GIS for Airport Land Use Compatibility Planning Aircraft Noise / Airspace Obstructions

[Airport Name]

[Date of Presentation]
Agenda

• Airport Overview
• How can GIS be used to help Airport, Community, and Regional Planners?
• How can GIS be applied for land use compatibility planning?
Airport Overview
How can GIS Help?

- Visualize aircraft noise impacts
- Proactively identify affected communities
  - Prioritize mitigation areas
- Create scenarios for flight paths
- Assess interactions between land use and flight paths
  - Highlight compatible and incompatible land uses
- Establish zoning restrictions around affected parcels
[airport code]’s Past

- Established in [year established]
- Primarily provided [early type of air service] to
  - [Destination/Market Region 1]
  - [Destination/Market Region 2]
  - [Destination/Market Region 3]
- [Original number and length of runways]
- Significant Milestones
  - [Milestone 1]
  - [Milestone 2]
  - [Milestone 3]
[airport code]’s Present

- Our Aircraft [total based aircraft]
- [Current number and length of runways]
- Passengers served [number of enplanements]
- Primary Destinations
  - [Destination/Market Region 1]
  - [Destination/Market Region 2]
  - [Destination/Market Region 3]
[airport code]’s Future

- The Trend is Clear
- Our Near Term Plans
  - [Initiative 2]
  - [Initiative 2]
  - [Initiative 2]
Our Community’s Past

• Our community was established [era when community was founded]
• Early settlers came from [origins early settlers]
• Growth was fueled by
  • [Economic Driver 1]
  • [Economic Driver 2]
  • [Economic Driver 3]
• Transportation played a major role
Our Community Today

- Population of [regional population]
- Early settlers came from [origins early settlers]
- Economy was driven by
  - [Economic Driver 1]
  - [Economic Driver 2]
  - [Economic Driver 3]
Our Community’s Future

• [Community Direction 1]
• [Community Direction 2]
• [Community Direction 3]
• [Community Direction 4]
• [Community Direction 5]
Aviation’s Fuels our Growth

Source: OEF 2005
How Can GIS Help
Land Use Compatibility Planning
Near Airports?
Why is Noise such a Concern?

- Annoying
- Distracting
- May be linked to increased health risks
- Reduction in property values
- Congress found\(^1\) that aviation noise is critical

\(^1\) 1990 Airport Noise and Capacity Act
How will I be Effected?

*The affect of RNAV-enabled departure tracks on local residential areas at DFW Airport*

Source: DFW Noise Compatibility, NextGen: New Technology for Improved Noise Mitigation Efforts
How Can GIS be applied to Land Use Compatibility Planning Near Airports?
How can GIS Help?

• Blending data from various sources to analyze:
  • Land Use
  • Flight Operations and Noise Impacts

• Aircraft Noise Data
  • Noise Monitoring Stations
  • Flight Tracks
  • Noise Contours

• Land Use Data
  • Land Cover
  • Land Use (existing & future)
  • Parcels
  • Zoning
GIS Data Sources

Aircraft Noise

- Noise Monitoring
  - Airport Derived Consultants
- Flight Tracks
  - FAA NAS 3rd Party Software
- Flight Procedures
  - Airport Derived
- Noise Contour
  - Airport Derived Consultants
GIS Data Sources

Land Use Planning

- Land Cover
  - NLCD Raster Data (2011)
- Land Use Existing & Future
  - County/City GIS
  - MPOs
  - Open Data Consortiums
- Parcels
  - County/City GIS
  - Tax Assessors
- Zoning
  - County/City GIS
GIS Data Sources

- Land Use Compatibility Data
  - Land Use Types
    - Recreation Areas
    - Parking Lots
    - Commercial Areas
    - Education Facility
    - House of Worship
    - Medical Facility
  - Land Cover Types
    - Water Bodies
    - Road Centerlines
GIS Functionality

- ArcGIS Pro & ArcGIS for Desktop
  - Mitigation Strategies
  - Noise Contour Overlays
  - Spatial Analysis of Noise and Tracks

▲ Spatial Analysis of Flight Tracks and Aircraft Noise Impacts using ArcGIS Pro
Source: SonAIR
GIS Functionality

- Applications
  - Tracking Flight Tracks Real-time
  - Mitigating Noise Impacts
  - Querying Results
- PDFs
- Maps

▲ Noise Mitigation Application showing Noise Contours and Properties receiving Mitigation

Source: BCAD / FLL Airport