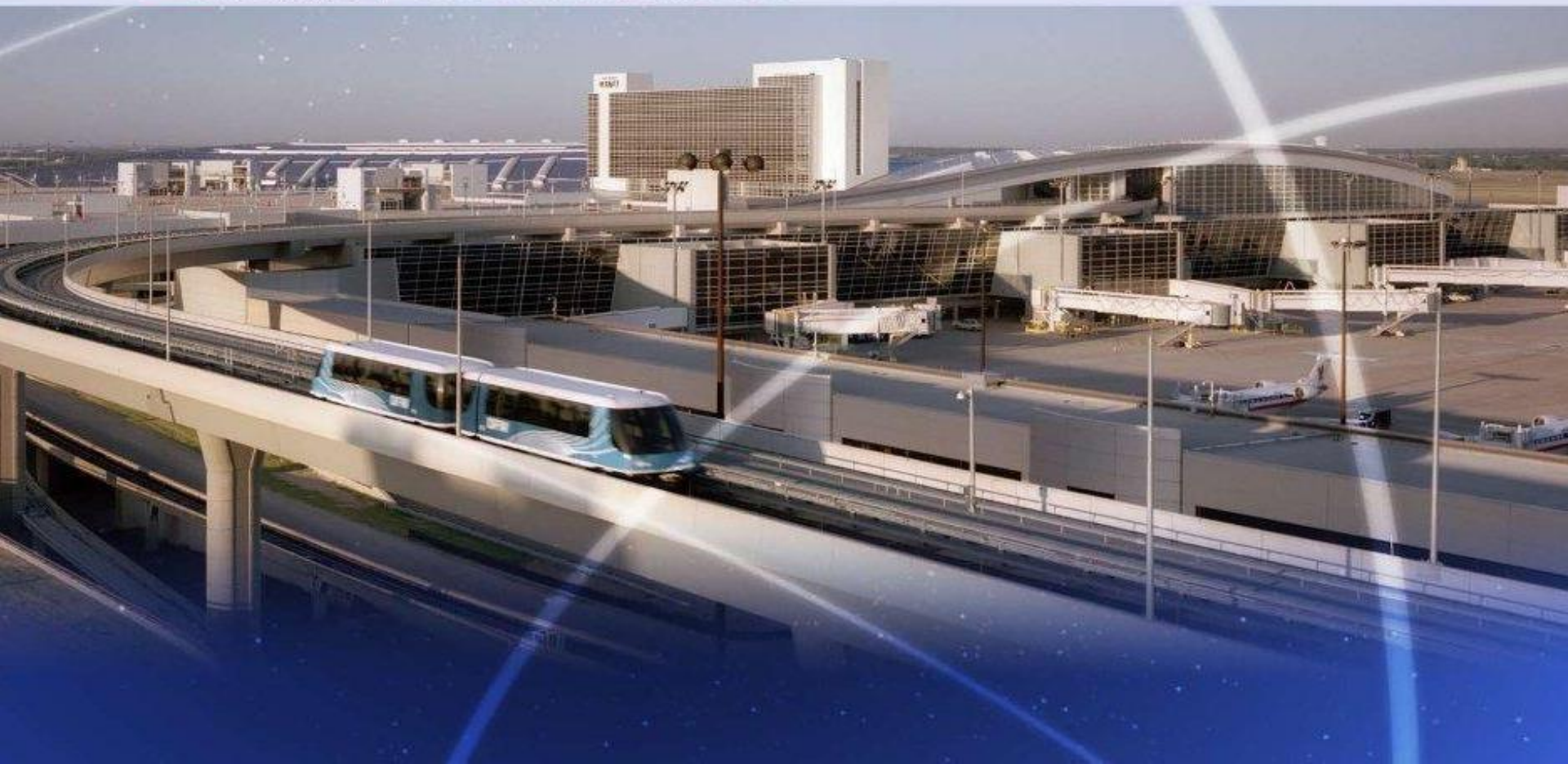




DALLAS/FORT WORTH INTERNATIONAL AIRPORT

The World Connected





Running an Airport While Being a Good Neighbor The DFW NCO, Its Role and Initiatives

International Facility Management Association – Airports Council – Spring Conference

Harvey Holden
Noise Compatibility Planner
Dallas/Fort Worth International Airport
May 13, 2015

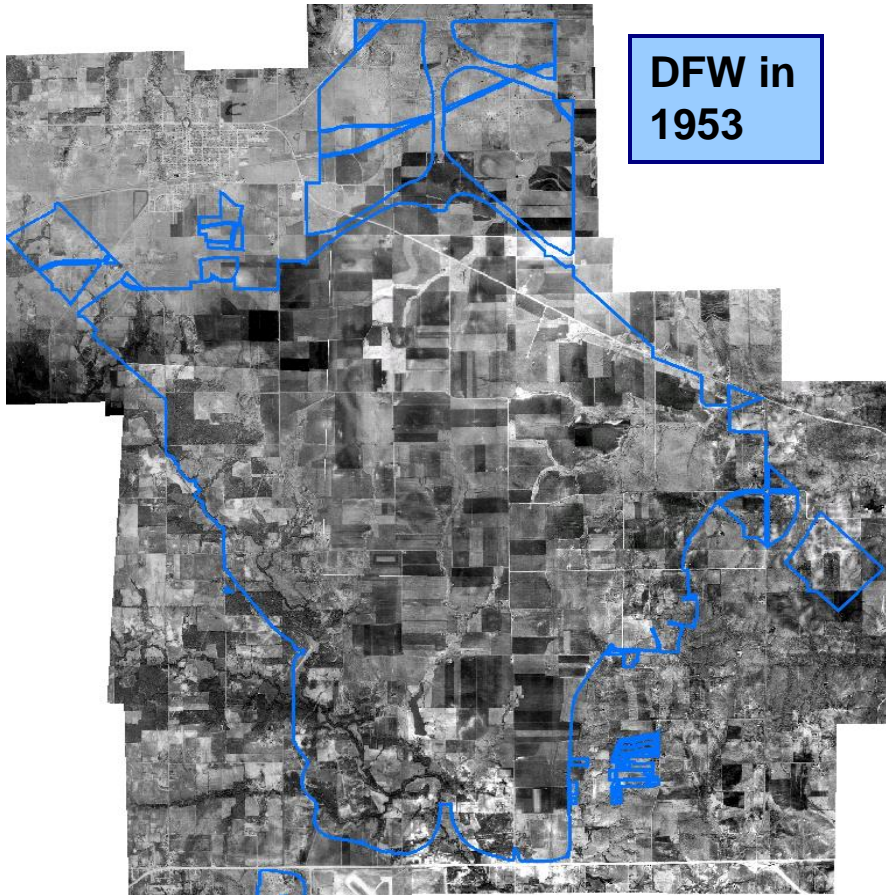


The Noise Compatibility Office (NCO) and its Role as Flight Monitor and Partner with DFW's Neighbors

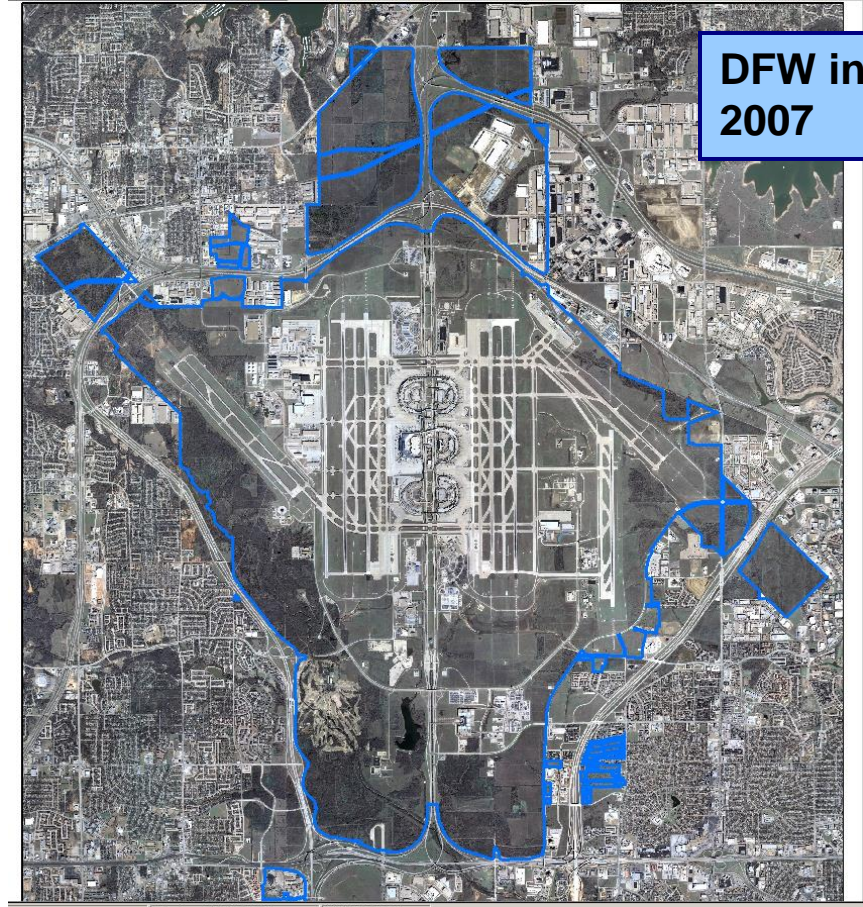
The 3 Part Presentation

1. Context: Value Added by DFW to a Partnership
2. Regulatory Functions of the Noise Office: Surveillance and Land Use, and More
3. Principal Function in Practice: Education to Support Partnering

DFW opened in 1974 and was one of the last “Greenfield” Airports

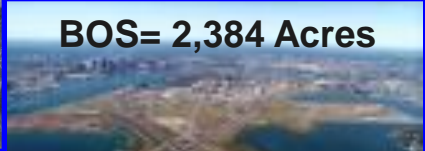
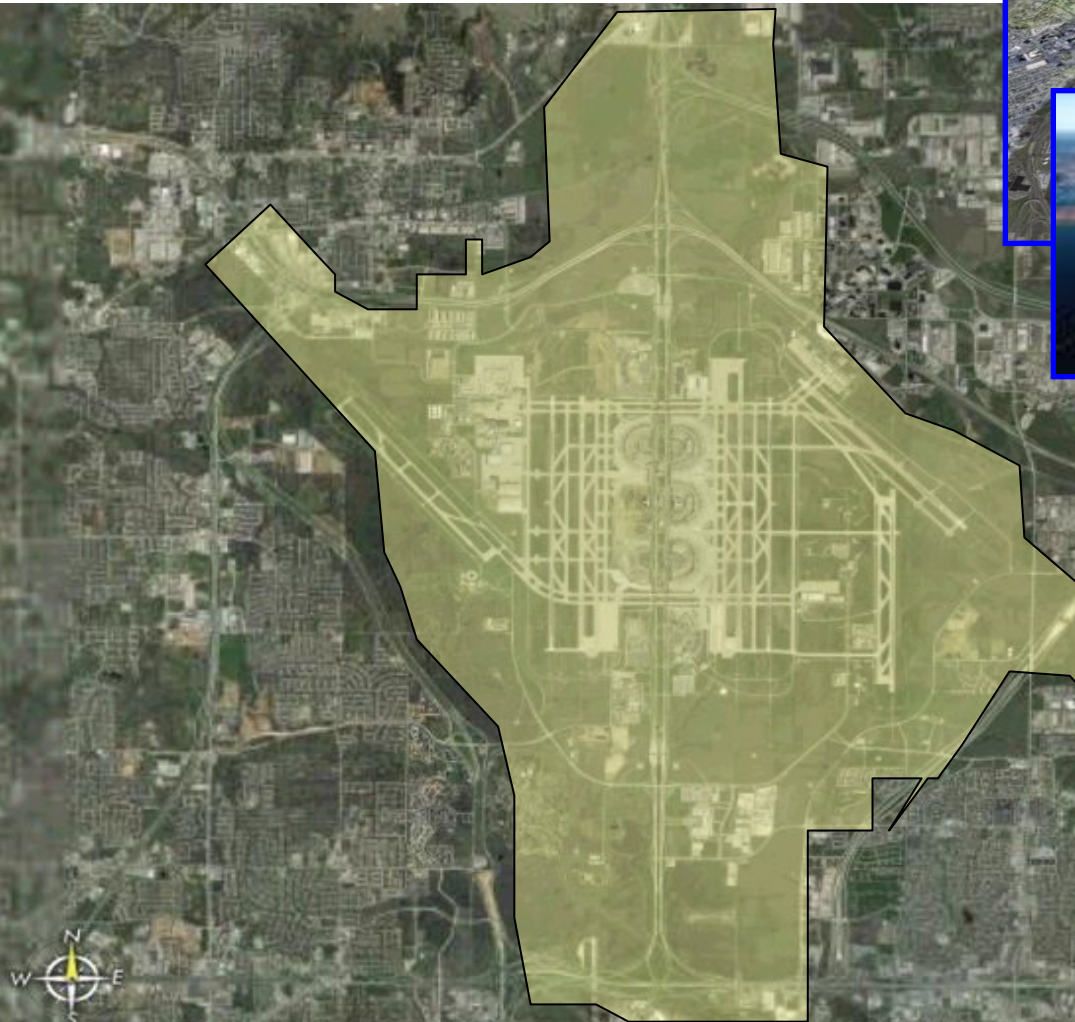


Primarily agrarian, post WWII expansion, air service dispute between two biggest cities, SW Regional stillborn.



About 50 years later, site occupied by a major player among the greatest airports on the planet.

DFW has over 17,000 Acres -- Everything is **BIG in Texas!**



JFK	5,200 Acres
La Guardia	680 Acres
Newark	2,027 Acres
Boston	2,384 Acres
BWI	3,160 Acres
LAX	3,500 Acres
Total:	16,951 Acres

DFW still larger in land
mass

DFW: Connecting The World – The Power Plant that Makes it Happen

In 2014 DFW ranked 4th busiest in the world with nearly 680,000 arrivals & departures. In ACI's 2015 Preliminary Report, DFW's air ops have surged & it is currently 3rd busiest.

- 7 Runways
- 24-hour Operations
- No Slot Constraints
- No Curfews

- 5 Terminals
- 165 Total Gates
- Capable of 4 simultaneous landings
- Over 17,000 acres

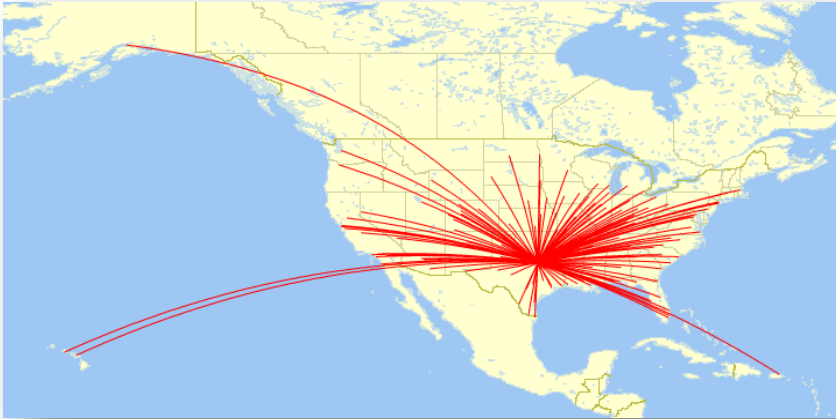


Fort Worth



Dallas

DFW: Connecting The World – Expanding Domestic and International Destinations



149 non-stop destinations in the U.S., allowing travelers access to every major continental U.S. city within four hours.



55 non-stop international destinations including 18 new international routes in the past four years



International cargo service to 17 major cargo hubs



DFW: Connecting The World – Economic Impact

DFW Airport is a magnet for business in the Dallas-Fort Worth region.

\$31.6 Billion

Economic Impact Annually
(All Operations)

\$16.7 Billion

Cargo Impact Annually
(Cargo Operations)

143,000

Jobs Supported

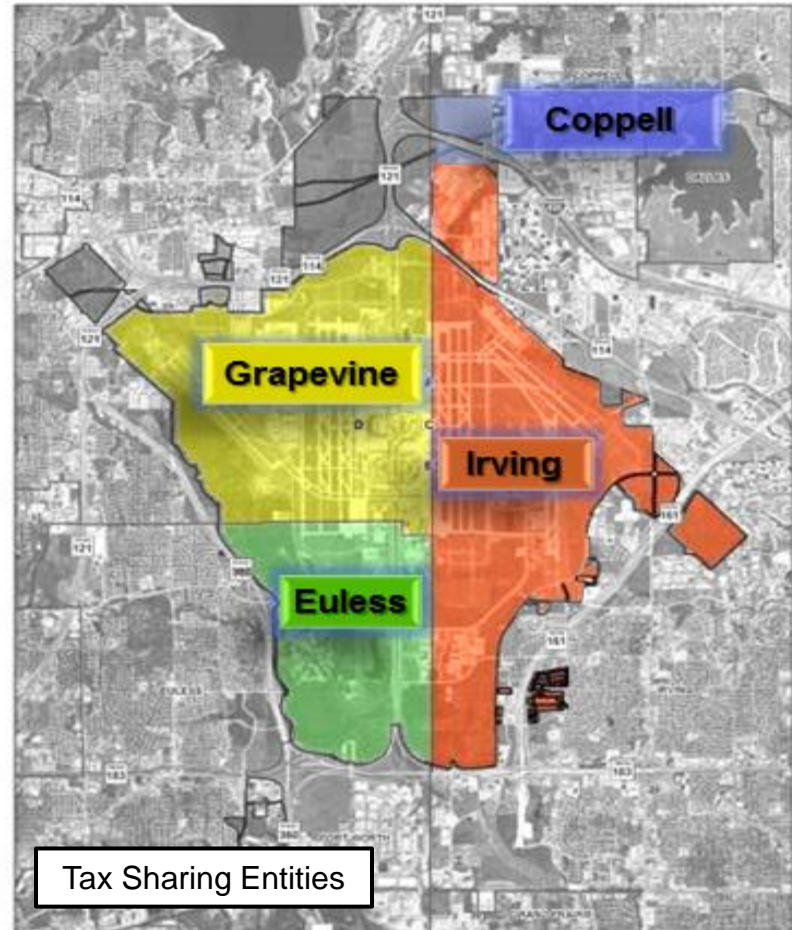
\$9.4 Billion

Supported Payroll

\$63 Million Annually

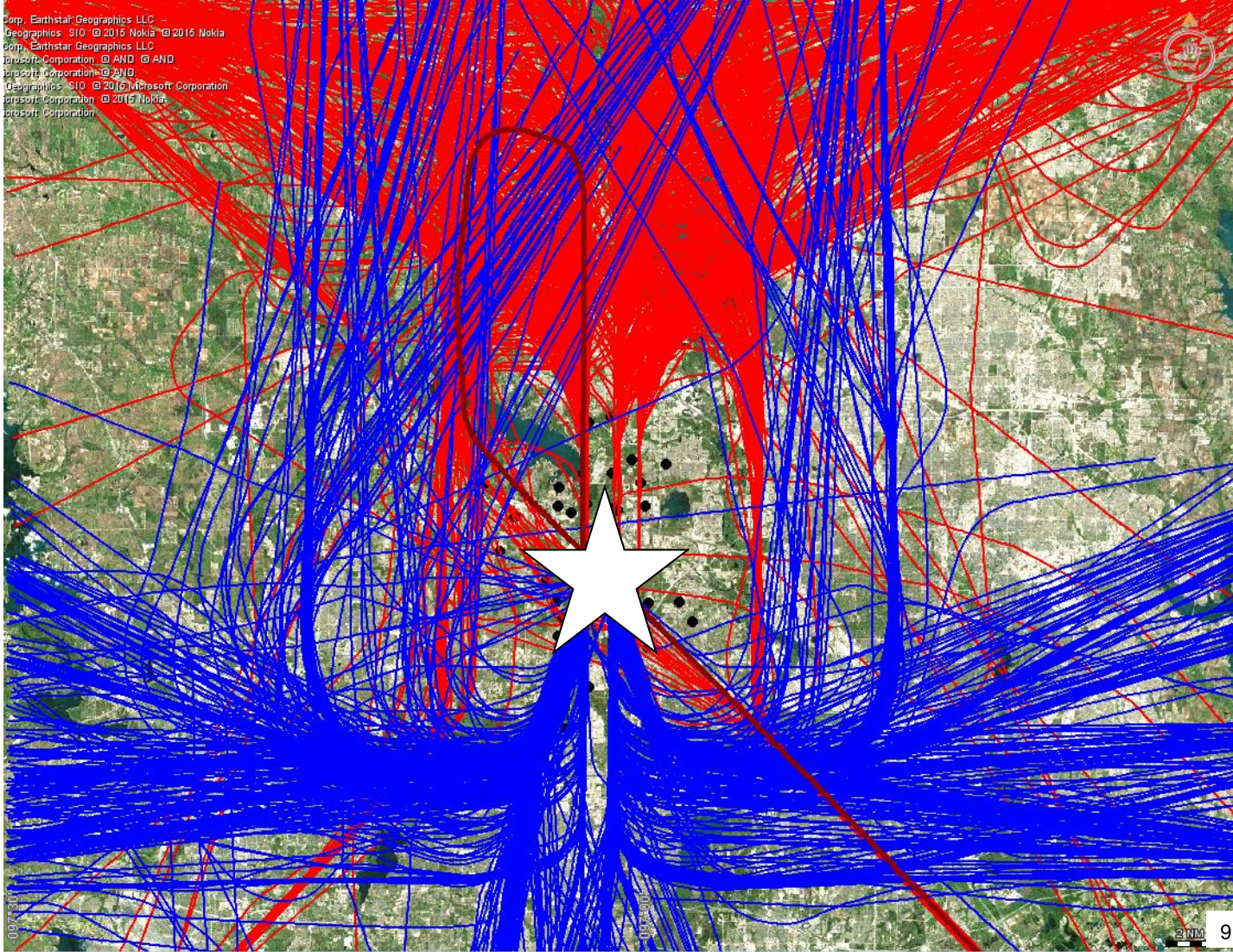
To Taxing Entities

DFW International Airport is the largest employer in Grapevine with more than half of the total employment base.)



Has the information you just received modified the way you think about DFW?

THE NCO, REGULATORY COMPLIANCE & MORE



NOISE COMPATIBILITY OFFICE

WHAT WE DO



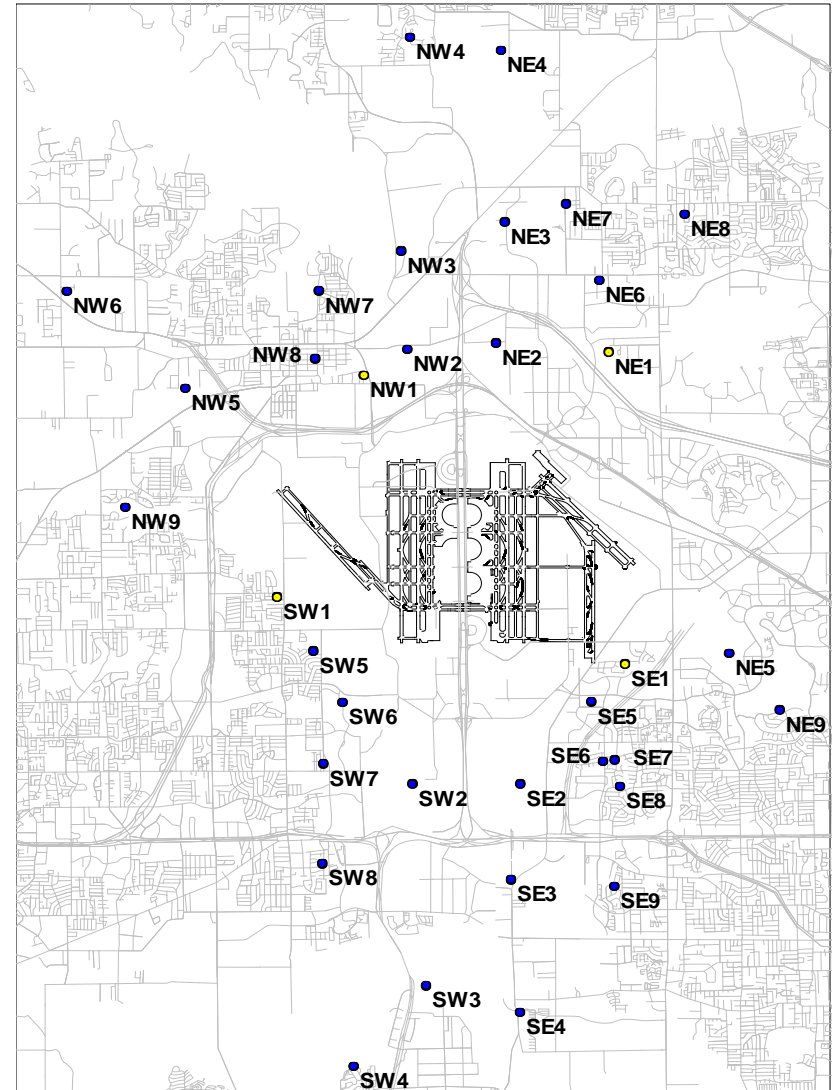
- MONITOR NOISE & FLIGHT TRACKS
- FOSTER LOCAL LAND USE COMPATIBILITY
- ACT AS A COMMUNITY RESOURCE (Like all airport employees we are educators. The NCO generally responds to questions re airport operations, noise, & related regulations, as well as complaints, inquiries, requests for airport use data)
- WORK WITH PARTNERS INCLUDING FAA, AIRLINES, AIRPORT OPERATIONS, AND THE COMMUNITIES. The NCO addresses the environmental impact of new flight procedures such as Performance Based Navigation (PBN) initiatives like RNAV & OAPM (Optimization of Airspace & Procedures in the Metroplex) initiatives, as well as FAA's Convergent Runway Operations (CRO) and AAL's Banking Initiative
- WORK WITH FAA AND INDUSTRY STAKEHOLDERS ON TECHNOLOGIES AND RESEARCH AIMED AT REDUCING AIRCRAFT NOISE AND ITS EFFECTS

NOISE MONITORING REQUIREMENT

- As part of the 1992 Final Environmental Impact Statement, FAA required DFW to:
 - Establish a permanent array of noise monitors to capture aircraft noise.
 - Establish an aircraft surveillance system.
 - Merge the two data streams to determine a quantifiable aircraft/noise component.
- DFW's has over 25 noise monitors in 10 cities and 3 counties.
- The measured, cumulative aircraft noise cannot exceed the 1992 baseline levels without triggered restrictions to aircraft operations and/or additional mitigation.
- DFW has monitored cumulative aircraft noise, 24/7, since 1998 to ensure it remains within prescribed limits.



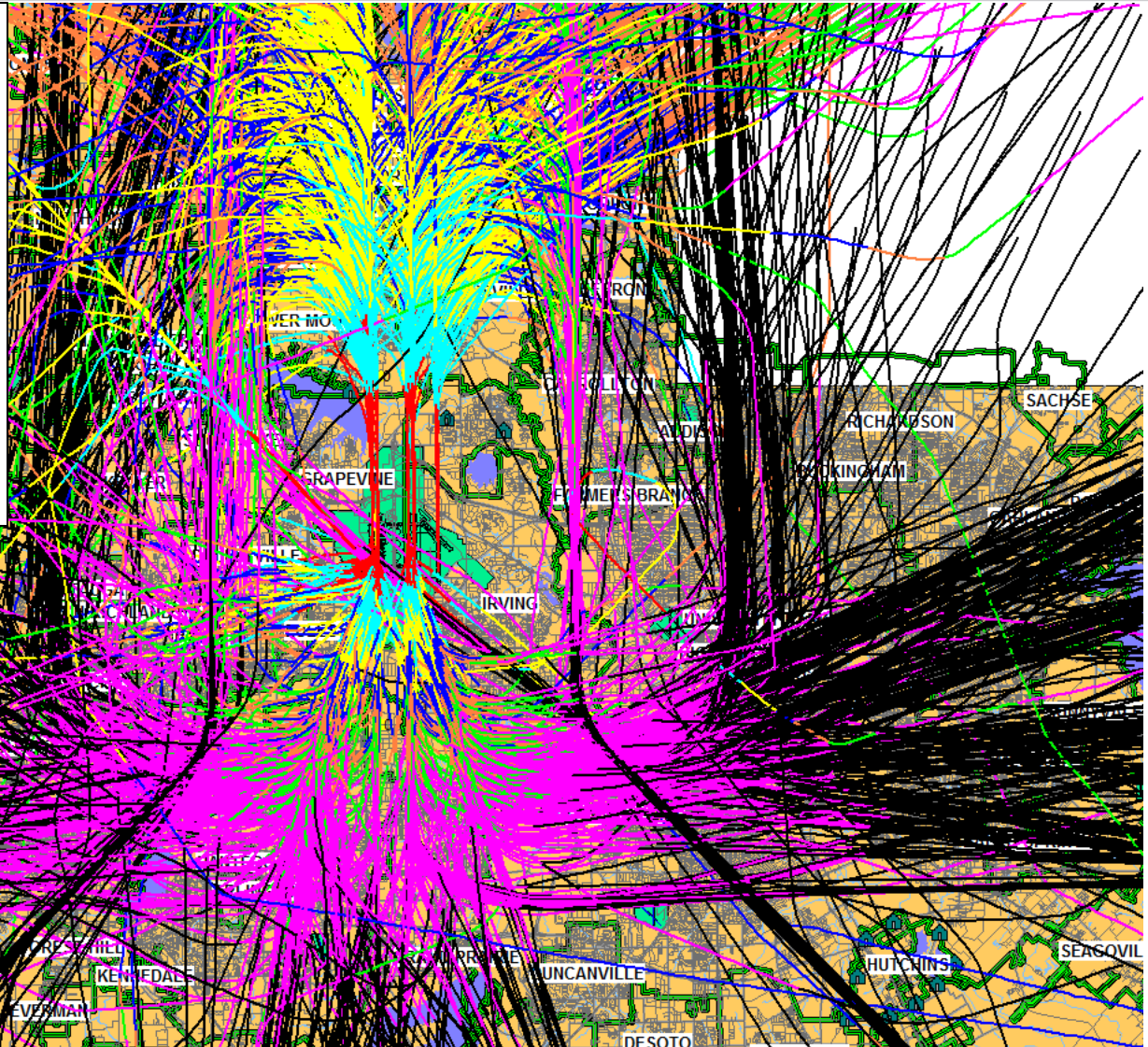
NOISE MONITORING EQUIPMENT



Flight Identification and Tracking

The Flight Identification and Tracking system consists of an entirely web-based data source and the software to display real time and archived data. The data line for each flight is extensive and updates many times a minute to provide current ID, altitude, speed and so forth.

The tracks in this graphic have been highlighted by altitude, and can be truncated at any selected level, producing a display useful to, among others, ornithologists and house hunters.



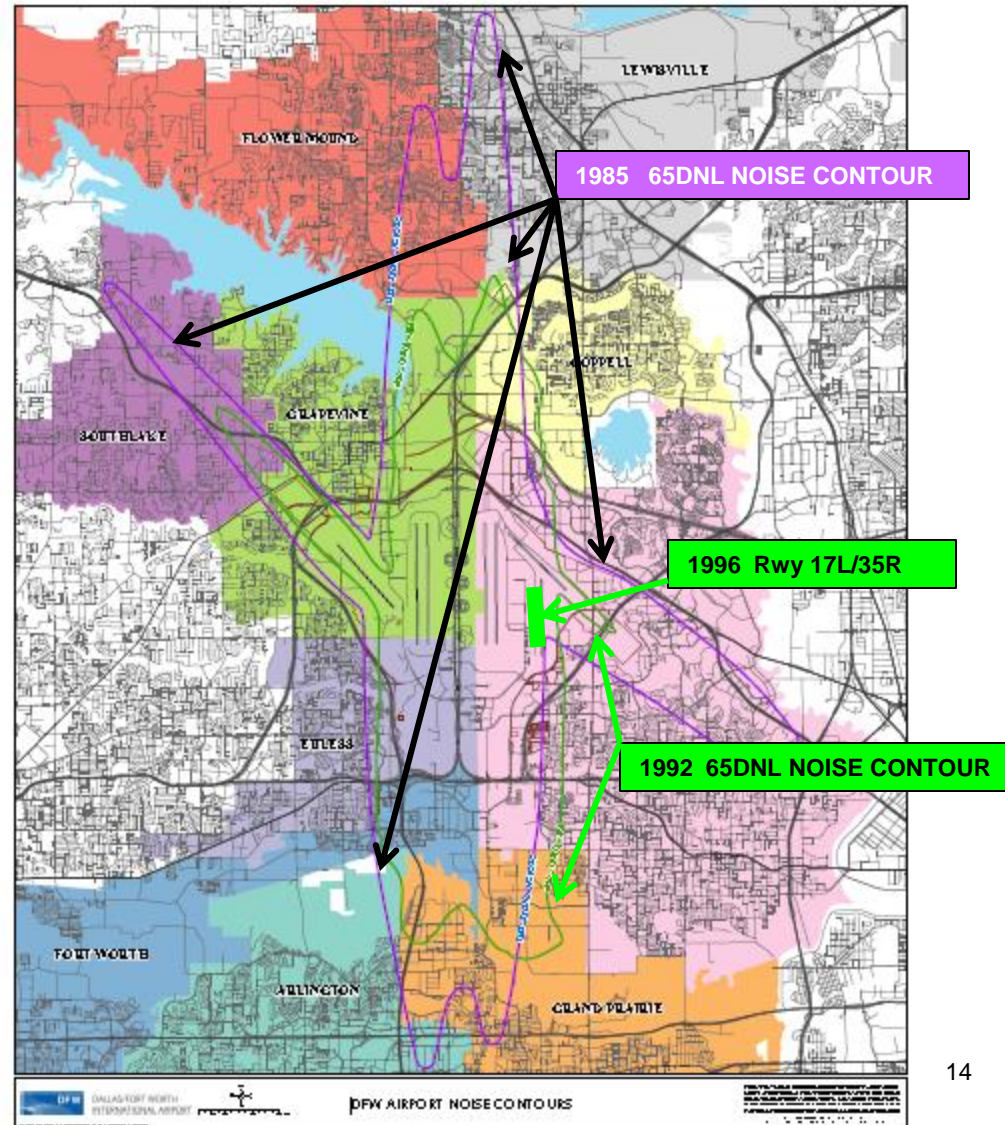
Alt - Feet

<input checked="" type="checkbox"/>	10500.00
<input checked="" type="checkbox"/>	7000.00
<input checked="" type="checkbox"/>	6000.00
<input checked="" type="checkbox"/>	5000.00
<input checked="" type="checkbox"/>	4000.00
<input checked="" type="checkbox"/>	3000.00
<input checked="" type="checkbox"/>	2000.00
<input checked="" type="checkbox"/>	0.00

8.00 Miles

COMPATIBLE LAND USE

- In exchange for receipt of Federal funds the FAA requires Assurances from the airport proprietor designed, in part, to protect the American Tax Payer's Investment.
- The NCO is tasked with ensuring DFW's compliance with Assurance 21 which states, in part, "It (the Airport Proprietor) will take appropriate action, to the extent reasonable,.....to restrict the use of land, adjacent to or in the **immediate vicinity** of, the airport, to activities and purposes compatible with normal airport operations...."



POLICY vs ACOUSTIC CONTOUR MAPS

Advantages/Disadvantages to Cities & Residential Purchasers

Compliance with Policy Contour Map

- Infrequent changes to policy map = infrequent changes to city zoning maps.
- Developers know the Policy Map is stable.
- All significant expansion and contraction of the acoustic contours at DFW have remained inside the official noise policy contour.
- Noise complaints come from outside the noise overlay. A bigger contour results in a smaller pool of complainants.

Compliance with Evolving Acoustic Contour Map

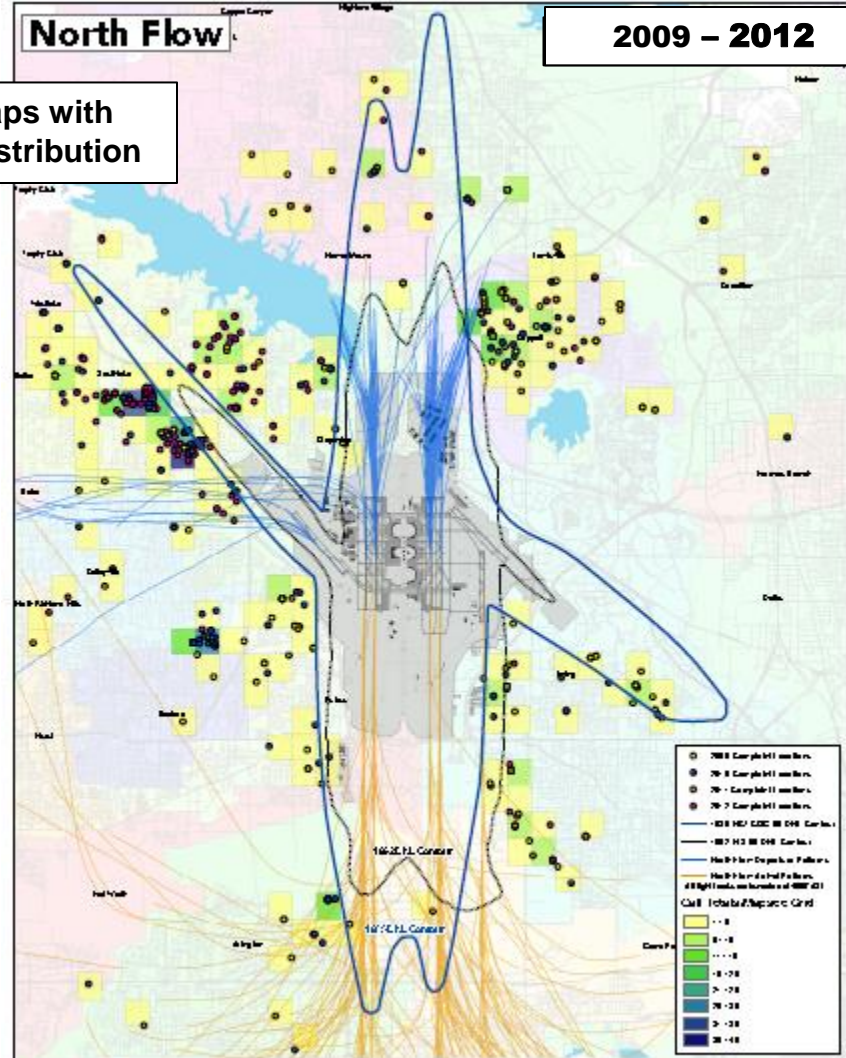
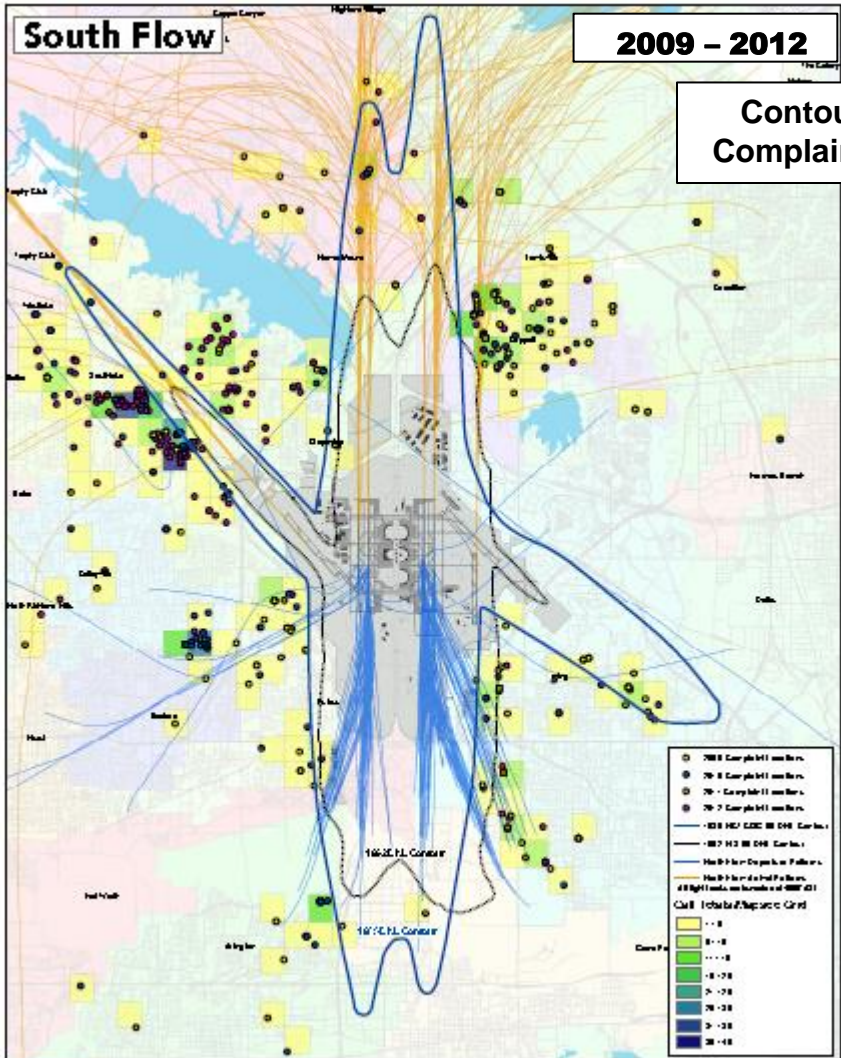
- City must “chase changing contours” with its zoning laws
- Developers protest that what was approved/disapproved last year was not this year.
- The purchaser of unmitigated home built following an ebb in the contour may have to pay for any mitigation should the acoustic contour expand outward again due to simple growth in air ops.
- Post construction mitigation is more expensive than initial construction mitigation.
- Noise complaints are likely to increase as home construction gets closer to runways & low altitude corridors.

Note: In either case, cities always retain the authority to grant waivers/variances.

In either case, the cities have an ally in rejecting an incompatible proposal.




In either case, the developer will not like the cost of mitigation, but he and the buyer are the ones who benefit from insulating a home within the 65DNL contour, not the airport, city, or tax payer.

Contour Maps with Complaint Distribution



Land Use Compatibility

- It is a federal requirement for DFW Airport to protect its arrival and departure corridors by taking all reasonable actions to discourage incompatible land use development.
- DFW and the neighboring cities have partnered for many years to identify potentially incompatible land use developments and ensure proper mitigation by the developer when appropriate. Mitigation typically includes:
 - Incorporating noise level reduction techniques into the construction;
 - Acquisition of aviation easements; and
 - Full public disclosure.

		55-65 DNL	65-75 DNL	75+ DNL
 Residential	1-2 Family	Yellow	Red	Red
	Multi-Family	Yellow	Red	Red
	Mobile Homes	Yellow	Red	Red
	Dorms, etc.	Yellow	Red	Red
 Institutional	Churches	Yellow	Red	Red
	Schools	Yellow	Red	Red
	Hospitals	Yellow	Red	Red
	Nursing Homes	Yellow	Red	Red
	Libraries	Yellow	Red	Red
 Recreational	Sports/Play	Yellow	Yellow	Red
	Arts/Instructional	Yellow	Red	Red
Commercial	Camping	Yellow	Yellow	Red
Commercial	All Uses	Yellow	Yellow	Yellow
Industrial	All Uses	Yellow	Yellow	Yellow
Agricultural	All Uses	Yellow	Yellow	Yellow

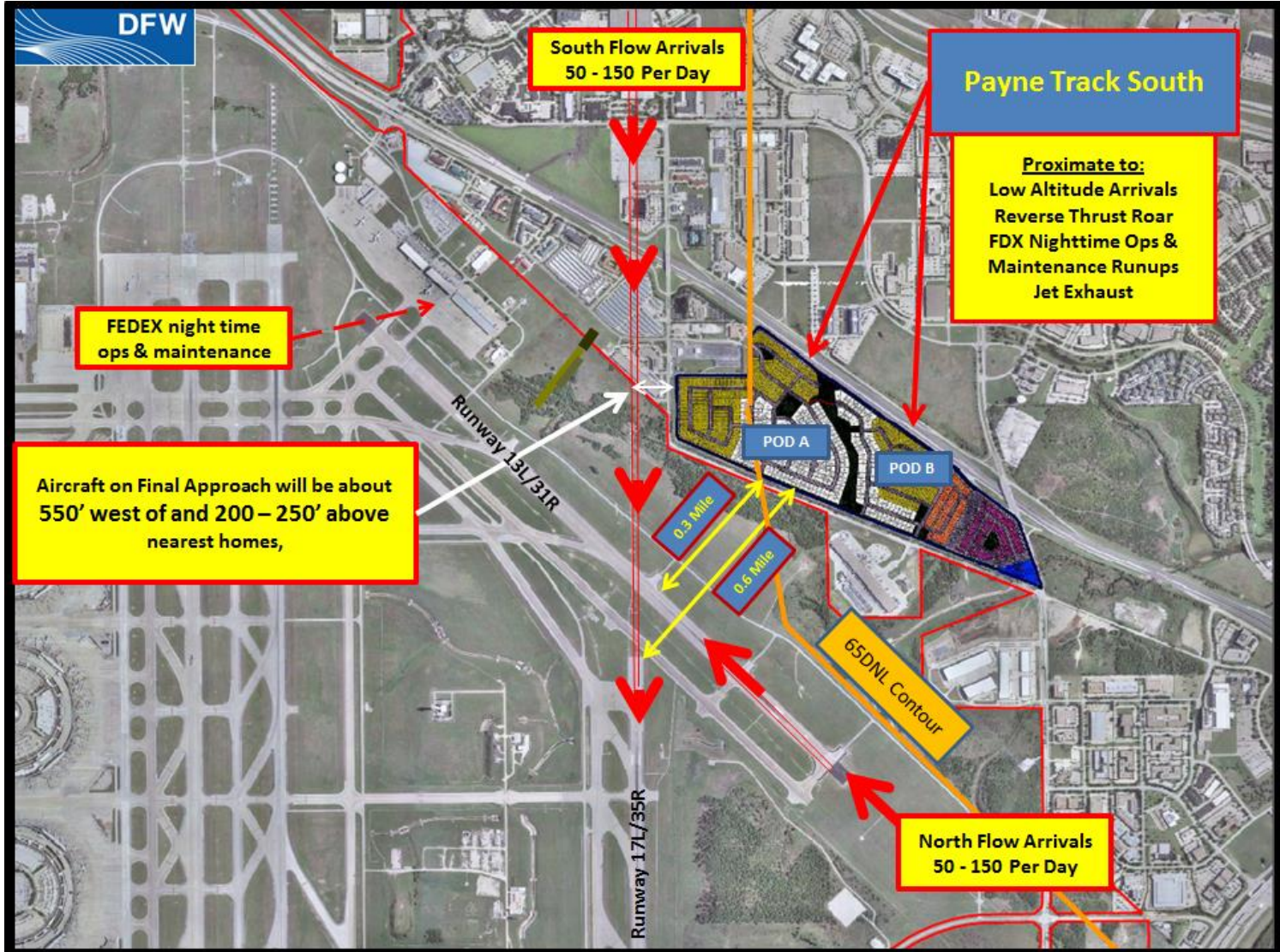
PER FAR PART 150	COMPATIBLE	Yellow
	INCOMPATIBLE	Red

Southlake Land Use Proposals Acted Upon by the NCO



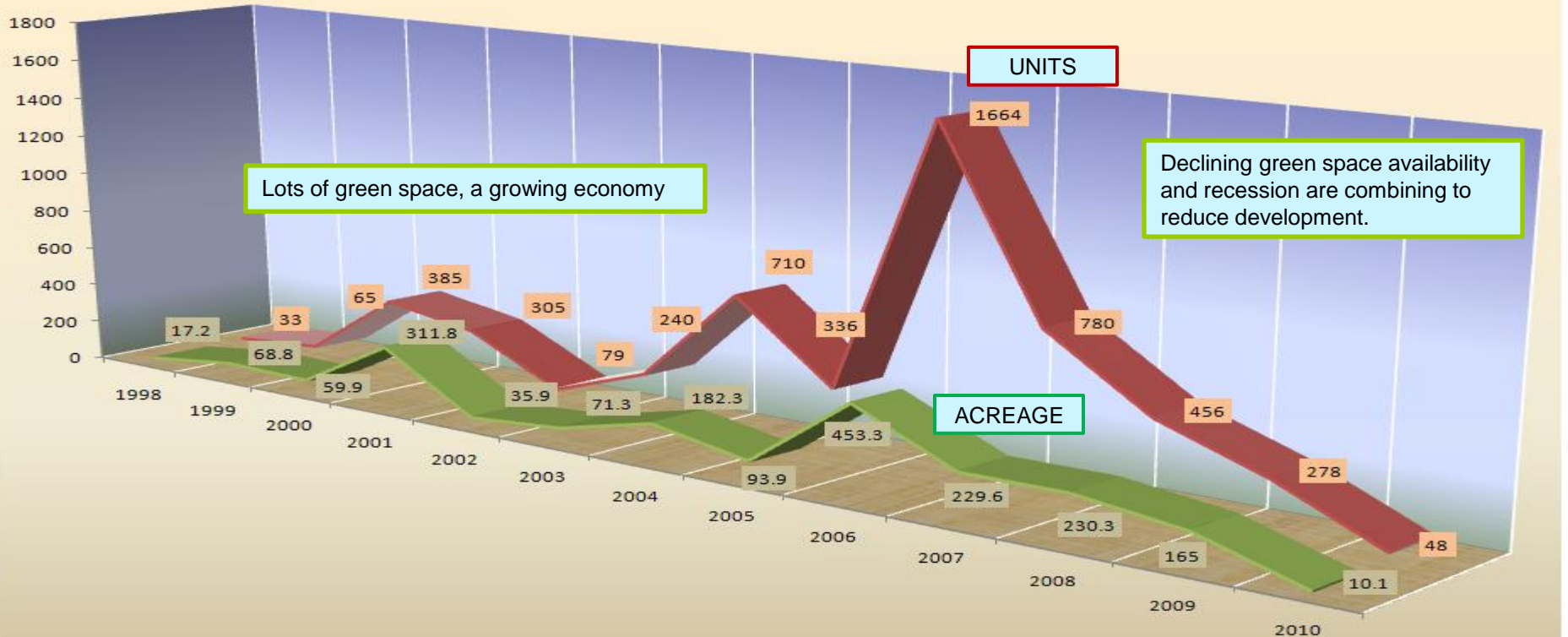
Project	Approx Date	Units
1 Kirkwood Hollow Phase I	Sept 98	61
2 Kirkwood Hollow Phase 2	Jul 00	35
3 Kirkwood Hollow Phase 3	Sept 01	55
4 Estes Park Phases 1-4	Jul02 – Jul 05	110
5 1709 N. Carroll	Sept 02	1
6 Oak Pointe	Feb 03	35
7 Southlake Town Square	Mar 03	115
8 Tarah Lakes	Sept 04	68
9 St Emilion Subdivision	Sept 04	17
10 1280 Sunshine Ln	Jan '05	3
11 The Cliffs	Jul 05	150
12 Jimball Hills & Miracle Point	Jun 05	20
13 Villas Del Sol	Nov 05	9
14 680 East Dove St	Feb 06	1
15 Chivers 299 Addition	Jun 06	2
Various: Autumn Glen Estates Haltom Creek Estates	Oct 01 Mar 01	
Reserve of Southlake, & Developed as Triple C Ranch	Jan 05 Feb 06	60
16 Estancia at Southlake	Oct 06	14
17 1090 Primrose Ln	Dec '06	1
18		
19 Cherry Lane Townhomes	Apr 07	4
20 Steward Addition	Oct 07	5
21 St. John's Baptist Church	Jan 00	
22 Gateway Church	Apr 01	
23 Southlake Harbor Church	Feb 03	
24 Cornerstone Bible Church	Feb 04	
25 Highland Meadow Montessori	Oct 05	
26 Gateway Church Campus	Aug 07	

Projects: 33
 Housing: Between 750 & 800 units
 Institutions: 5 churches, two schools



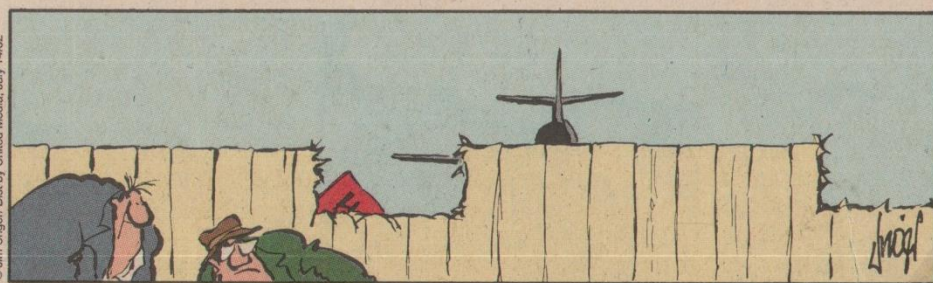
NOISE COMPATIBILITY OFFICE INFLUENCE ON LOCAL LAND USE

For the past 15 years, the NCO has been continuously involved in providing information and guidance to the surrounding cities to ensure that hundreds of proposed incompatible land uses were mitigated. This partnership has attained the twin goals of minimizing incompatible land use encroachment on DFW while sustaining the high quality of life in neighboring communities.



YEAR	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTALS
Units	33	65	385	305	79	240	710	336	1664	780	456	278	48	5,379
Acreage	17.2	68.8	59.9	311.8	35.9	71.3	182.3	93.9	453.3	229.6	230.3	165	10.1	1,929


LAND USE COMPATIBILITY



Has the information you just received modified the way you think about DFW?

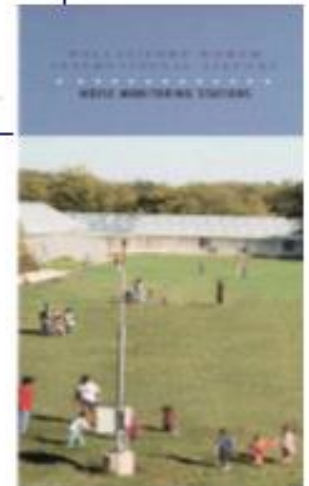
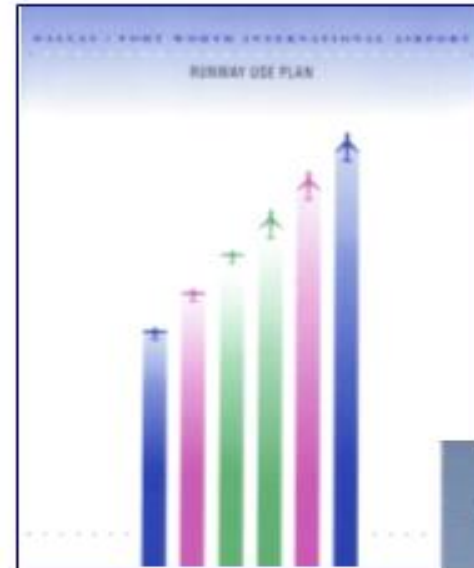


PROJECT OUTREACH

A large number of commercial airplanes are shown flying in the sky above an airport terminal and a train. The airplanes are of various airlines, including American Airlines, Delta, and United. The terminal building is visible in the background, and a train with 'DFW' branding is on an elevated track in the foreground. The sky is blue with some light clouds.

With aircraft noise, what exists, and what is perceived may be two different things. The NCO's job is to help people understand the difference.

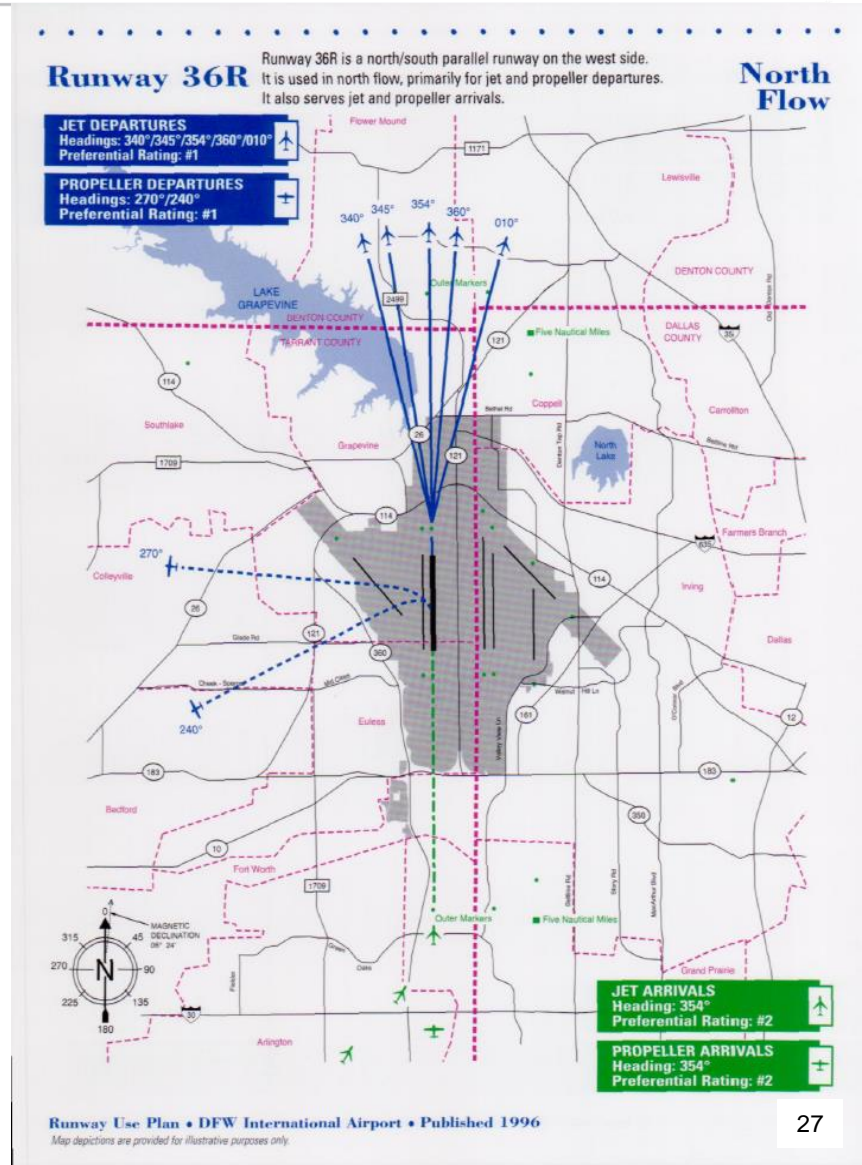
Focus on Education – Presentations and Materials



A page from DFW's Runway Use Plan

The Plan is good but gives the impression that air traffic should look like it is on rails.

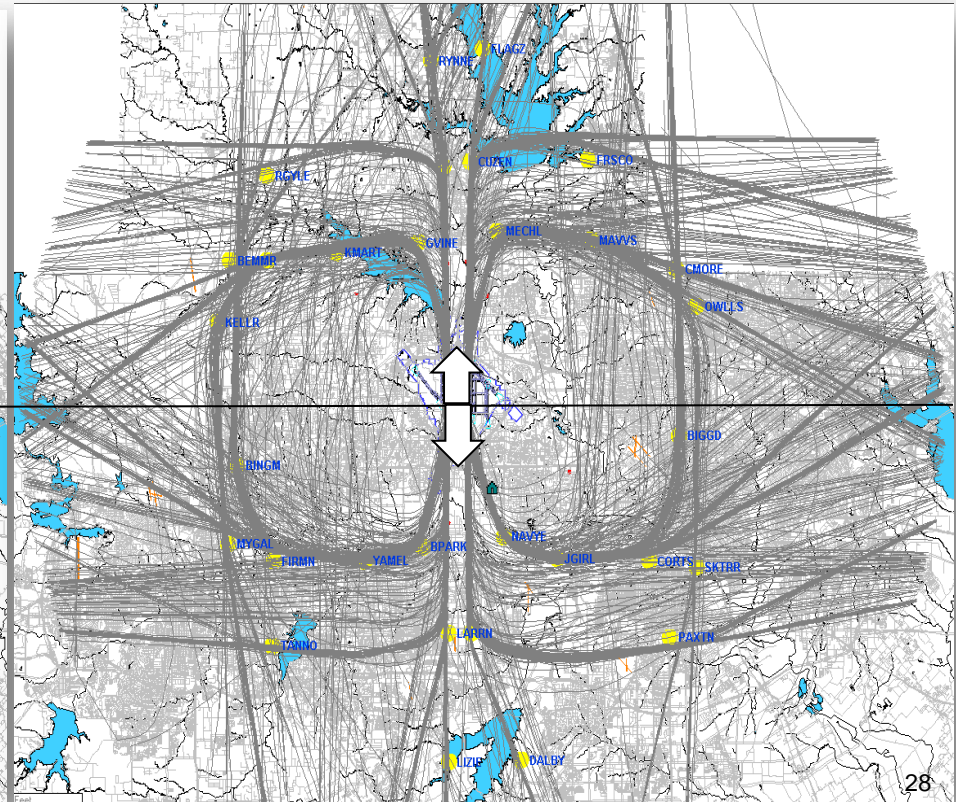
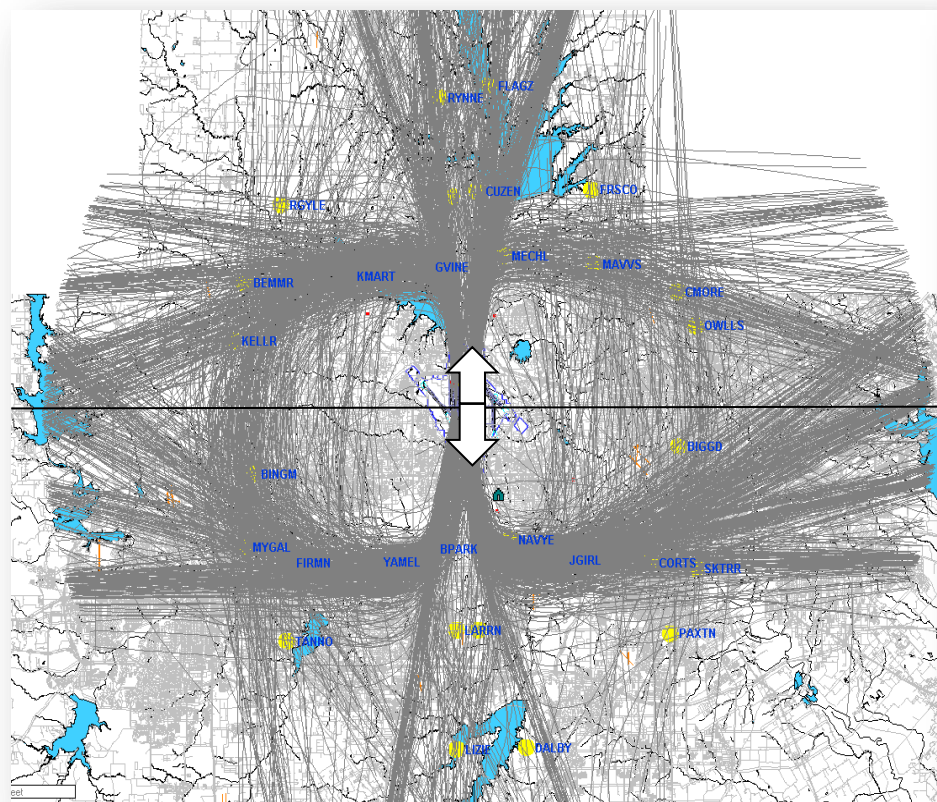
Reality is a bit more complex, though we are making strides, through precision based navigation (PBN) systems, toward tightening departure corridors even more than Area Navigation (RNAV) systems have done.



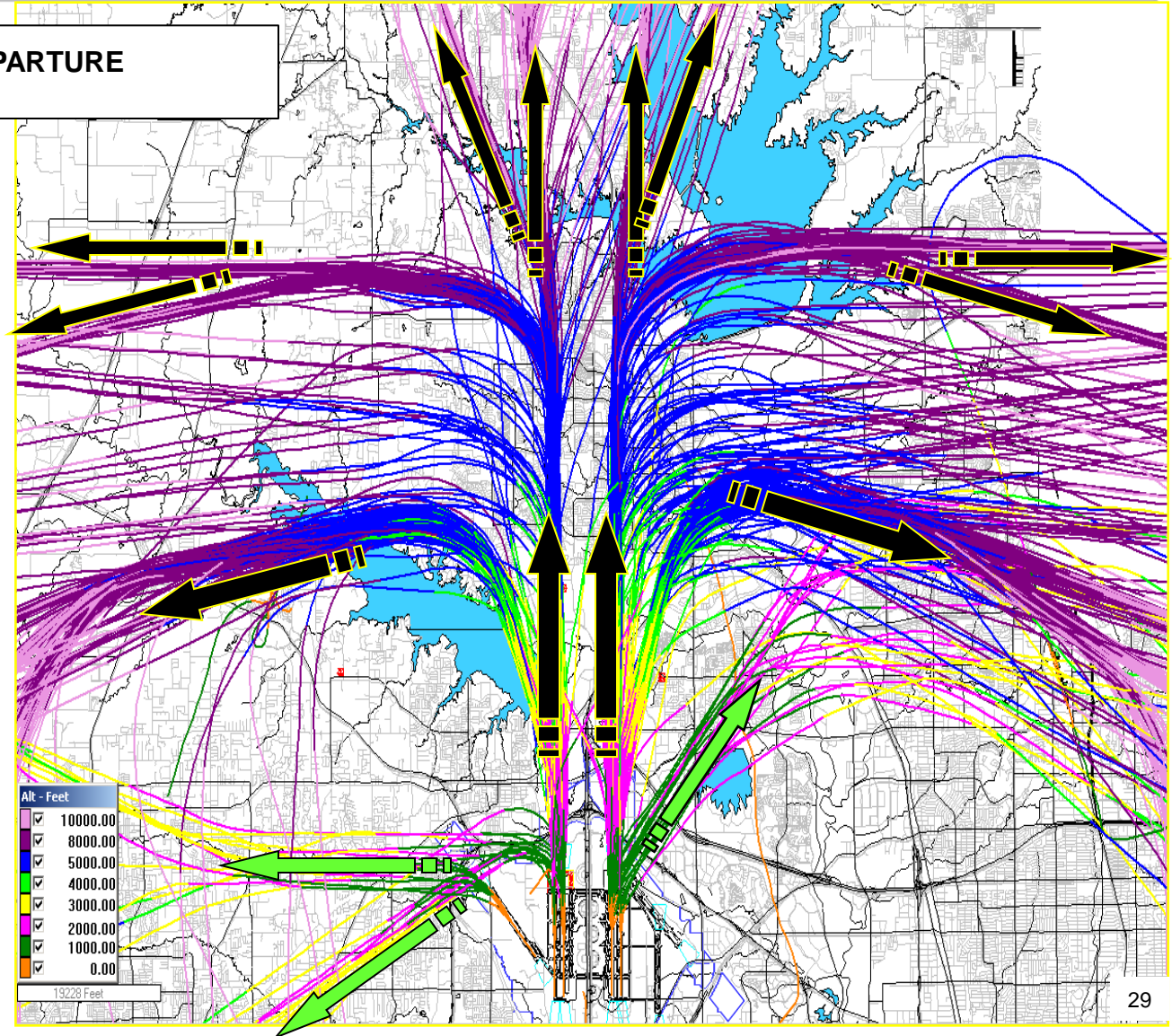
BEYOND POLICY CONTOURS

Conventional (Pre-RNAV) Departures

RNAV Departures



TYPICAL RNAV DFW DEPARTURE PATTERNS – BY ALTITUDE

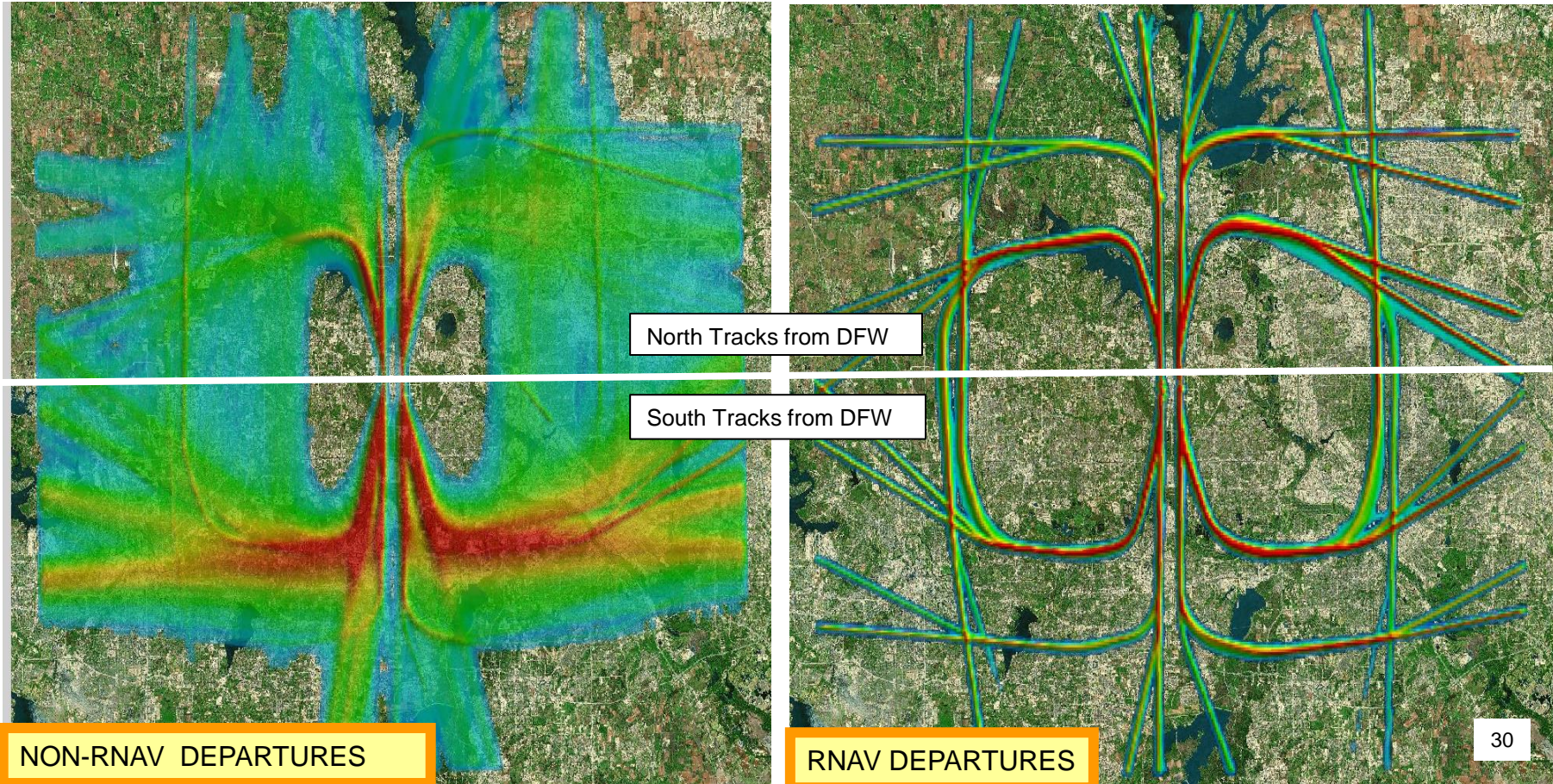


Jets: 

Props: 

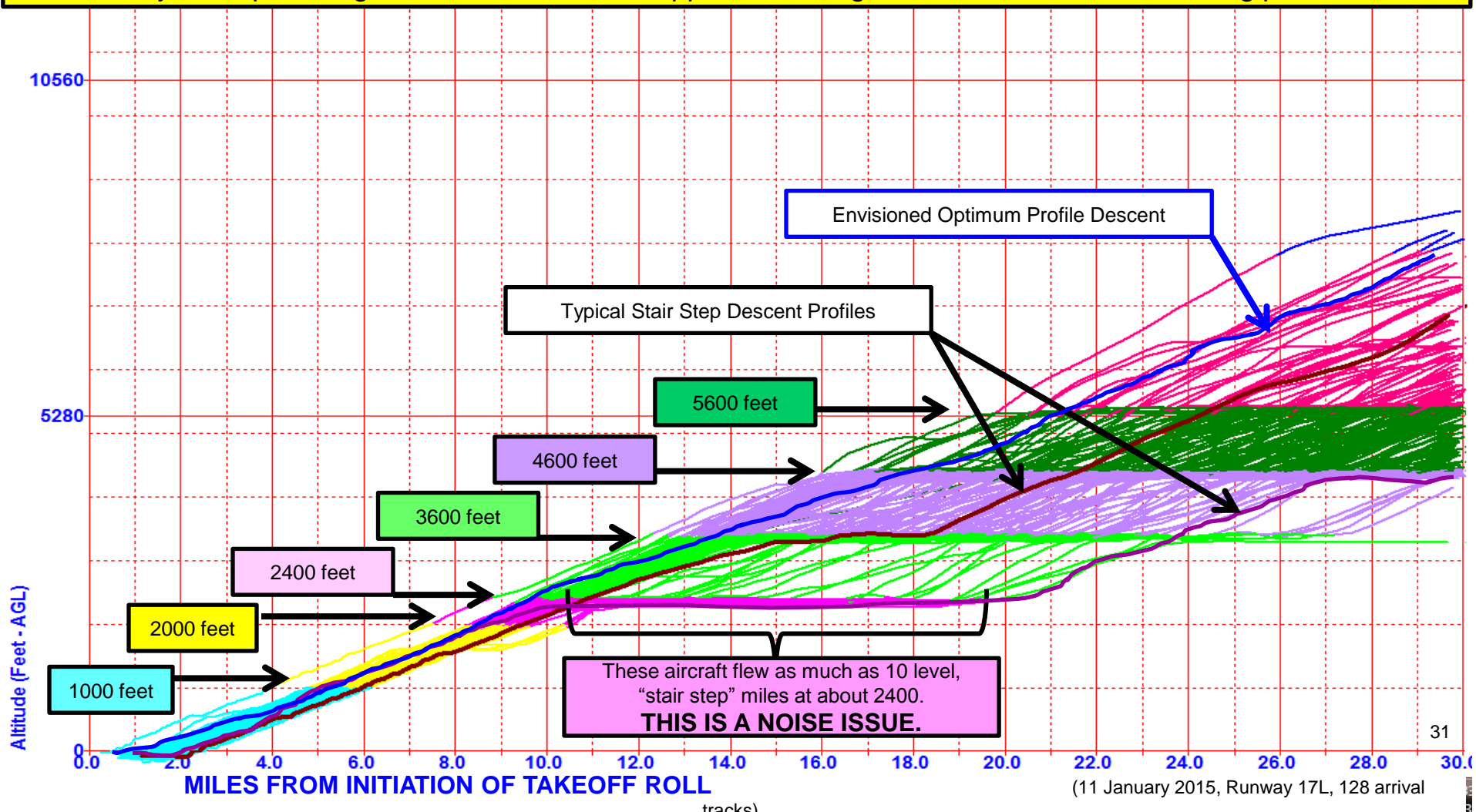
NextGen at DFW Airport – PBN Procedures

- RNAV (Area Navigation) Departures – September 2005
- North Texas Metroplex – September 2014



OAPM'S OPTIMUM PROFILE DESCENT VS THE INEFFICIENT "STAIR STEP" DESCENT AT DFW

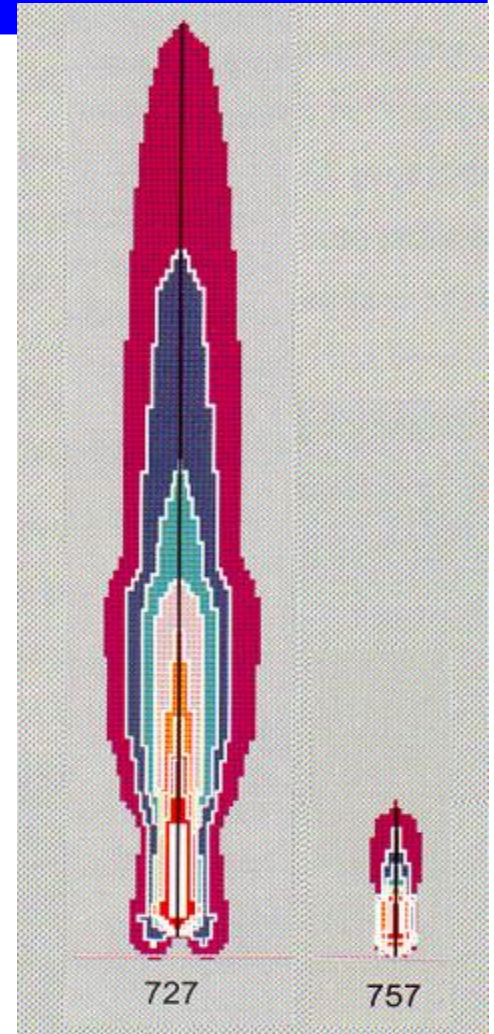
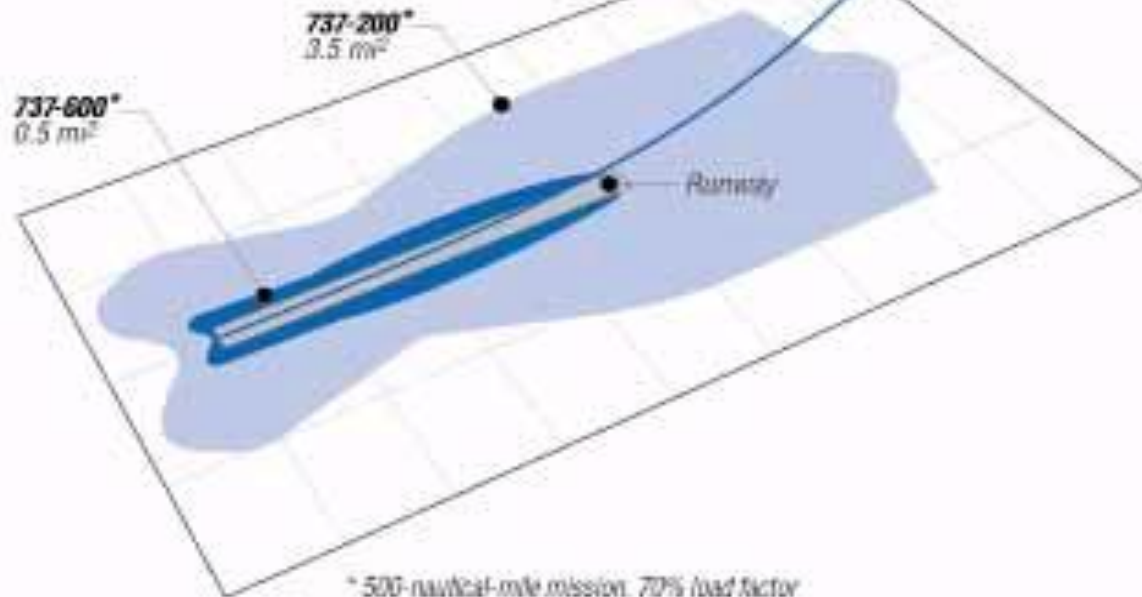
Stair step approaches are typically used to provide safe separation or to permit aircraft kinetic energy reduction, but they are inefficient, wasting fuel and generating pollution. OAPM's Optimum Profile Descent will maintain safety while providing a continuous descent approach saving time and fuel while minimizing pollution.



REDUCTION IN NOISE AT THE SOURCE

Modern airplanes are much quieter than the older ones.

85-decibel (dBA) exposure



Next Steps: Partnering for Success and Advocacy for NextGen

- Education/engagement with local community
- Identify community interests/concerns
- Sharing of information and community interests in collaboration with FAA through NextGen process
- Sharing with the community the national interest and those of industry for a balanced understanding
- Community Workshops and events
 - [Recurring Meetings with City Leaders](#)
 - [Community Events](#)
- Website/Web Tools & Resources
 - <http://www.faa.gov/nextgen/>
 - https://www.dfwairport.com/inthecommunity/aircraft_noise.php
- NextGen Apps, videos, kiosks



NG Success
Education

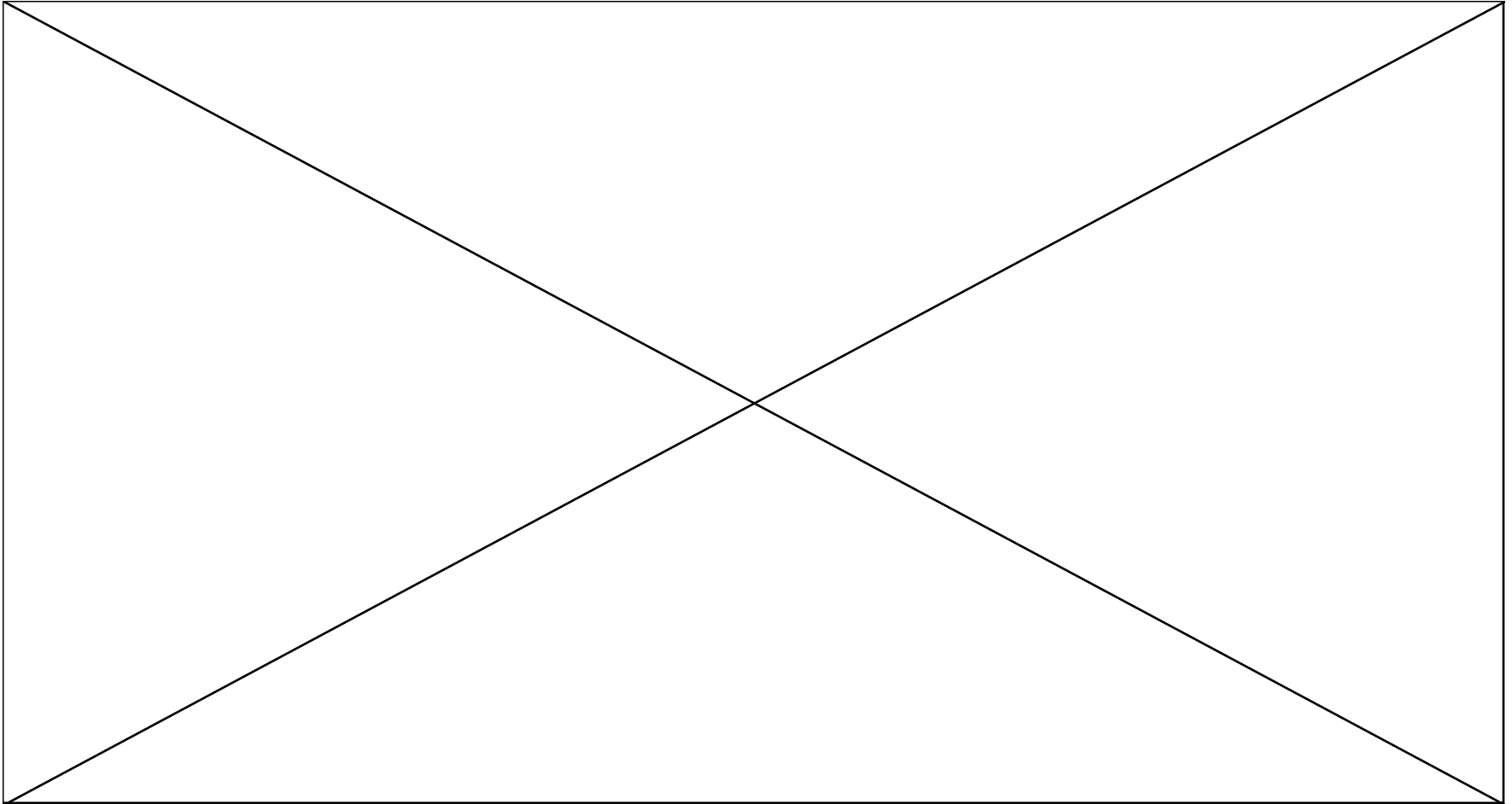


NG NASM
Education

FAA NextGen PBN Implementation

- FAA's implementation of Performance Based Navigation (PBN) at various locations across the US recognized the need to engage airport and community stakeholders to foster understanding and support for PBN. FAA tasked the RTCA NextGen Advisory Committee (NAC) to create a PBN Blueprint. Key findings include:
 - Technical and **non-technical stakeholders (which includes local communities)** all have a role in the process;
 - **Holistic engagement** of all affected stakeholders groups **and establishing their commitment** to adequately support the PBN effort is essential for ensuring the success of a PBN Effort;
 - It is critical that the interests of all stakeholders (technical and non-technical) be considered and balanced, consistent with the goals and prioritization developed for the PBN project; and
 - **Airports should be engaged at the onset of PBN development** to provide input **including noting existing community concerns** that would be used in formulating the overall goal of the PBN Effort and the associated community outreach.

NextGen in North Texas -- Metroplex



International Facility Management Association – Airports Council – Spring Conference



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Dallas/Fort Worth International
Airport

May 13, 2015