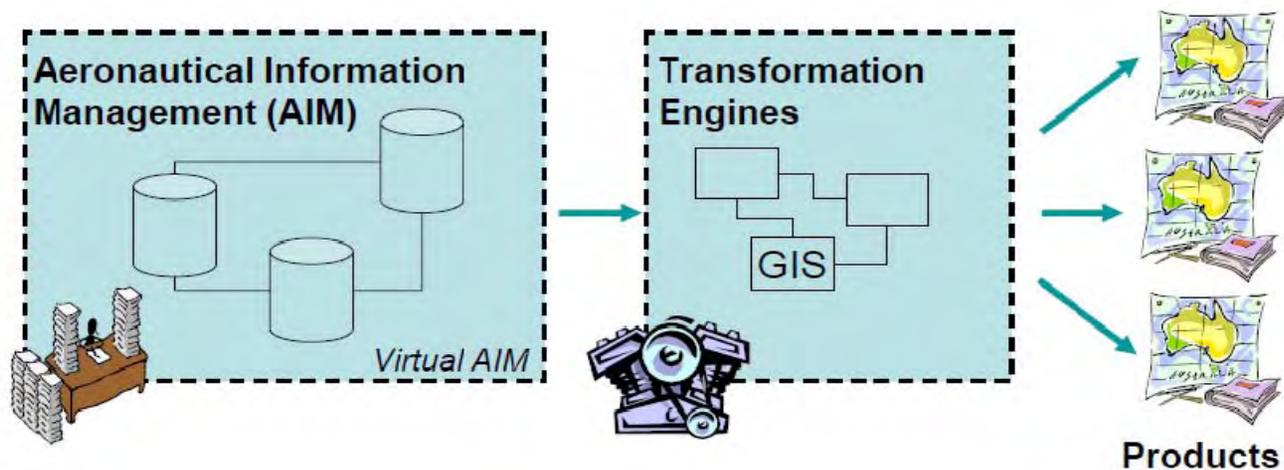


- **We produce a lot of great products:**
 - Aeronautical Charts.
 - Terminal Procedure Publications.
 - National Flight Data Digest.
- **But, in general, products have:**
 - Independent Data Stores.
 - Independent Production Steps.
 - Little Connectivity and Consistency.



Airports GIS

- **Aeronautical Data the way we want it?**
—“Data-centric”

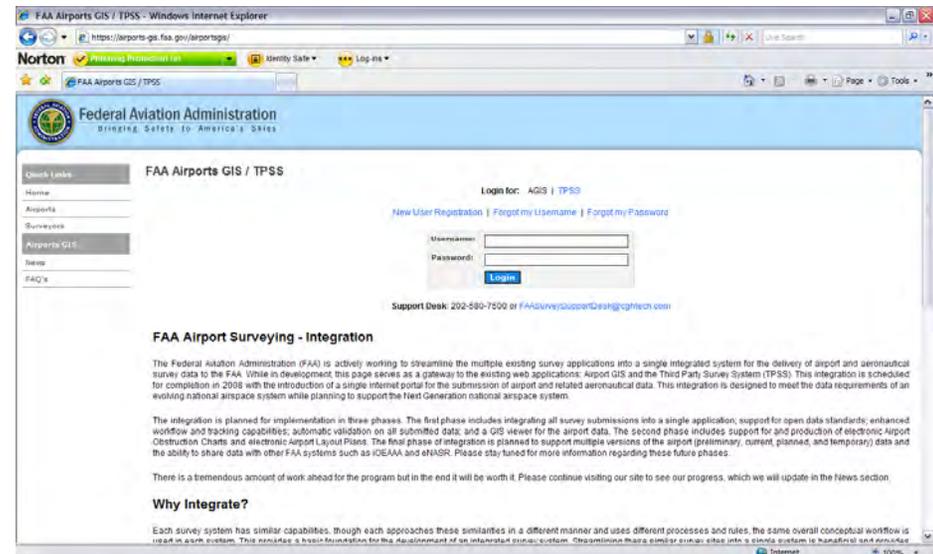


- **Produce products from a consistent data set.**
—“View” of Data.
- **Common data exchange standard makes AIM data virtualization possible.**



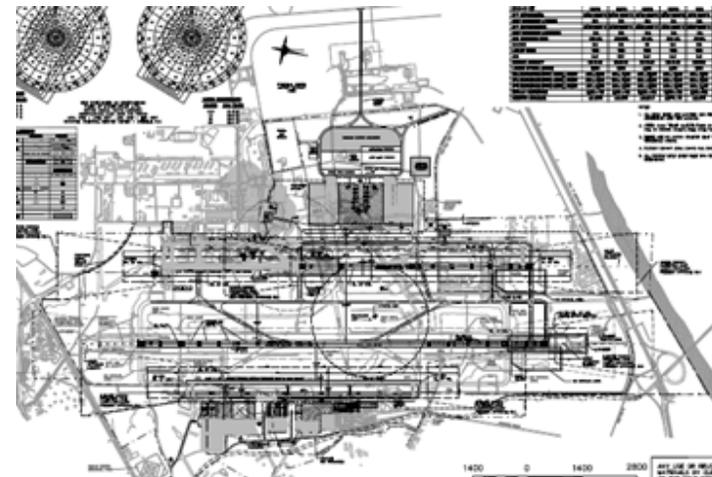
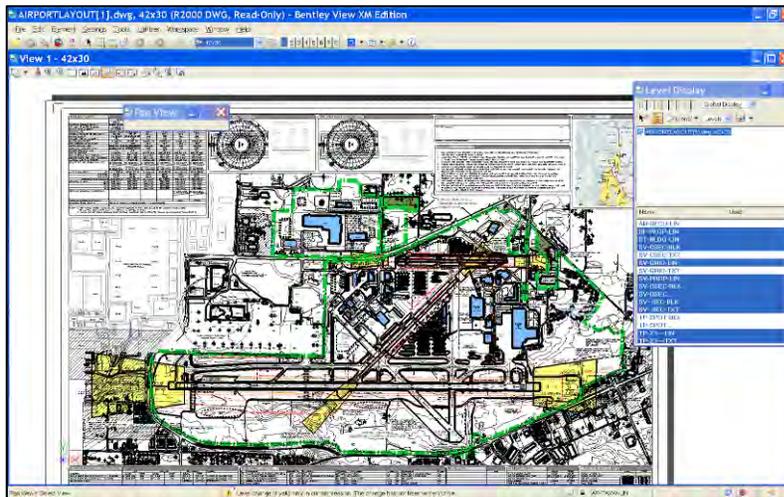
Airports GIS

- <https://airports-gis.faa.gov>
- 3 Advisory Circulars
 - AC 150/5300-16
 - AC 150/5300-17
 - AC 150/5300-18B (Draft)



Airports GIS/eALP

- What is the FAA's version of an electronic ALP?
 - CADD version?
 - .pdf version?



Airports GIS/eALP

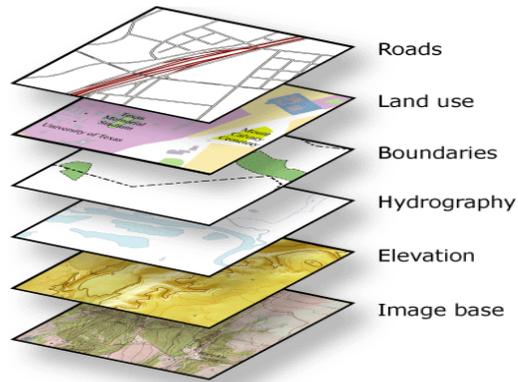
- Application of Airports GIS.
 - Evolutionary Change.
 - Ease of Viewing.
 - New tools.

5.5.2. Obstacle

Definition: All fixed (whether temporary or permanent) and mobile objects, or parts thereof, located on an area intended for the surface movement of aircraft, penetrating an Obstruction Identification Surface (OIS), or selected as a representative object. Use this feature for modeling linear objects as obstacles.				
Feature Group	Airspace			
Feature Class Name	Obstacle			
Feature Type	Point			
CADD Standard Requirements				
Layer/Level	Description			
C-AIRS-OBST-LINE	Airspace obstruction - Line			
C-AIRS-OBST-PPNT	Airfield obstruction			
	Color	Line type	Line Weight	Symbol
AutoDesk Standards	2	Continuous	1	User Defined
MicroStation Standards	4		7	
Sensitivity	Confidential			
Equivalent Standards	AIXM	Obstacle	Extension	
	FGDC	Obstacle	Extension	
	SDSFIE	None		
Documentation and Submission Requirements	No documentation is required for this feature.			
Related Features				
Data Capture Rules: Use the Obstacle feature type for point or line features penetrating an Obstruction Identification Surface (OIS) or selected as a representative object. Model line features as points representing the vertices of the line.				
Monumentation	No monumentation required.			
Survey Point Location	Horizontal		Vertical	
	Center of the object		Highest point	
Accuracy Requirements (in feet relative to the nearest PACS, SACS, HRP or TSM)				
Runways Supporting Vertically Guided Operations				
	Horizontal	Vertical		
		Orthometric	Ellipsoid	AGL
Vertically Guided Runway Primary Surface (VGRPS)	± 20	± 3	± 3	± 10



Airports GIS/eALP

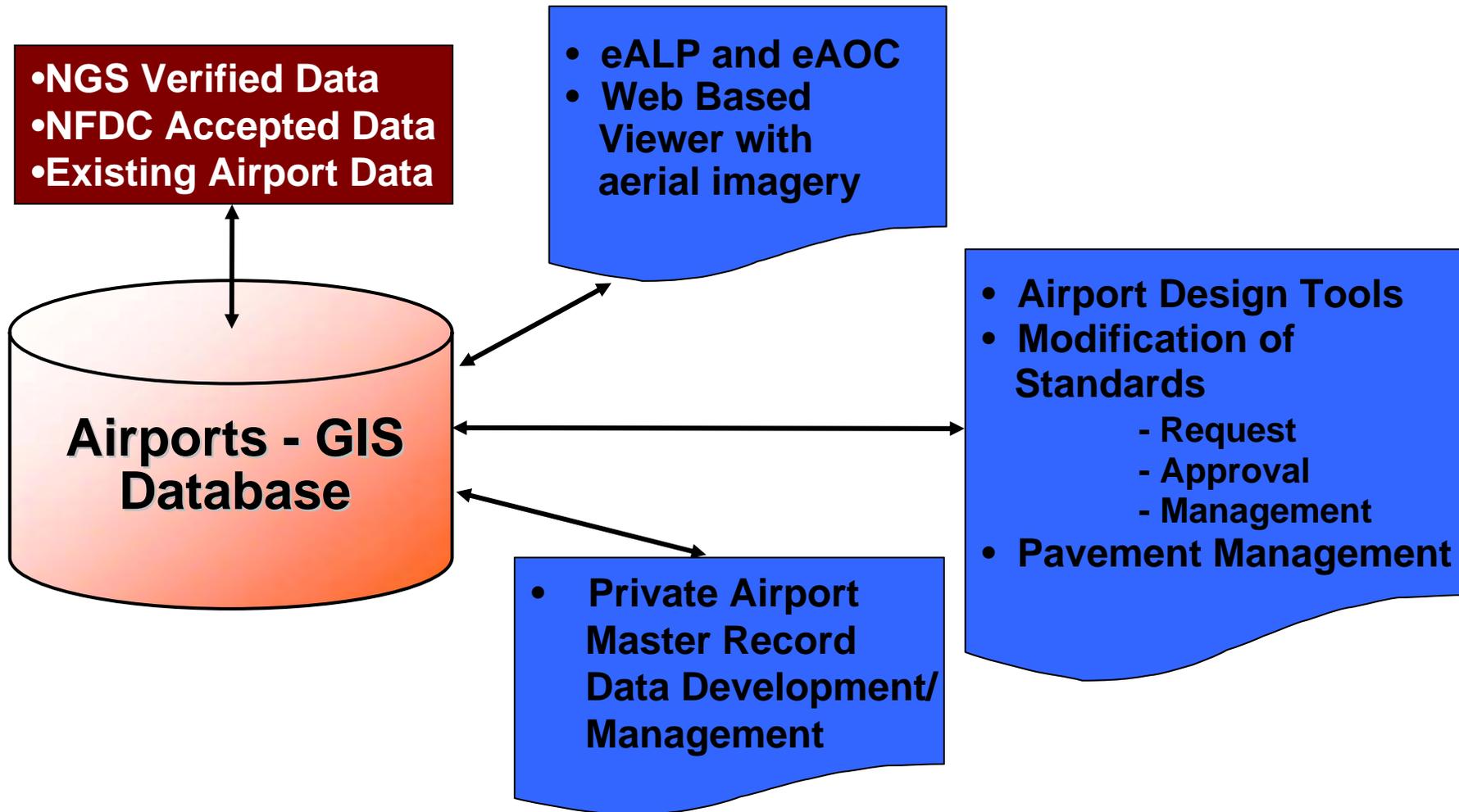


- Approach Procedures
- Environmental Analysis
- Airport Design
- Utility Management
- Wildlife Strikes
- Moving Maps
- SMS
- Grant Applications / ACIP and graphics

- Airport and System Planning
- NAVAID Establishment
- Ground Transportation
- Land Use
- Noise Monitoring
- Property Management
- FAA & Industry Publications
- ATCT Procedures
- Simulation & Training
- Pavement Management
- Obstruction Evaluation
- Airport Airspace Analysis
- Construction Projects
- Aviation Notices (NOTAMP)



Airports GIS/eALP



Airports GIS/eALP

- Q. What's the length of this Runway?

FAA Airports GIS / TPSS - Microsoft Internet Explorer provided by Office of Airports

Address: <https://airports-gis.faa.gov/airportsgis/>

Federal Aviation Administration
Bringing Safety to America's Skies

Quick Links
Home
Airports
Surveyors
Airports GIS
Newsletters
FAQ's

AIP Grant: AIP No. 3-06-0221-40
Name: Rehabilitate Apron
Material: Asphalt
Area: 11,243 SY
Status: Completion date 10/2009

Element: Runway
Attribute: Runway
Threshold Runway End: 19R
NAVD 88 Elevation: 8.8'
Length: 7,500'
Width: 200'
Degrees-Minutes-Seconds (NAD83 DMS)
Lat. 37 deg 37' 37.94" N
Long. 122 deg 22' 12.44" W

Element: NAVAID
Attribute: VOR/DME
Frequency: 115.80
Operator: FAA
NAVD 88 Elevation: 13'
Lat. 37 deg 37' 10.136"N
Long. 122 deg 22' 26.008"W

AIP Grant: AIP No. 3-06-0221-40
Name: Rehabilitate Runway
Material: Asphalt
Status: Completion date 10/2009



Airports GIS/eALP

- **Current Status**

- **3 Advisory Circulars.**

- https://airports-gis.faa.gov/airportsgis/public/surveyors_intro.jsp

- **FAA Airports GIS / TPSS website available and accepting data.**

- www.airports-gis.faa.gov

- **FAA Group working on web-based electronic Airport Layout Plan.**

- **GIS Sessions Tomorrow!!!**



Benefit Cost Analysis

- **Navigational Aids (NavAIDS)**
 — **BCAs required per FAA Order 5100.38C (AIP Handbook)**

Table 7 Limitations on AIP-Funded Airport Navigation Aid Equipment

EQUIPMENT	F&E	PRINCIPAL STANDARD	OPI ROUTING	BCA	RMM	TAKEOVER
<i>Airport Rotating Beacon</i>	No	AC 150/5340-21	AAS-100	No	No	No
<i>Precision Approach Path Indicator (PAPI)</i>	Yes	Title 49 U.S.C., §47101f, AC 150/5345-28, AC 150/5345-52	AAS-100	Yes	No	No
<i>Visual Glide-Slope Indicator</i>	No	AC 150/5345-52	AAS-100	Yes	No	No
<i>Runway End Identifier Lighting System (REILS)</i>	Yes	Title 49 U.S.C., §47101f, AC 150/5340-14	AAS-100	Yes	No	No
<i>Omni-Directional Approach Lighting System (ODALS)</i>	Yes	Title 49 U.S.C., §47101f, AC 150/5340-14	AAS-100	Yes	No	No
<i>Medium-Intensity Approach Lighting System (MALS)</i>	Yes	Title 49 U.S.C., §47101f, AC 150/5340-14	AAS-100, AND-740	Yes	No	No
<i>Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)</i>	Yes	Title 49 U.S.C., §47101f, Contact OPI	AAS-100, AND-740	Yes	Yes	Yes (if associated with an ILS)
<i>Approach Lighting System with Sequenced Flashing Lights (ALSF)</i>	Yes	Title 49 U.S.C., §47101f, Contact OPI	AND-740	Yes	Yes	Yes (if associated with an ILS)



Benefit Cost Analysis

- **BCAs for Navigational Aids:**
 - Three requirements for AIP eligibility:
 - Positive BCA.
 - Decrease in Published Minimums.
 - 300 or more Annual Instrument Approaches, or 2,725 Annual Passenger Originations.
 - There is not a standard FAA model for single NavAID BCA.



Benefit Cost Analysis

- **Focus on the marginal increase in safety**
 - i.e. How many additional aircraft can operate at the airport if the minimums were lower.
- **Life Cycle is typically considered 15 years.**
- **Include at a minimum:**
 - **Safety Improvements – Benefits from avoiding serious injuries, minor injuries, destroyed aircraft and damage aircraft.**
 - **Flight Disruptions Avoided**
 - **Costs of disrupted flights.**



Conclusions

- **Checklist is required for all requests for HQ review.**
- **Clarification of Planning roles available on FAA Great Lakes Airports Website.**
- **2009-20013 NPIAS Report Update sent to Congress on September 30, 2008.**
 - **Development Needs have risen to \$49.7 Billion**
 - **Increase in Reconstruction, Standards and Terminal needs.**
- **GIS/eALP Implementation.**
 - **3 AC's on Aeronautical Survey Specifications.**
 - **GIS/TPSS Website available**
 - **eALP application within the GIS is on it's way in 2009.**
- **Three Requirements for NavAids**



Thank you!

Questions?

Paul Lo
Regional Planning Specialist
Airports Division, Great Lakes Region
(847) 294-7529
paul.lo@faa.gov

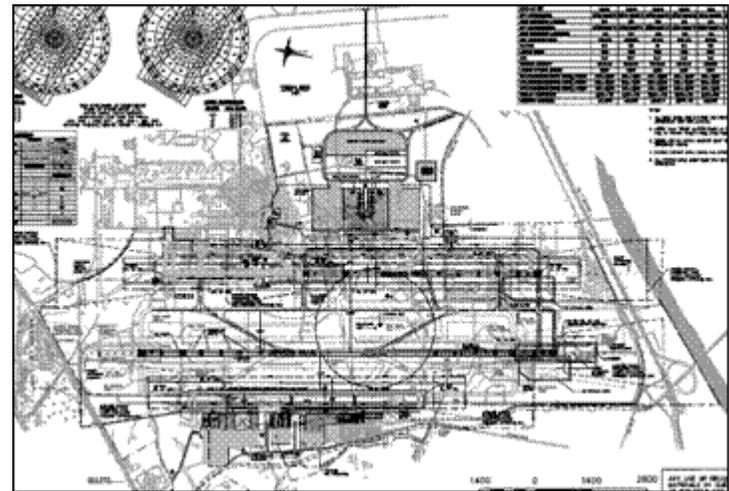


**Federal Aviation
Administration**



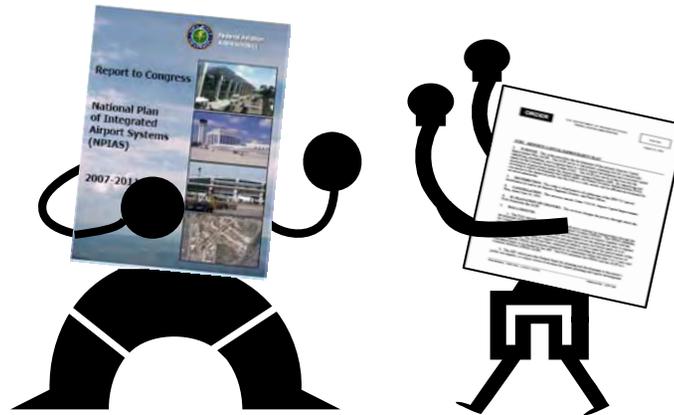
Primary Purpose of the NPIAS Report

- Reports on the condition and performance of the airport system.
- Identified significant airports and their roles.
- Identifies funding needs.
- Used by the FAA in administration of the Airport Improvement Program.
- Supports the FAA goals by identifying specific eligible and justified airport improvements without cost constraints.
- Identifies projects for inclusion in the Airports Capital Improvement Plan (ACIP).



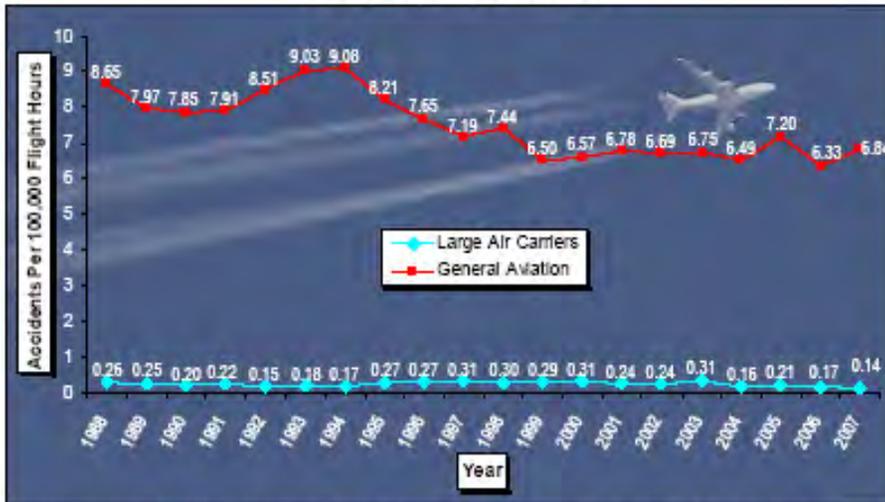
NPIAS vs. ACIP

- The Airports Capital Improvement Plan (ACIP) is a plan of airport expenditures for the upcoming 3 fiscal years.
- Is more detailed than the NPIAS
- Is financially constrained.
- Projects have a higher degree of certainty.
- Helps the FAA determine the highest priority projects to be funded.
- Cannot be disclosed prior to Congressional notification.



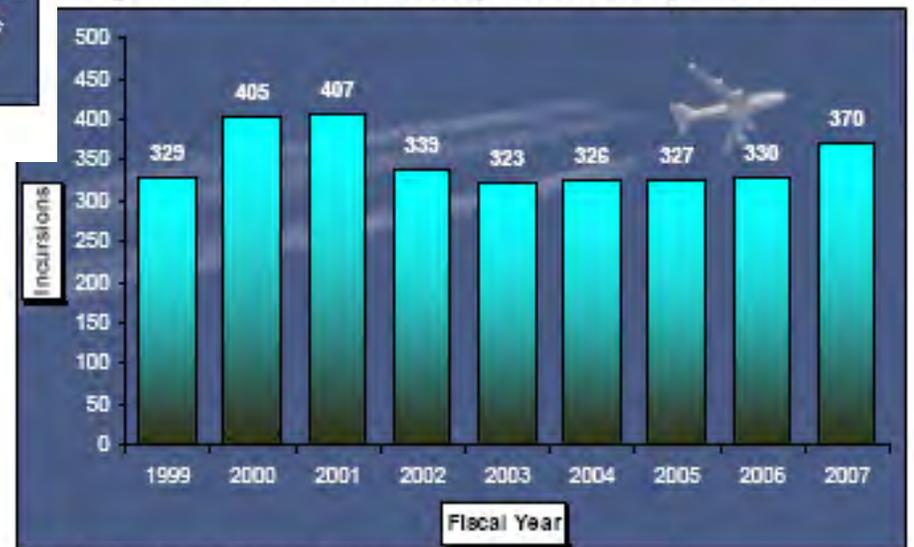
Available Data

Figure 10: Accident Rates



Source: National Transportation Safety Board Aviation Accident Statistics (Tables 5 and 10 available at <http://www.ntsb.gov/aviation/Stats.htm>).

Figure 11: Number of Runway Incursions by Fiscal Year



Source: FAA Office of Runway Safety



Available Data

Figure 13: Population Expected to Benefit from Noise Funding
Fiscal Year 2003 through 2010

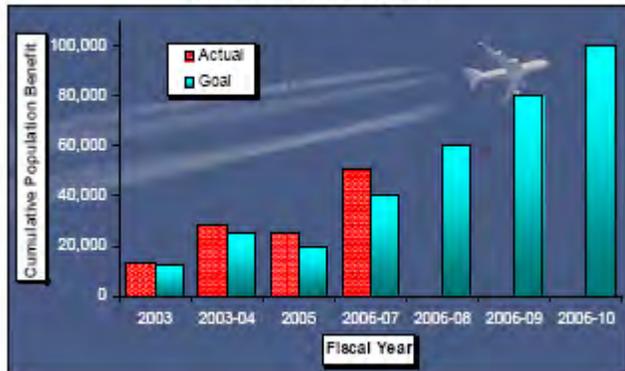
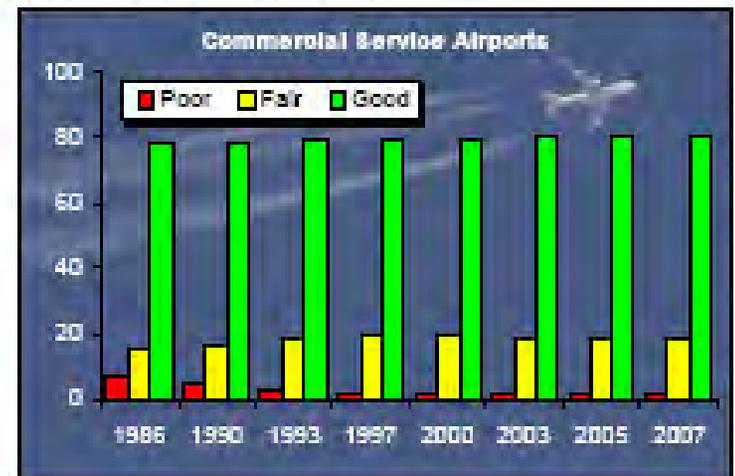
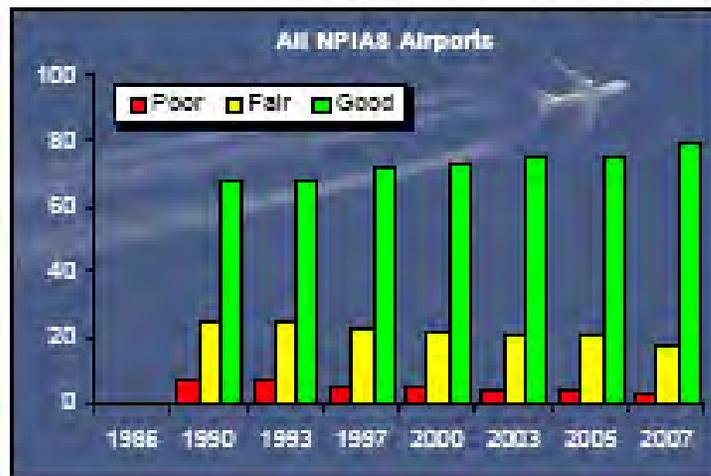


Figure 14: Runway Pavement Condition (2007)³³



Airports GIS

- EXAMPLE OF GIS View

