



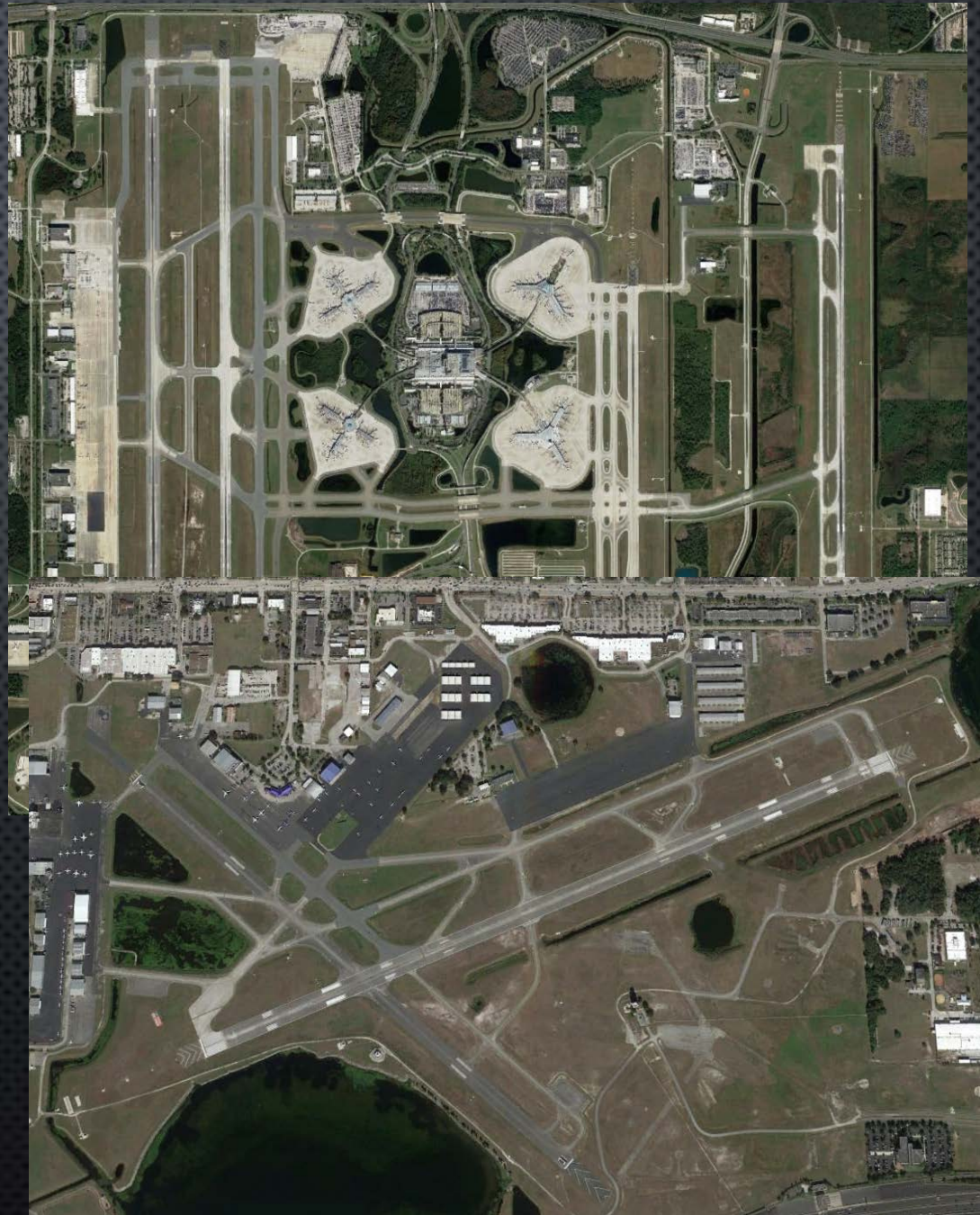
# METRA

Metropolitan Environmental  
TRaining Alliance



# About Us

- **Orlando International Airport (MCO)**  
Est. 1976
- **Orlando Executive Airport (ORL)**  
Est. 1928 - Orlando's FIRST airport
- **Owned by City of Orlando**  
**Operated, managed and maintained**  
**by Greater Orlando Aviation Authority (GOAA)**

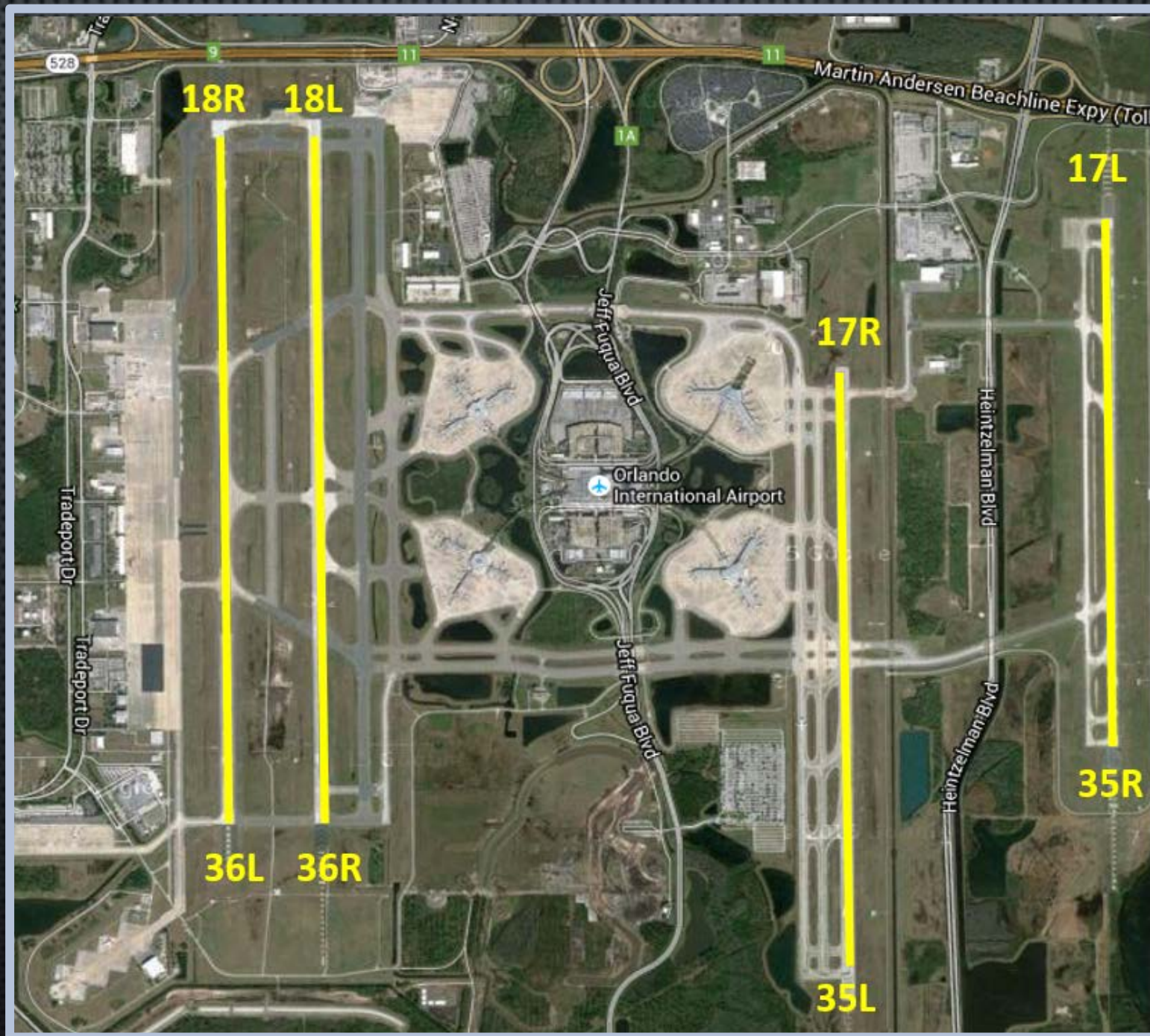






- 4th largest (area) in USA
- 10th busiest in USA
- Busiest airport in Florida
- 50 million passengers per year
- Over 360,000 operations/yr
- 41.1B economic impact







# Aviation Noise Sources

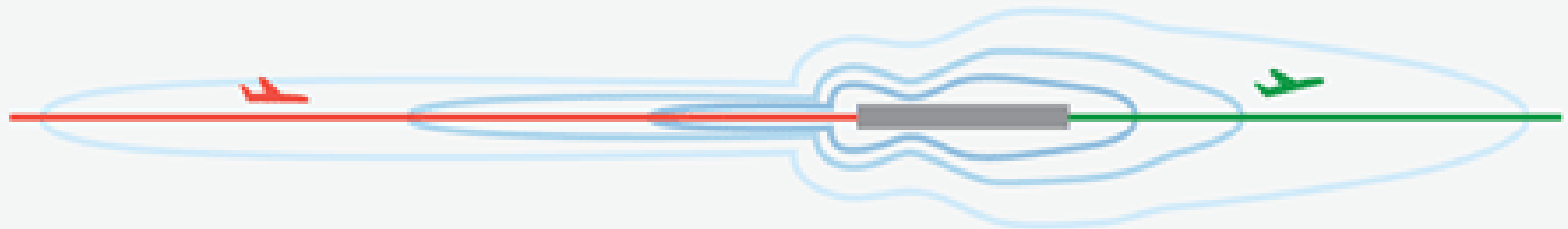
- Mechanical Noise
- Aerodynamic Noise
- Noise from Aircraft Systems





# Factors Affecting Aircraft Noise

## NOISE CONTOUR MAP



- NOISE CONTOURS
- ARRIVAL
- DEPARTURE
- RUNWAY



# Factors Affecting Aircraft Noise

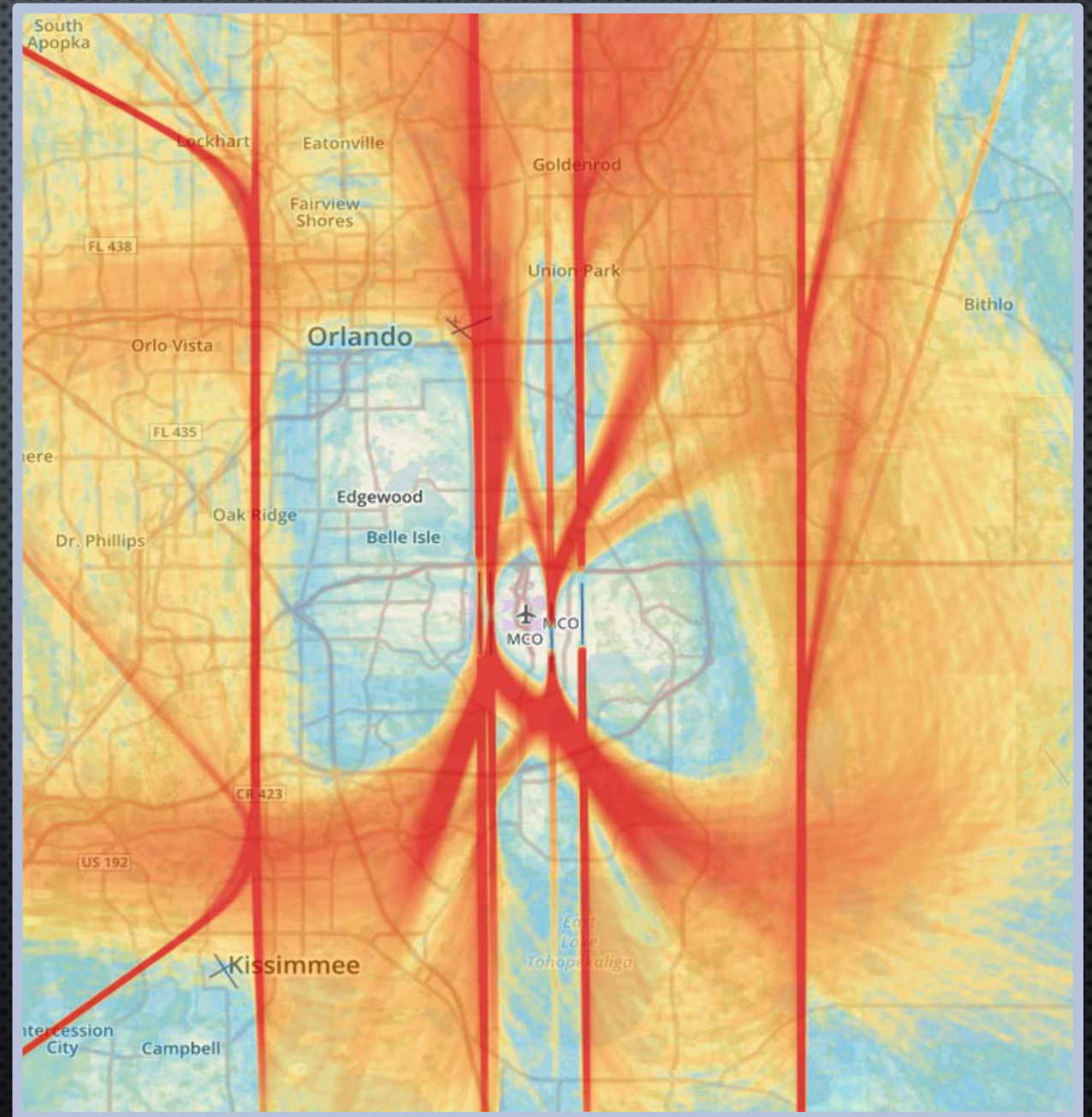
- Age of aircraft
- Distance to destination
- Day vs. night
- Cloud cover
- Weather

**Biggest Factor – Individual attitudes?**





# Why Talk About Airport Noise at E2 Day?





# National Environmental Protection Act 1970 (NEPA)

## Requires all Federal Agencies to:

- Evaluate environmental, social and economic effects of their proposed actions
- Provide opportunities for public review and comment





# Federal Aviation Administration (FAA)

Many responsibilities to NEPA, including

...Airport Noise

Result: A Bunch of Laws!







**Aviation Noise Abatement Policy (ANAP) 1976**  
**Airport Safety and Noise Abatement Act of 1979**  
**Airport Noise and Capacity Act of 1990**

**Identified responsibilities of the FAA, air carriers,  
airport executives, and local communities**





# Federal Aviation Administration (FAA)

- Federal government reduces noise by controlling the source
- Funding for land acquisition, relocation assistance around airport to limit severe noise exposure
- Defines Compatible Land Use

**BUT ... Obligation to address airport noise problem is a local responsibility**





# FAA – Reduce Noise at Source

- Mandated changes in engine design – international standard
- Tied to airworthiness certification





# Air Carriers

- Retire
- Replace
- Retrofit older aircraft





# What is Airport Noise?

**NOISE** : sound levels equal to or in excess of levels established by Federal guidelines to be considered an incompatible use.

**Incompatible uses** = residential, schools, churches etc.





# What is DNL?

- Day Night Average Sound Level (DNL)
- Average noise level over a 24-hour period over the course of a year.
- Noise occurring at night (10 pm – 7 am) increased by 10 dB
- 65 DNL noise contour line = “the line in the sand”

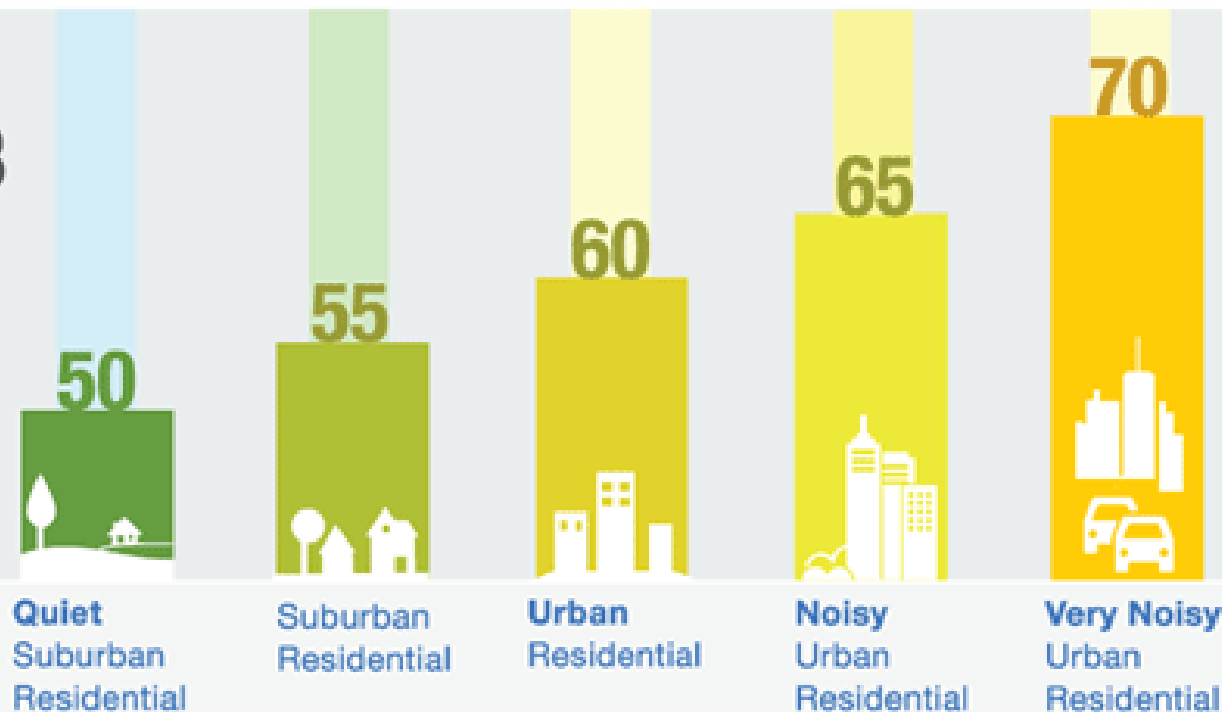




## DNL VALUES IN RESIDENTIAL AREAS

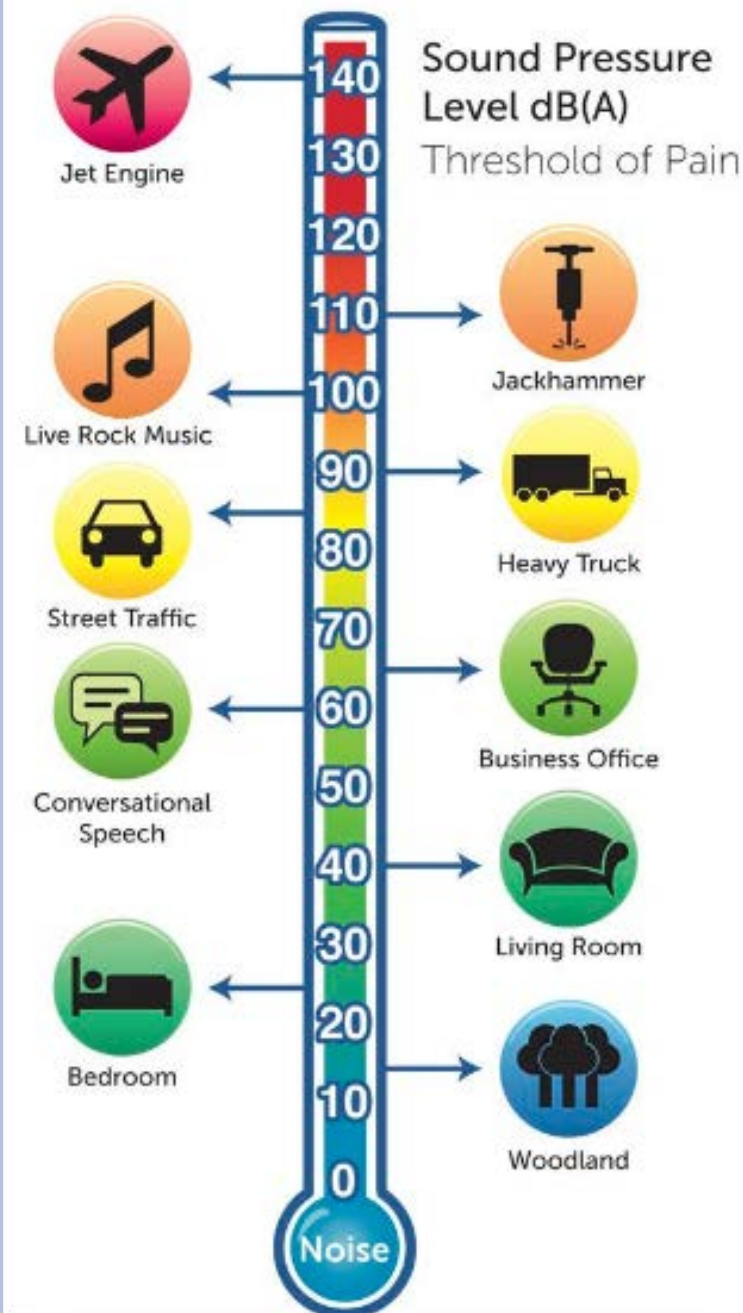
AVERAGE  
DNL IN dB

DESCRIPTION



Source: Federal Agency Review of Selected Airport Noise Analysis Issues, Federal Interagency Committee on Noise, August 1992.

## NOISE THERMOMETER

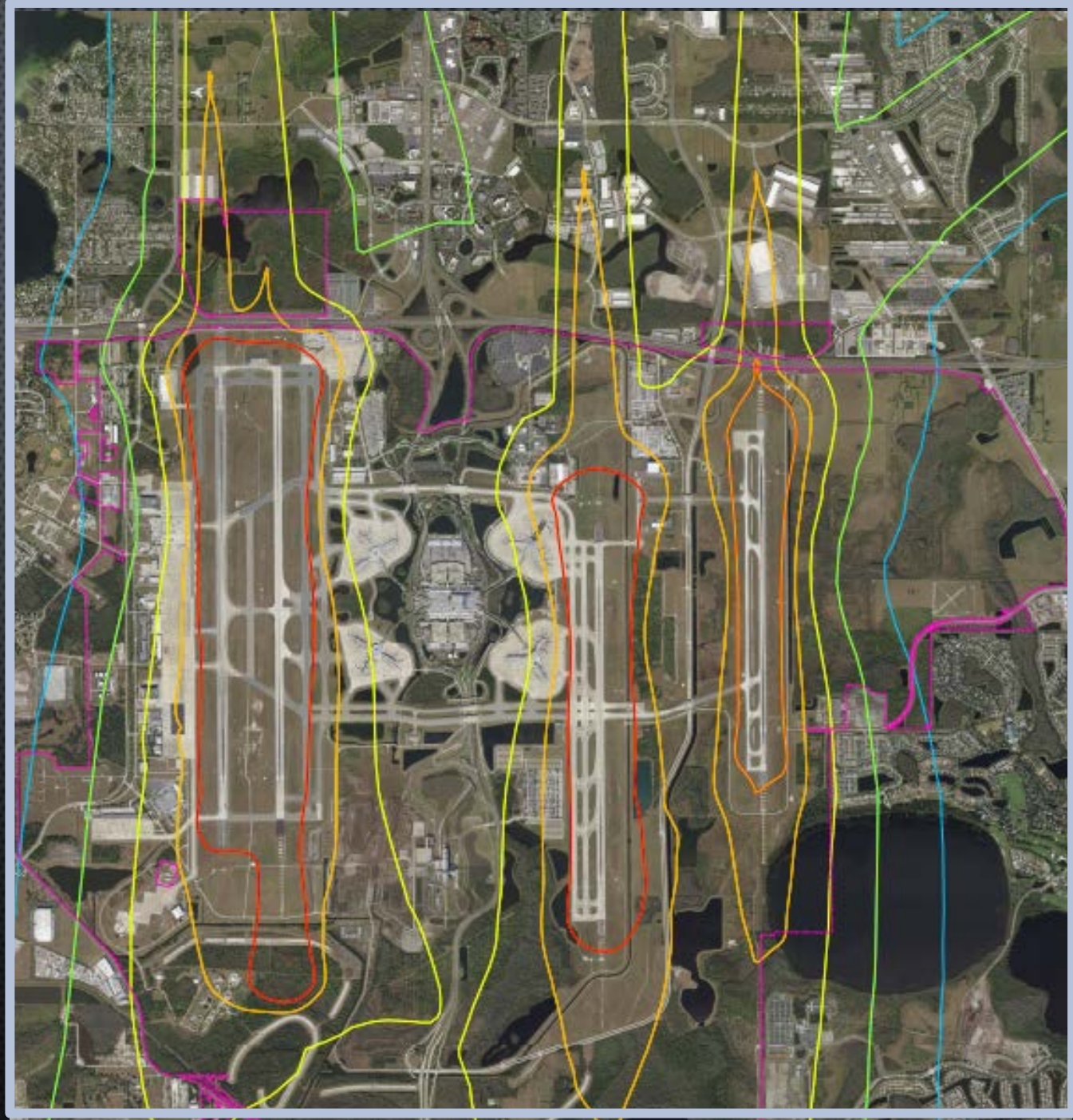






# Measuring Airport Noise: Part 150 Process

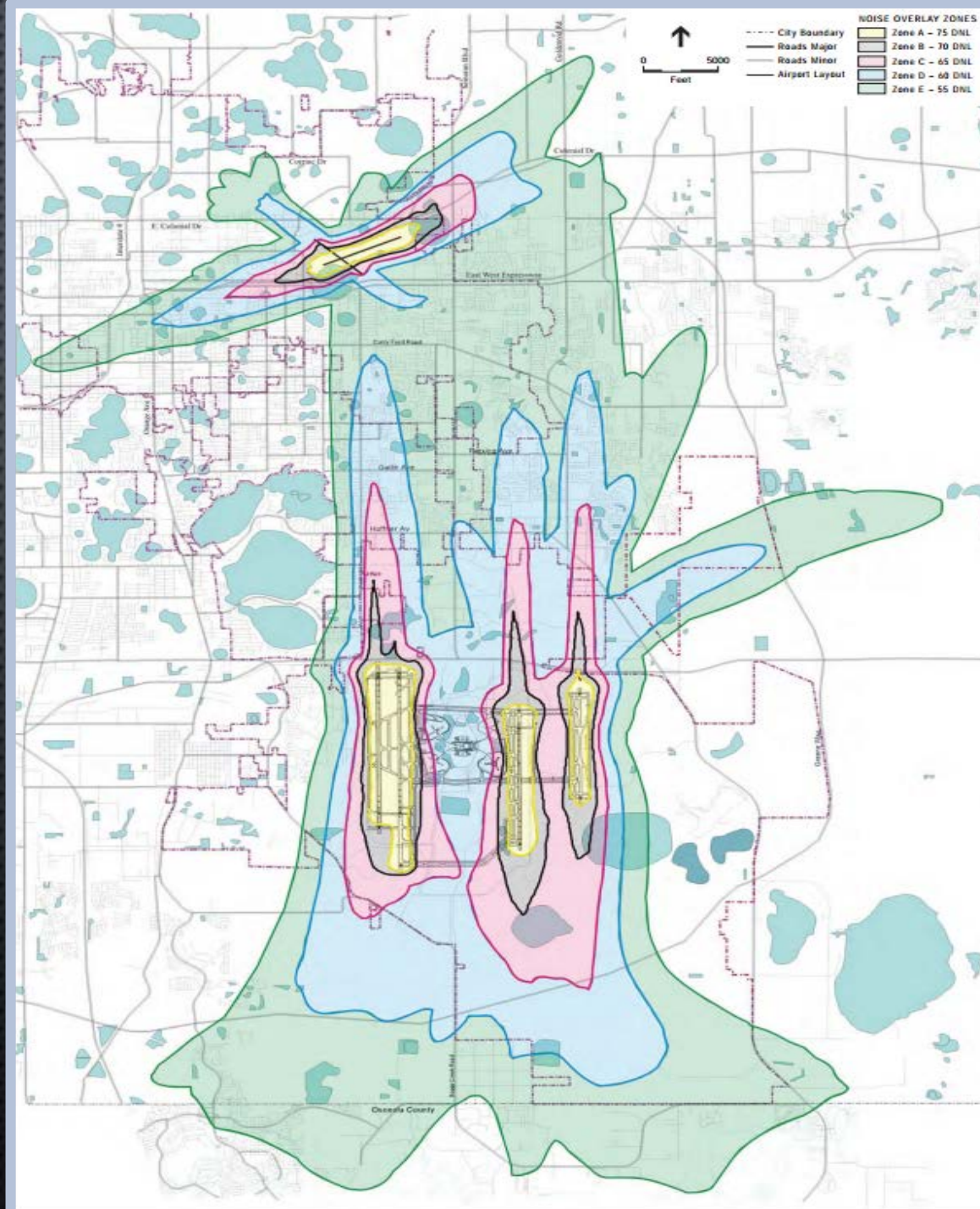
- FAA-approved
- Noise Exposure Map
- Noise Compatibility Plan





# AEDT – Aviation Environmental Design Tool

- Noise
- Emissions
- Fuel consumption
- Air quality





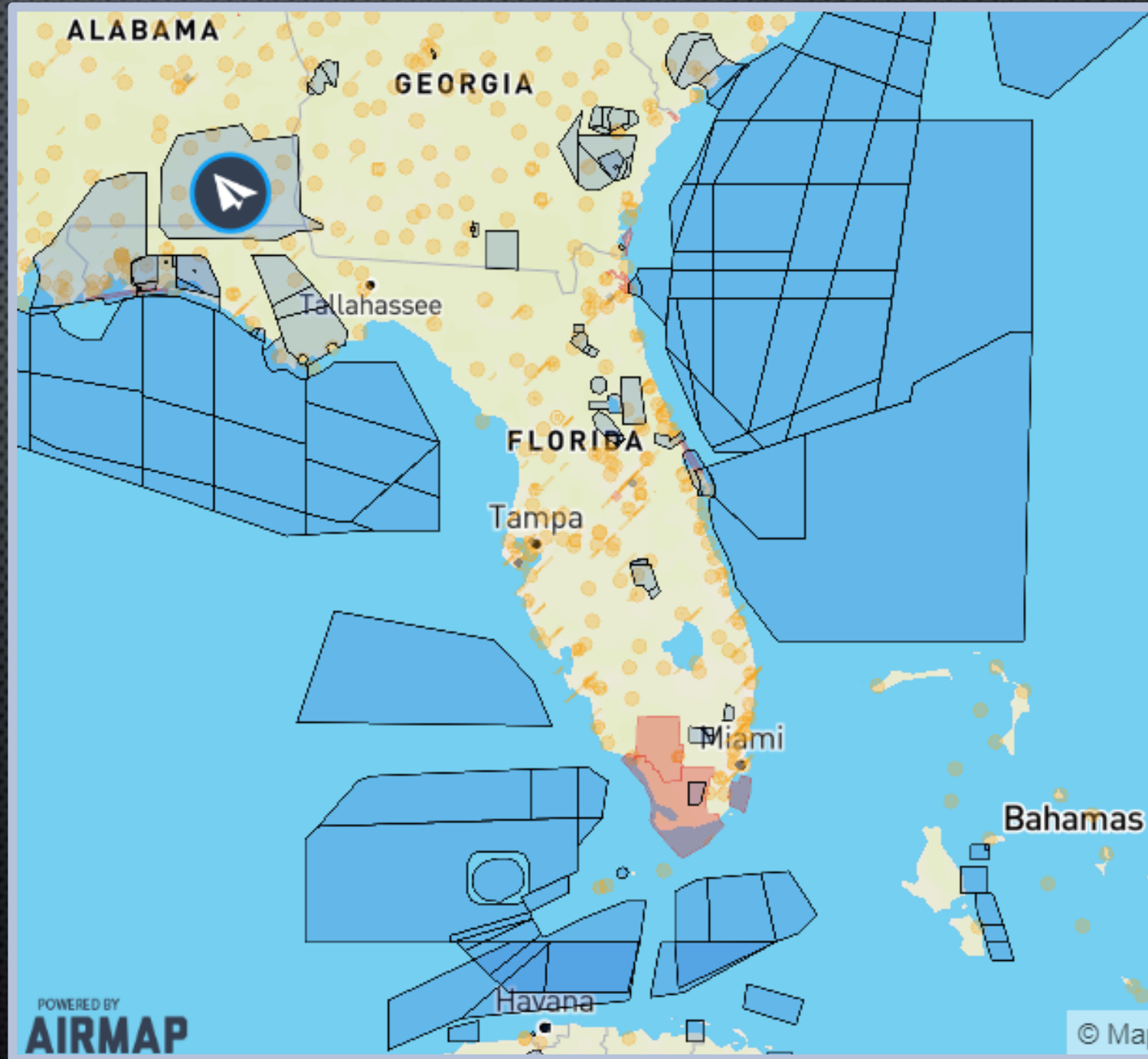




# Complexities of Florida Airspace

Prohibited / Restricted airspace along both coasts

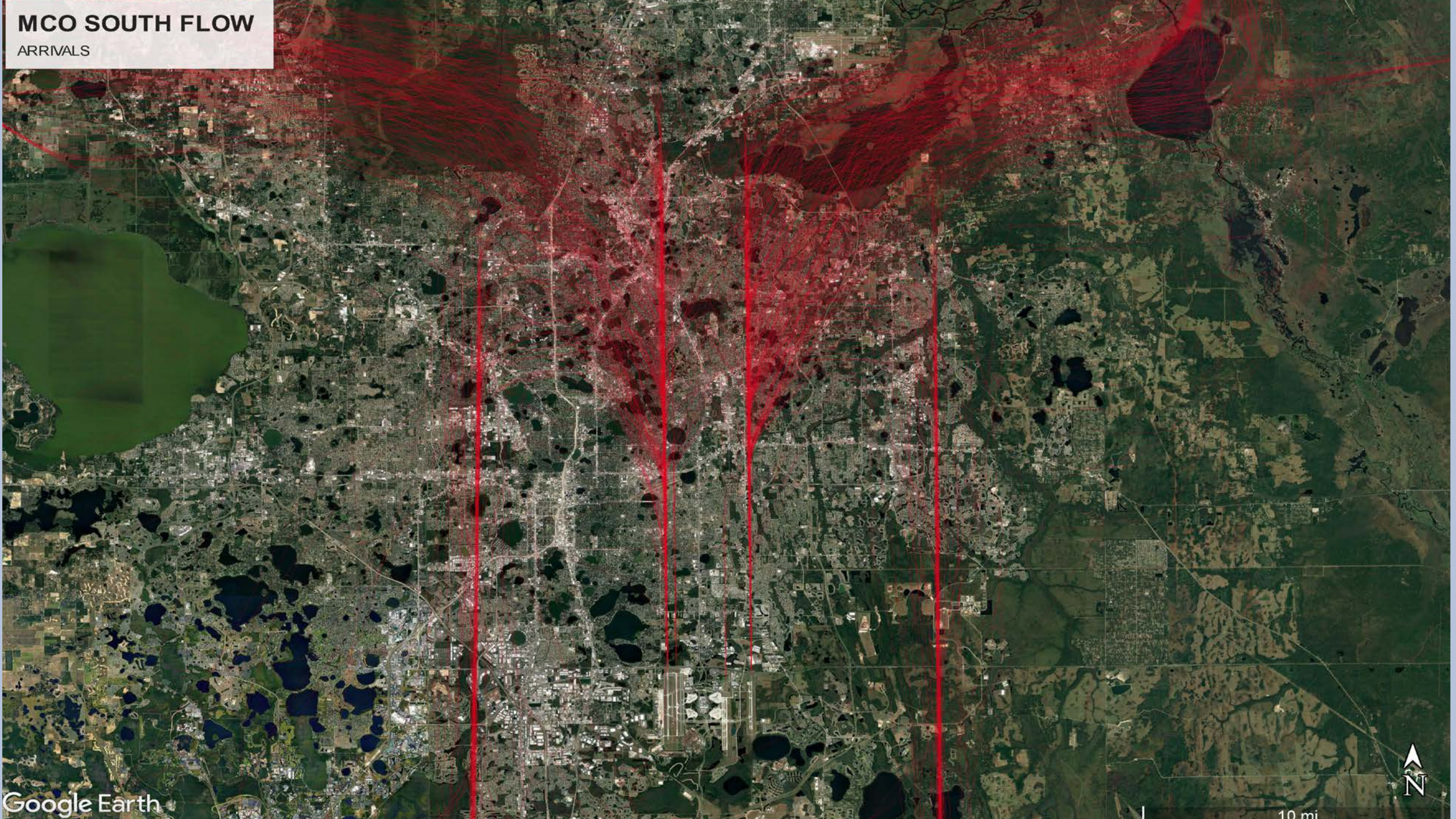
- Contains 4 of the Core 30 airports in USA
- Fastest growing region in USA
- Part of busiest aviation corridor





# MCO SOUTH FLOW

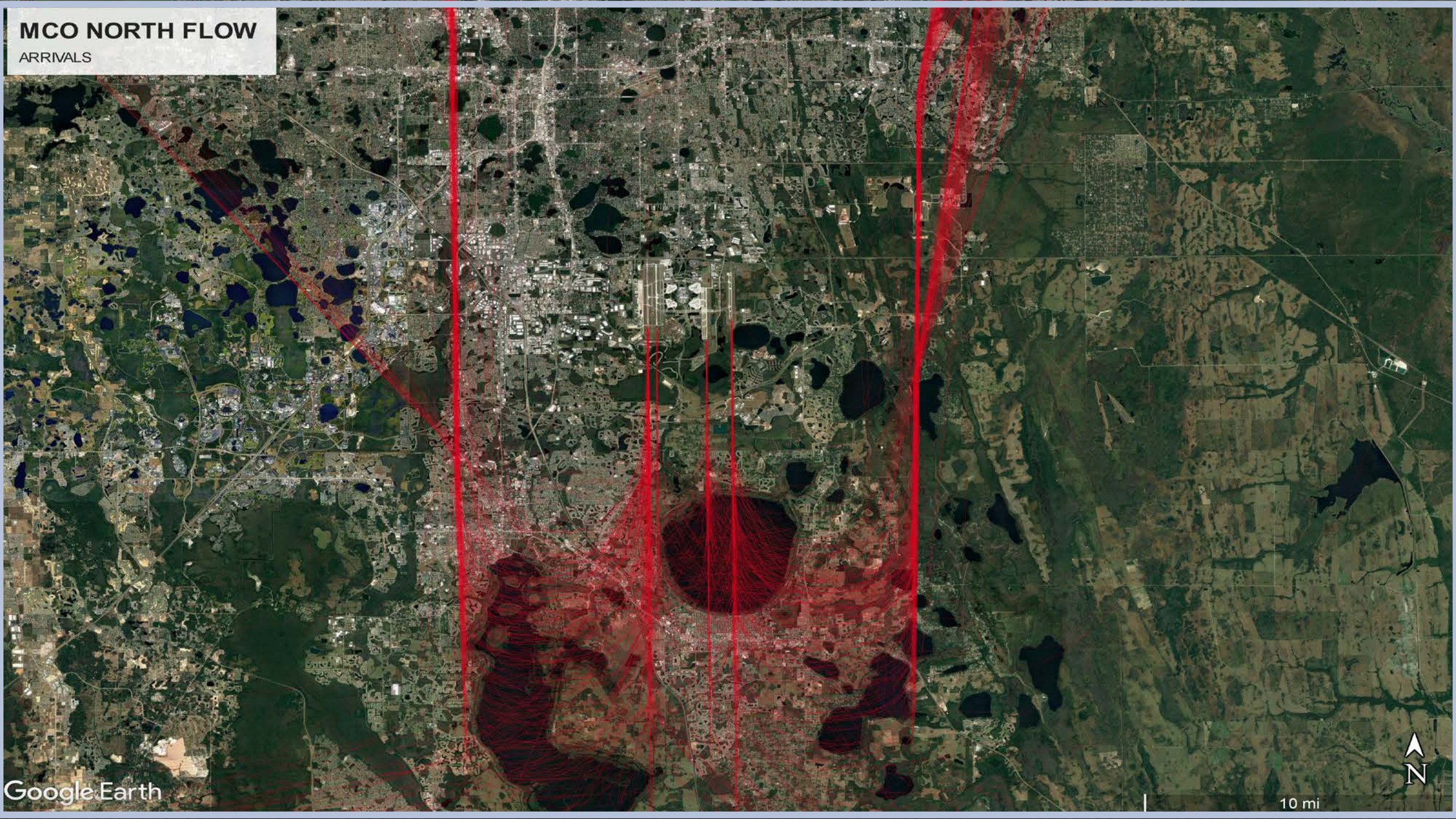
ARRIVALS





# MCO NORTH FLOW

ARRIVALS





# How Do We Manage Noise?

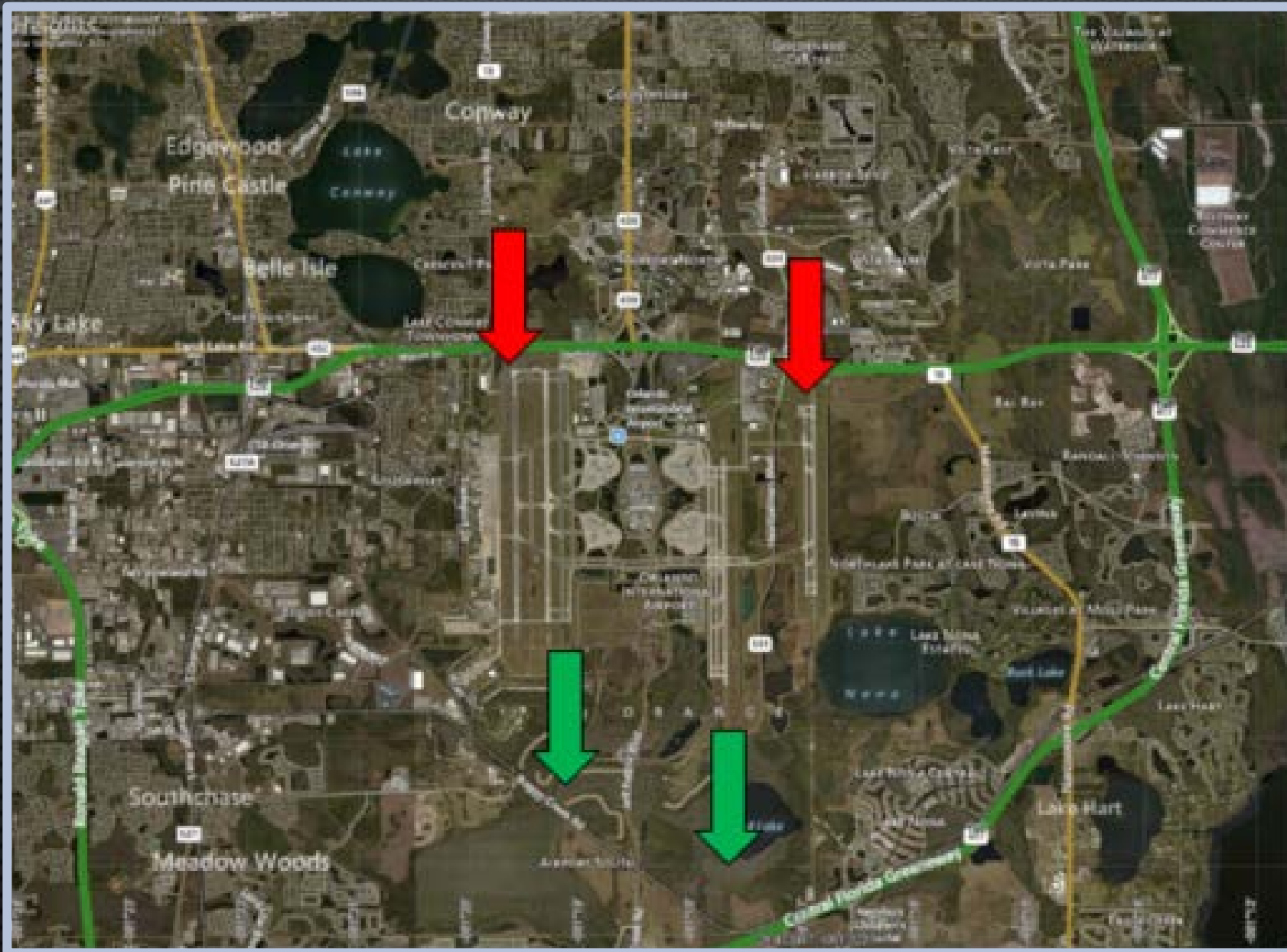
## Collaboration

- Voluntary noise abatement procedures
- Purchased land for buffer zones/easements
- Manage expectations of public
- ANAC, noise advisories, meetings with local officials, METRA E2 Day



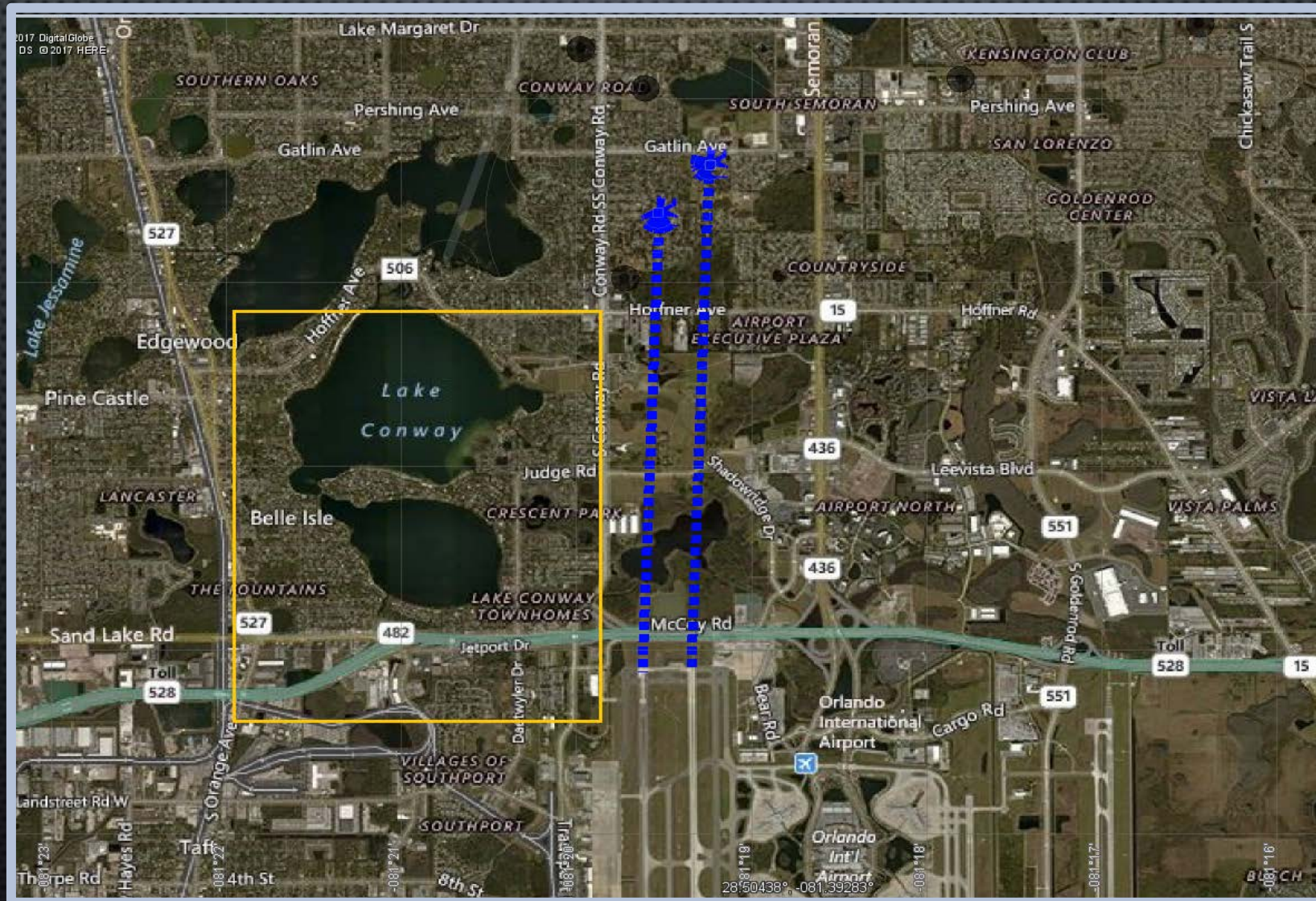


# Preferential South Flow



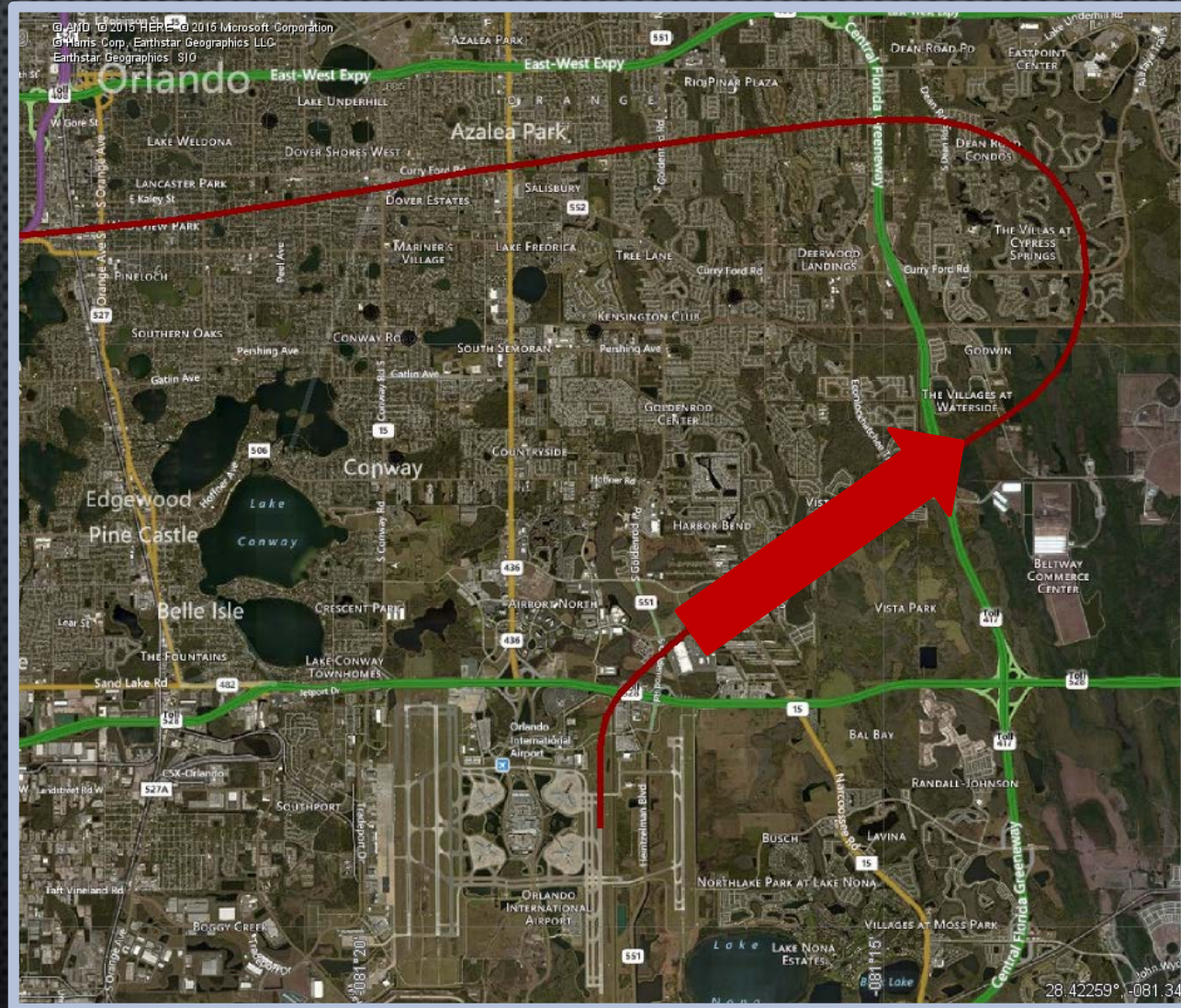


# Voluntary – North Departures Noise Abatement Targets



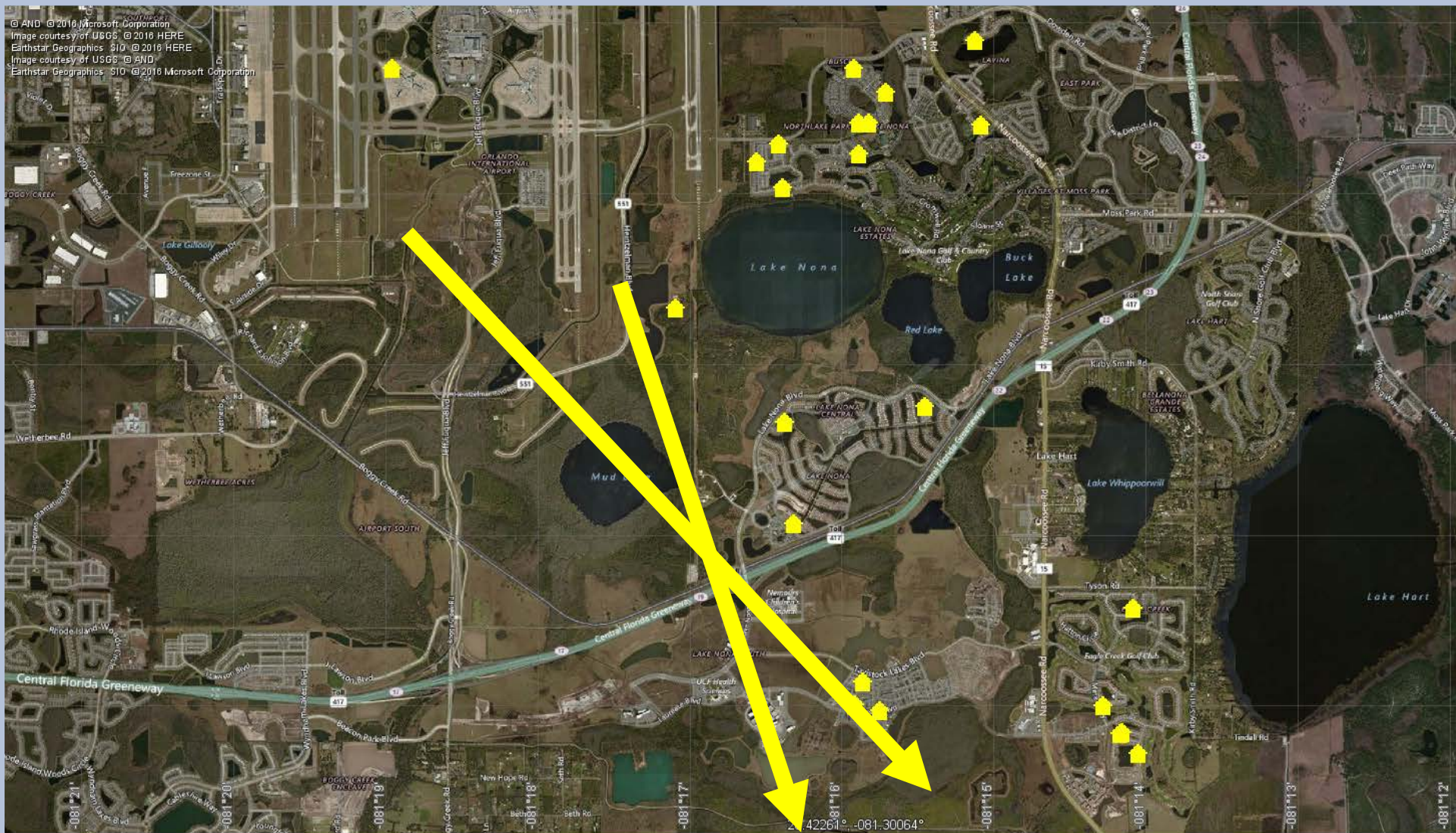


# Voluntary Nighttime Noise Abatement Heading





# Best Practice: No Early Turns on South Departures



**2200 – 0700**  
**No turns until**  
**specified**  
**altitude**  
**[and when**  
**conditions**  
**permit]**



# Designated Engine Run-Up Areas





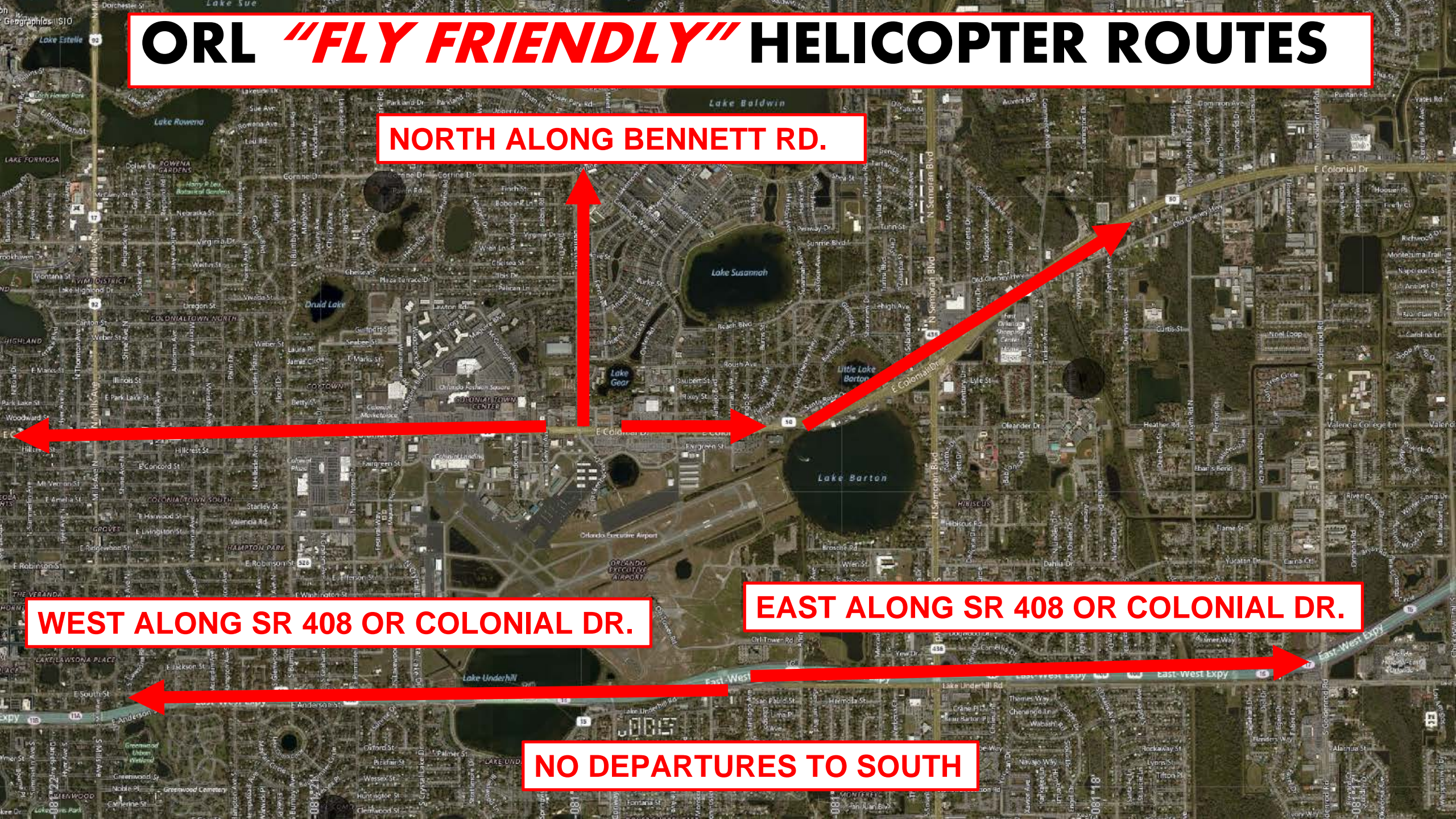
# ORL ***"FLY FRIENDLY"*** HELICOPTER ROUTES

**NORTH ALONG BENNETT RD.**

**WEST ALONG SR 408 OR COLONIAL DR.**

**EAST ALONG SR 408 OR COLONIAL DR.**

**NO DEPARTURES TO SOUTH**

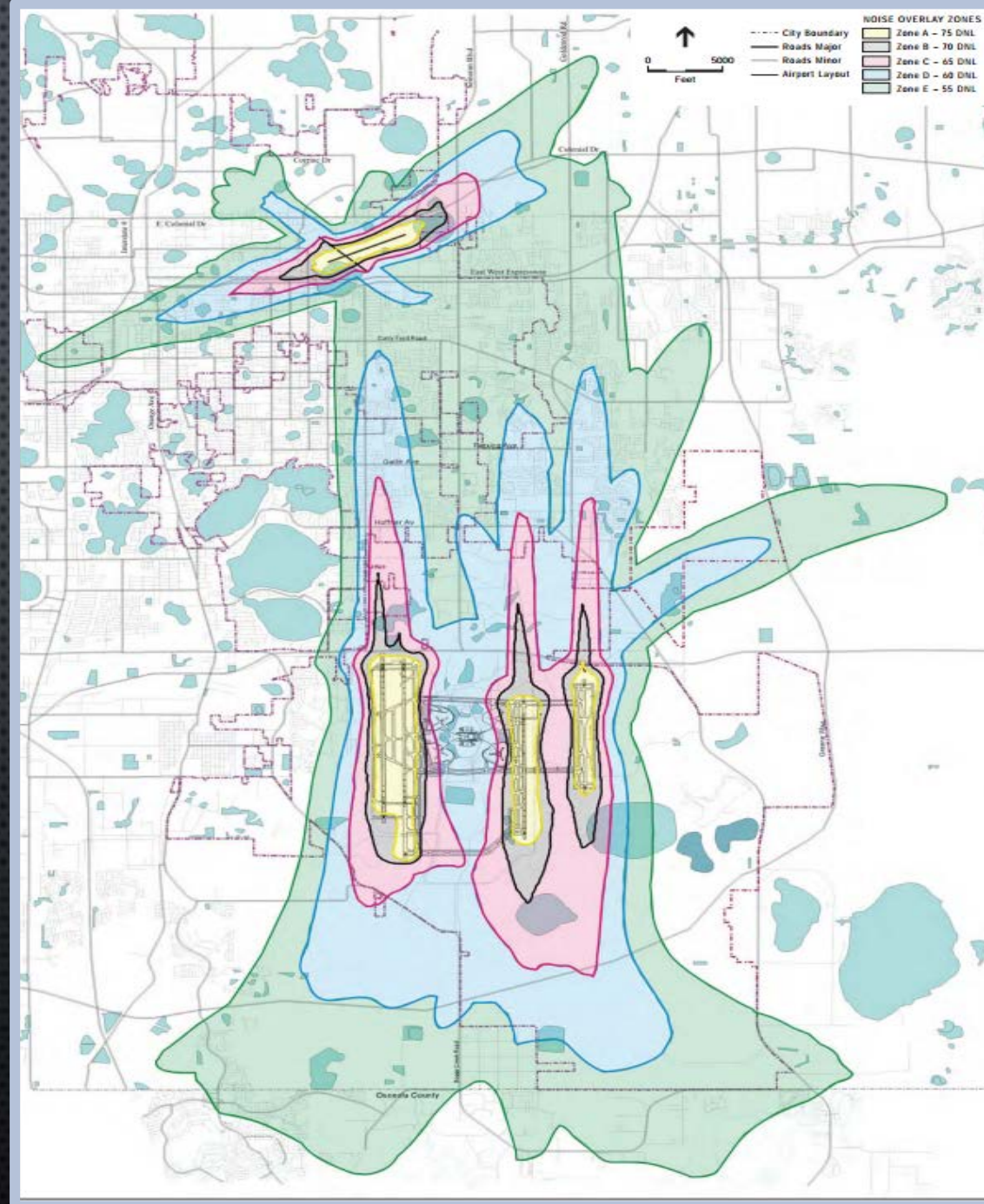




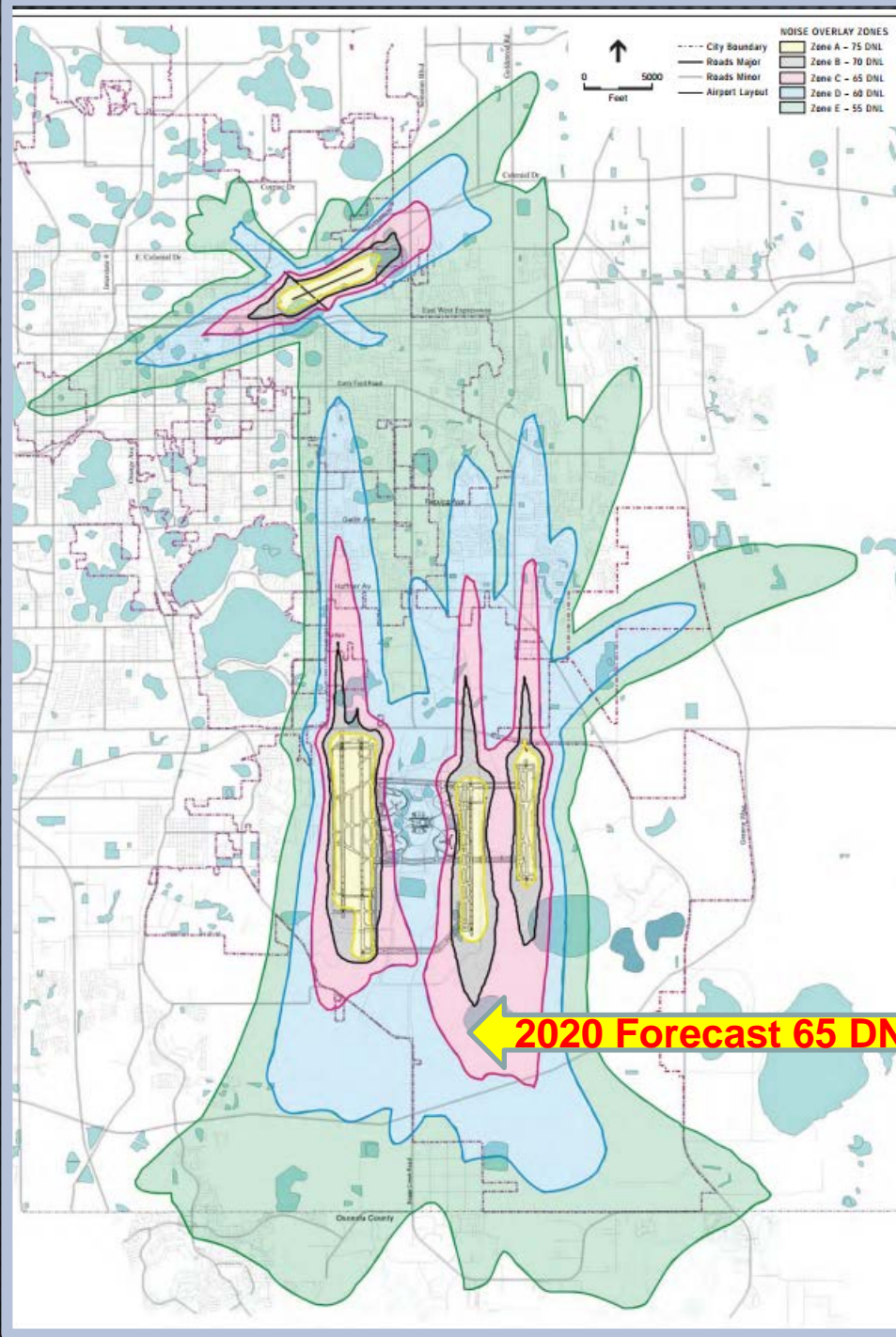
# City of Orlando/Orange County Ordinances

## Aircraft Noise Overlay District –

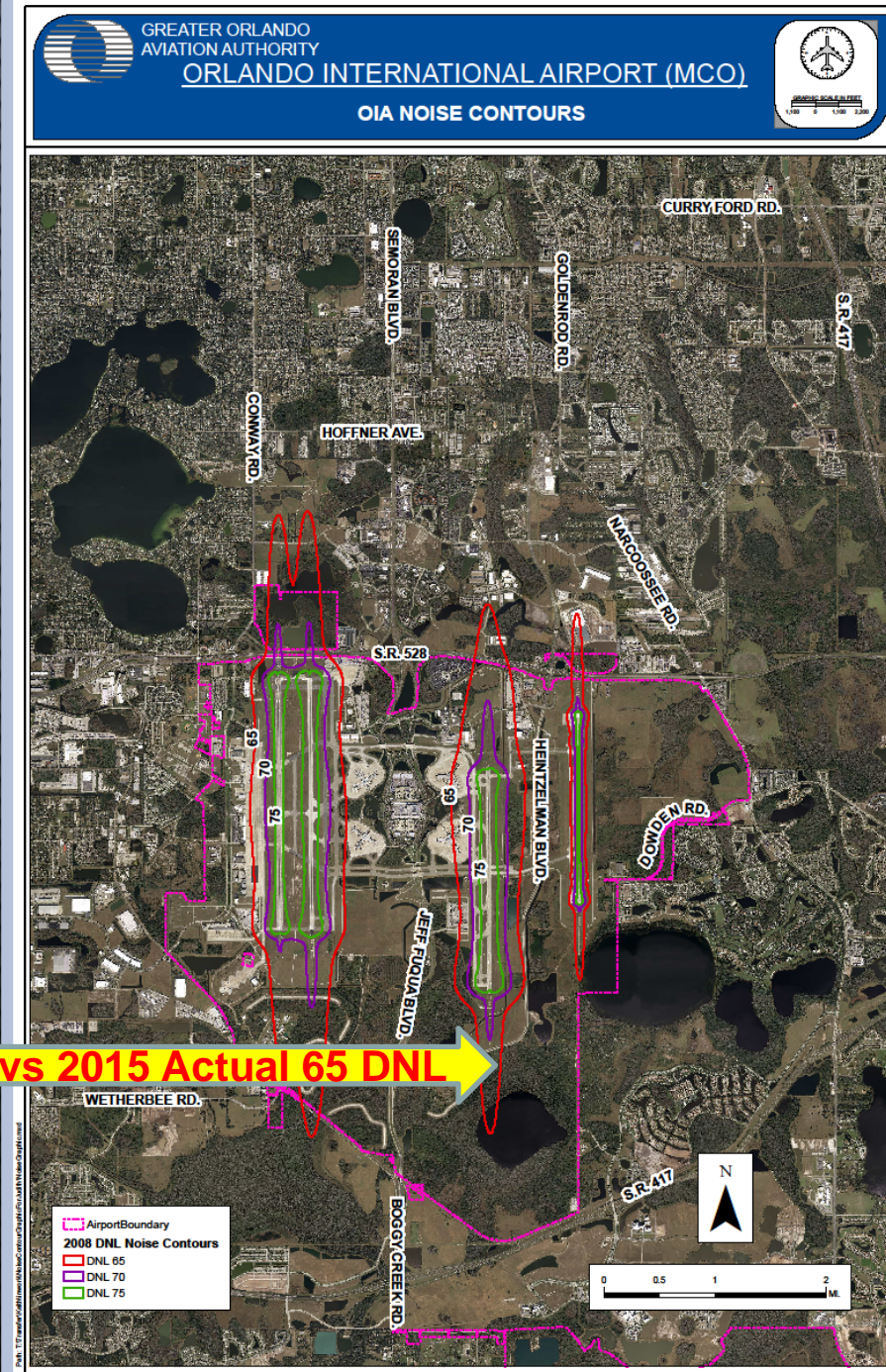
- Compatible land use zoning, planning & development
- Construction standards for sound insulation
- prohibit incompatible land uses in the areas surrounding MCO & ORL





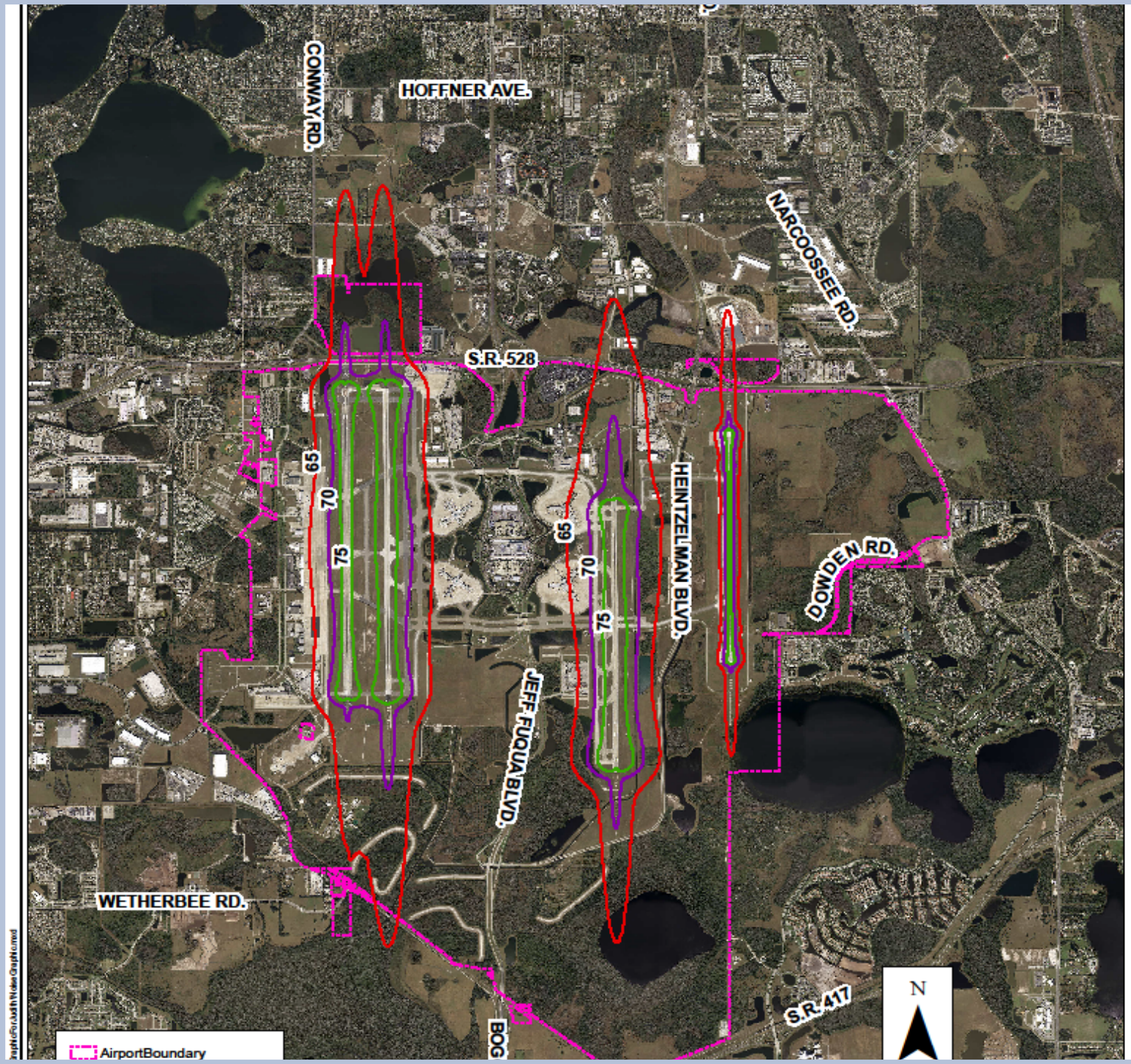


2020 Forecast 65 DNL vs 2015 Actual 65 DNL

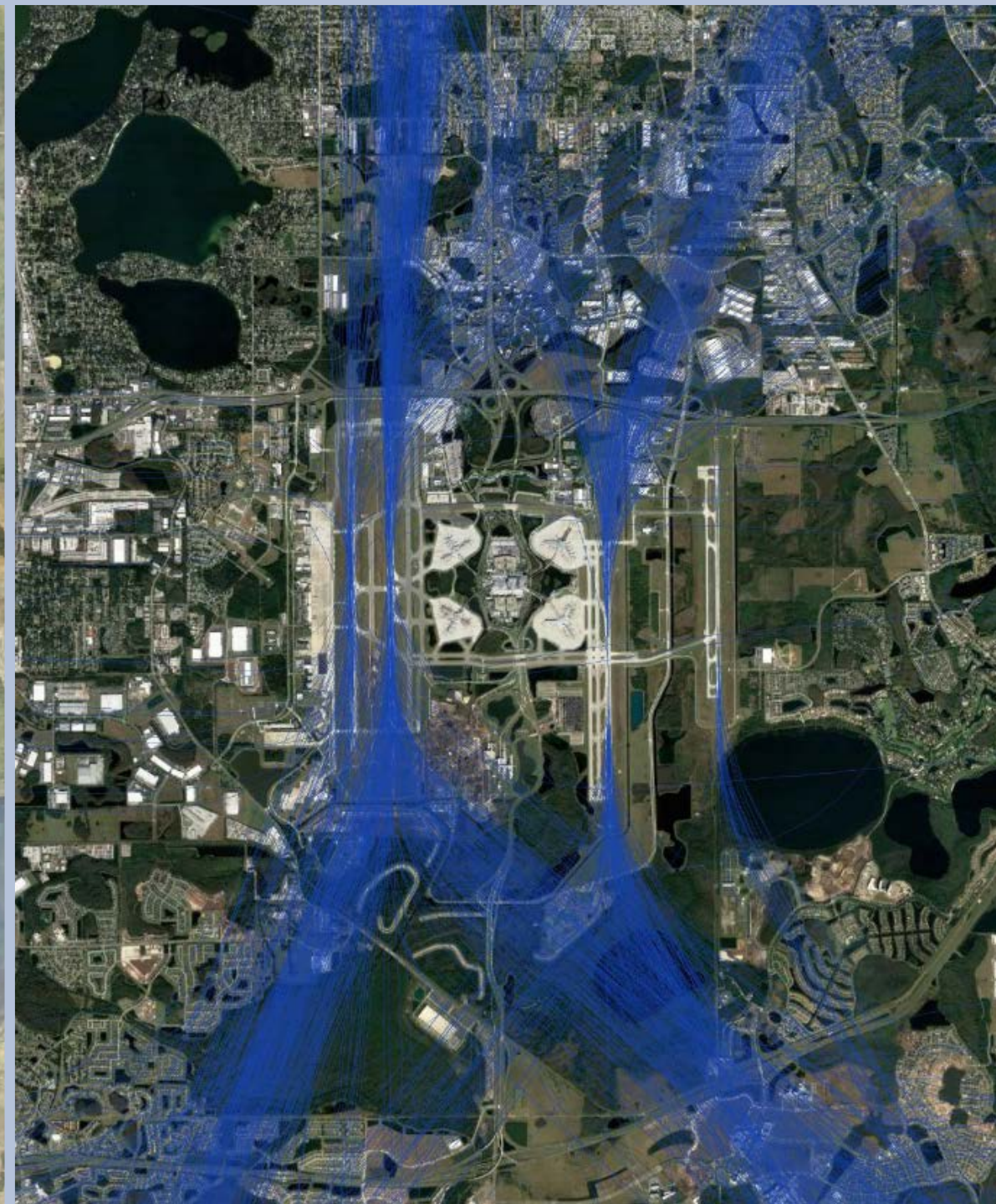
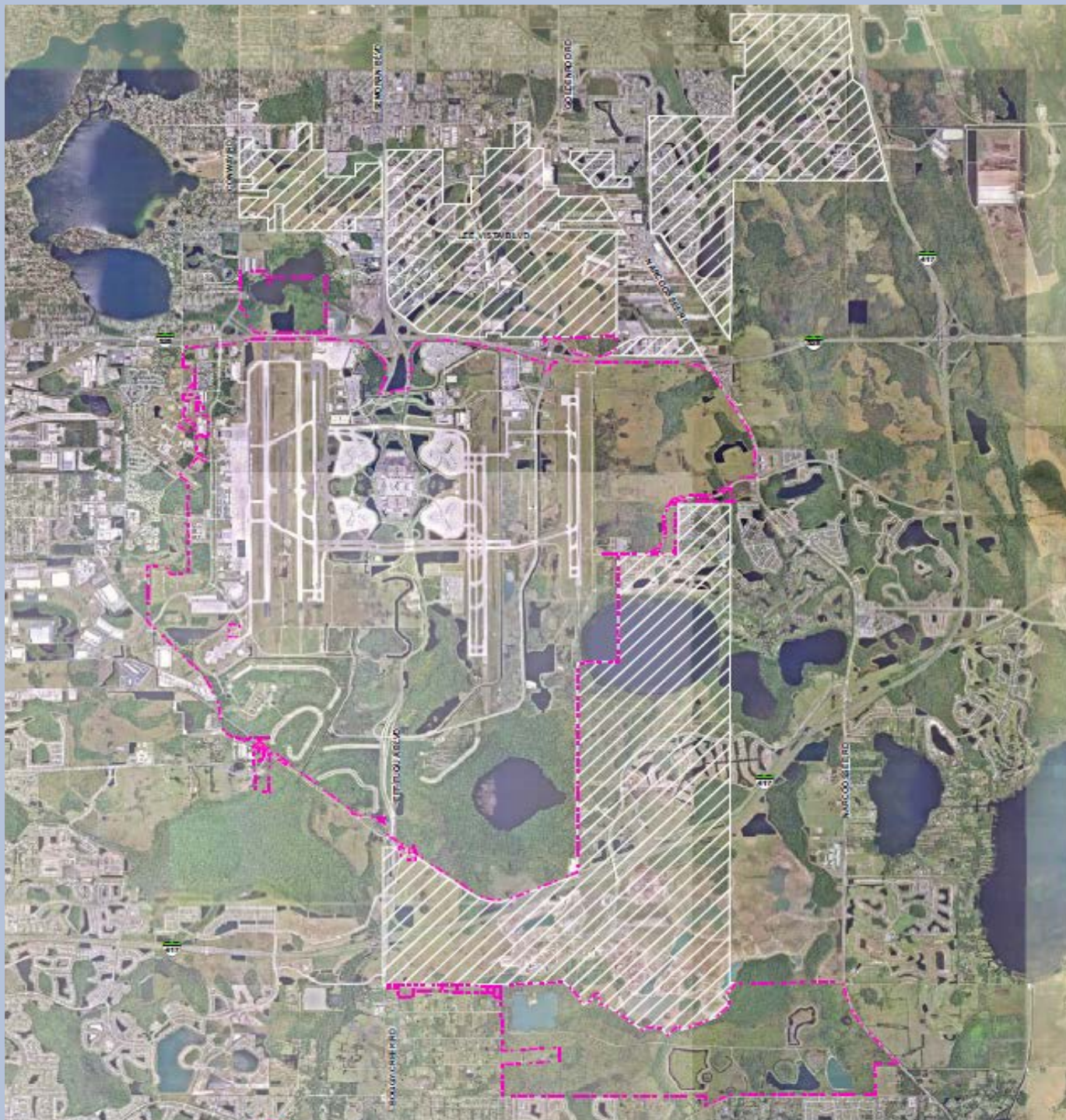




No Residences  
within 65 DNL –  
No sound  
insulation  
program









# Responsive to Community – Noise is Subjective

- Aviation Noise Abatement Committee [est. 1978]
- Noise Abatement Officer
- Noise Abatement Hotline
- Public flight tracker
- Electronic complaints







# What Lies Ahead?







# South Central Florida Metroplex



Part of modernization of the National Airspace System

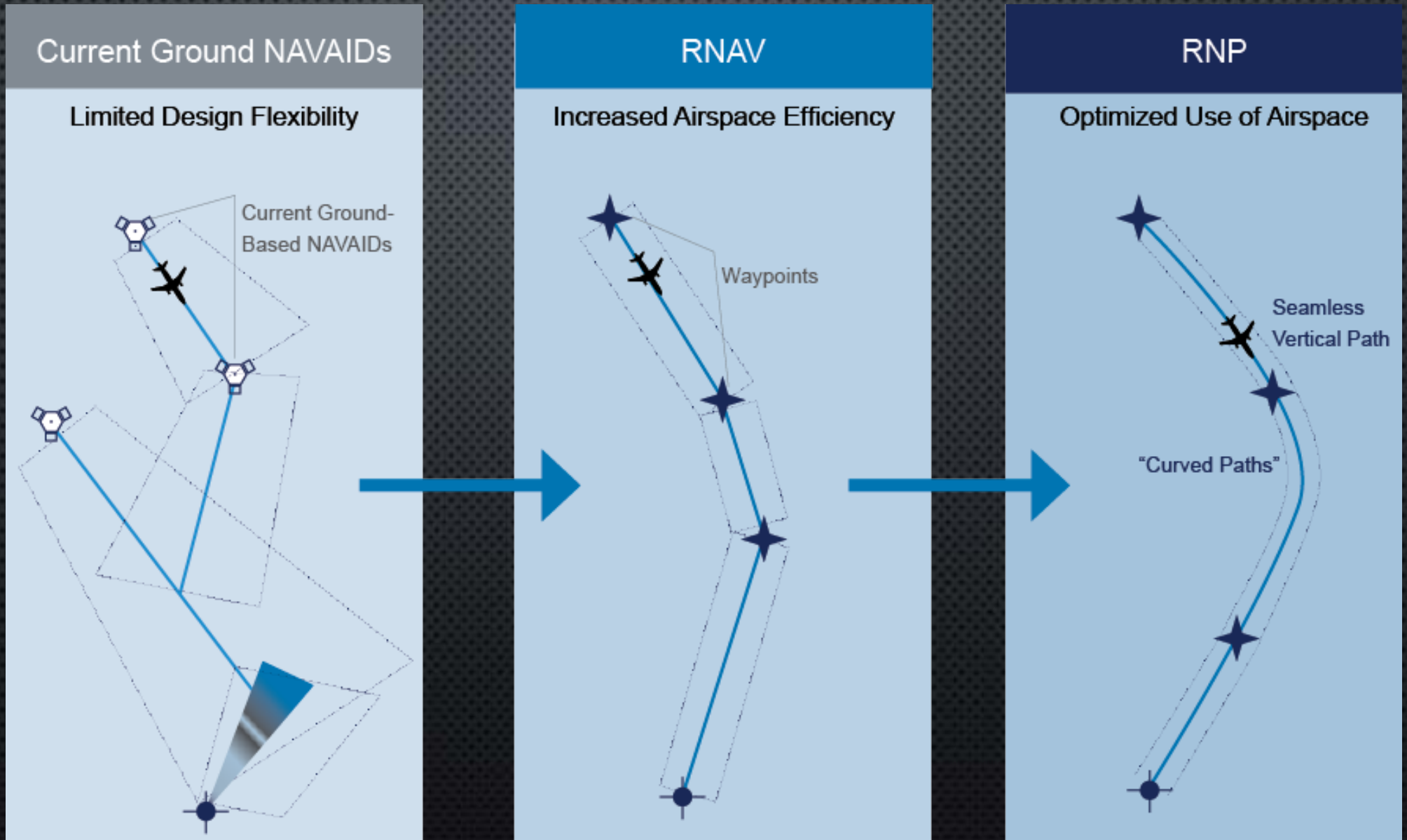
Satellite technology used to create more direct air routes, highly efficient climbs and descents, and routes that are automatically separated from one another.

- **INCREASE** capacity and efficiency
- **REDUCE** aircraft track mileage
- **REDUCE** fuel consumption
- **REDUCE** CO2 emissions



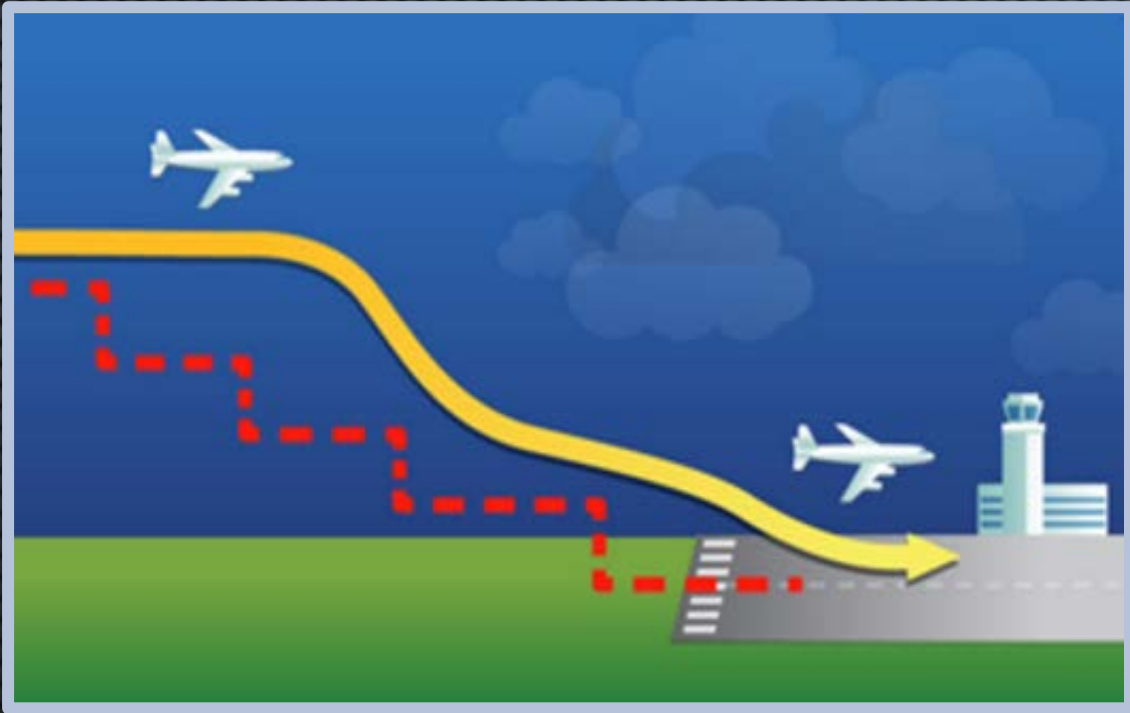


# Performance Based Navigation (PBN)





# Performance Based Navigation (PBN) Optimized Profile Descents

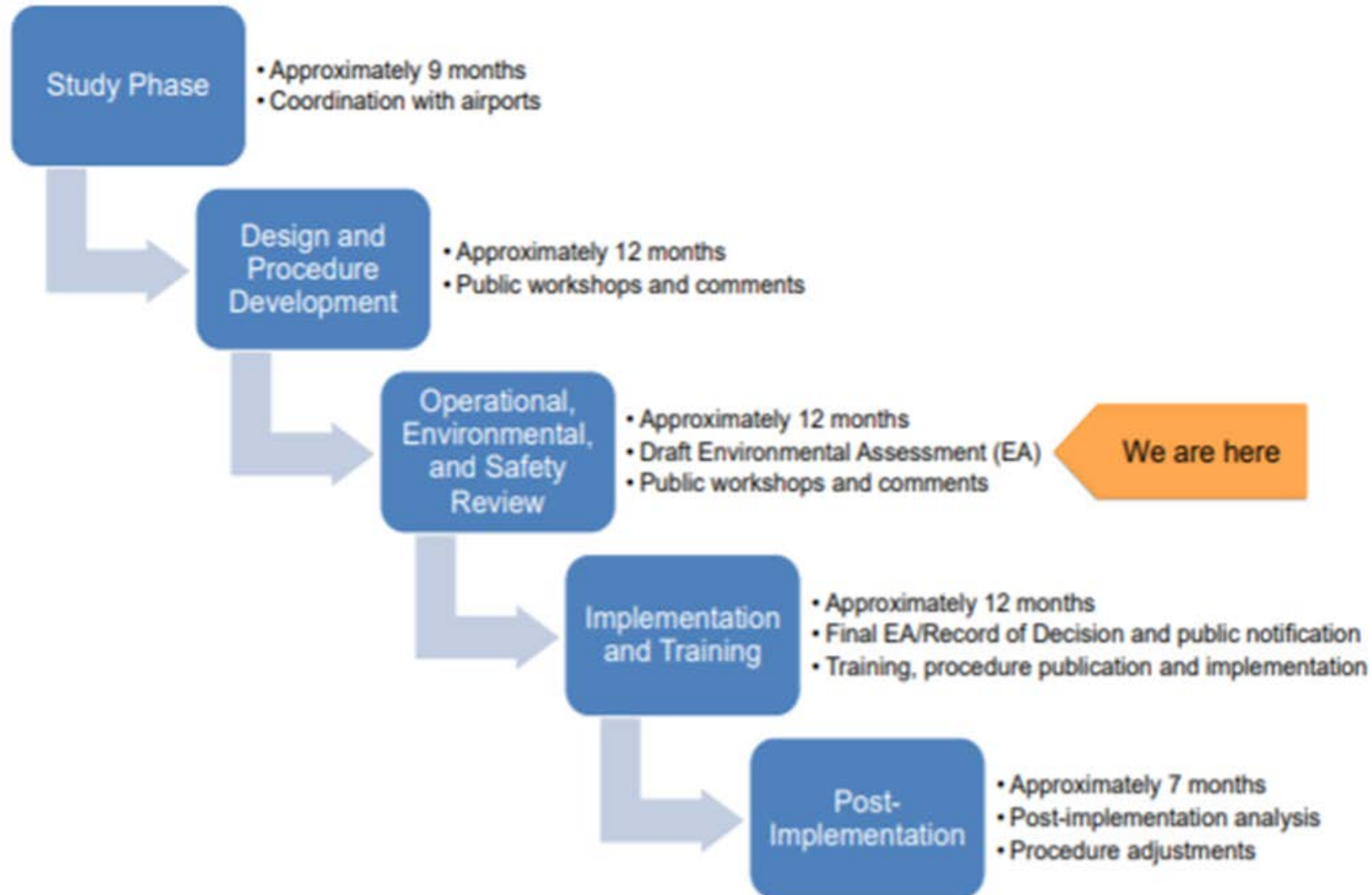


- Stay at cruise altitude as long as possible before starting descent
- Once on descent, reduce engine power to near idle
- Fly down a smooth and gradual glide path on arrival and final approach to runway





# Metroplex Project Phases







# Questions?







**THANK YOU**

