



# Noise Abatement 101

November 10, 2016



Hillsborough County Aviation Authority  
Tampa International, Peter O. Knight,  
Plant City and Tampa Executive Airports

# Objectives

- Provide context and a better understanding for how and why flights may operate at Tampa International Airport the way they do.
- Provide an overview of laws, regulations and other factors that limit airports in implementing restrictions, curfews or fines.
- Review the steps the Hillsborough County Aviation Authority takes on a daily basis to engage and educate stakeholders to maintain the highest level of compliance possible to the Airport's Voluntary Noise Abatement Program.

# U.S. Aviation – Brief Overview

- 532 airports in the nation certified for commercial air service.
- 5,000 aircraft in the air at any given moment.
- Over 600 million passengers fly every year in the U.S.
- 50% increase in U.S. air traffic is projected by 2025.
- Aviation accounts for 11.5 million jobs:
  - Accounting for \$396 billion in annual wages
  - Contributes \$1.3 trillion to the U.S. Economy
  - Accounts for approximately 5.6% of U.S. GDP



Source: FAA Next-Gen 101 Video

# Tampa International Airport – Highlights

- Tampa International Airport is one of 29 large hub airports in the nation.
- 18,929,554 passengers served (12 months ending September 2016).
- 189,216 operations (12 months ending September 2016).
- Generates approximately \$7.8 billion in economic activity each year.
- TPA Air Service:
  - 17 Airlines
  - 2 Air Cargo Operators
  - 2 Fixed Based Operators (serving General Aviation)
- Supports over 81,000 jobs in the community.





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# TPA's Voluntary Noise Abatement Program

# Tampa International Airport



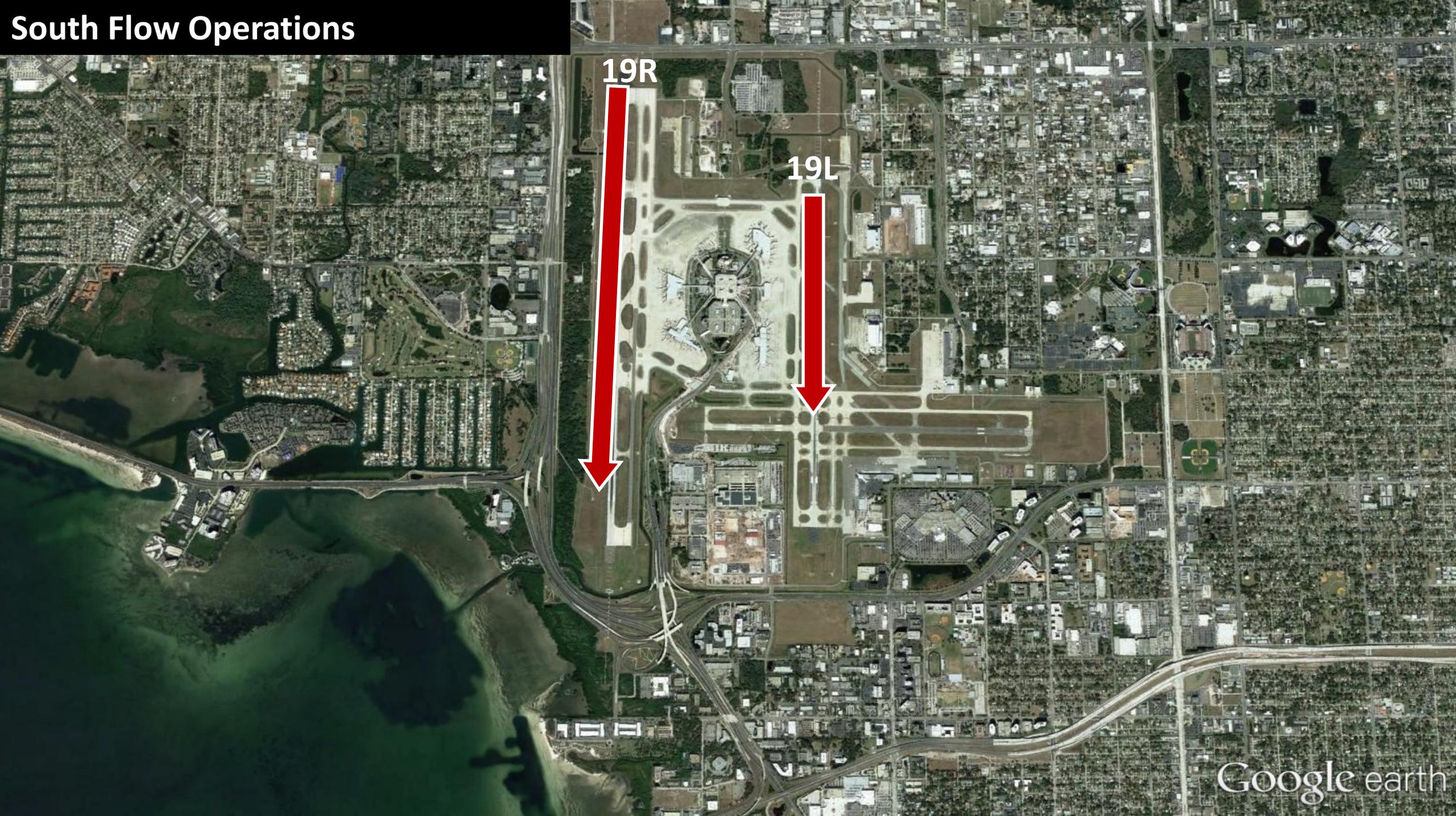
- Part 150 Noise Studies:
  - First completed in 1987.
  - Second completed in 2000.
- Pilot compliance with the program is key to the success of the program.
  - Since January of 2016, commercial pilots have complied with the Airport's Voluntary Noise Abatement Program over **99%** of the time. That means only 130 commercial pilot request deviations from the Airport's noise program occurred out of 123,718 commercial jet operations\*.
  - The Authority continues to educate corporate jet pilots on the Airport's Noise Program to gain further compliance.
  - This is a Voluntary Noise Abatement Program and ultimately, it is up to the pilot and the FAA on how flights are flown over the community.

\*Numbers reflective of January 1, 2016 through October 31, 2016.

# TPA Part 150 Recommendation Highlights

- Preferential Runway Use:
  - Goal is to maximize flights over water to the greatest extent possible.
  - South Flow: Runway 19R is the preferred runway for commercial jet departures, maximizing flights over water.
  - North Flow: Runway 1L is the preferred runway for jet arrivals, maximizing flights over water.
    - There is no stated preference to runway arrivals for south flow arrivals or north flow departures.
- North flow departures are to fly assigned headings to 3,000 ft. before turning on course.
- Full Part 150 study is available online.

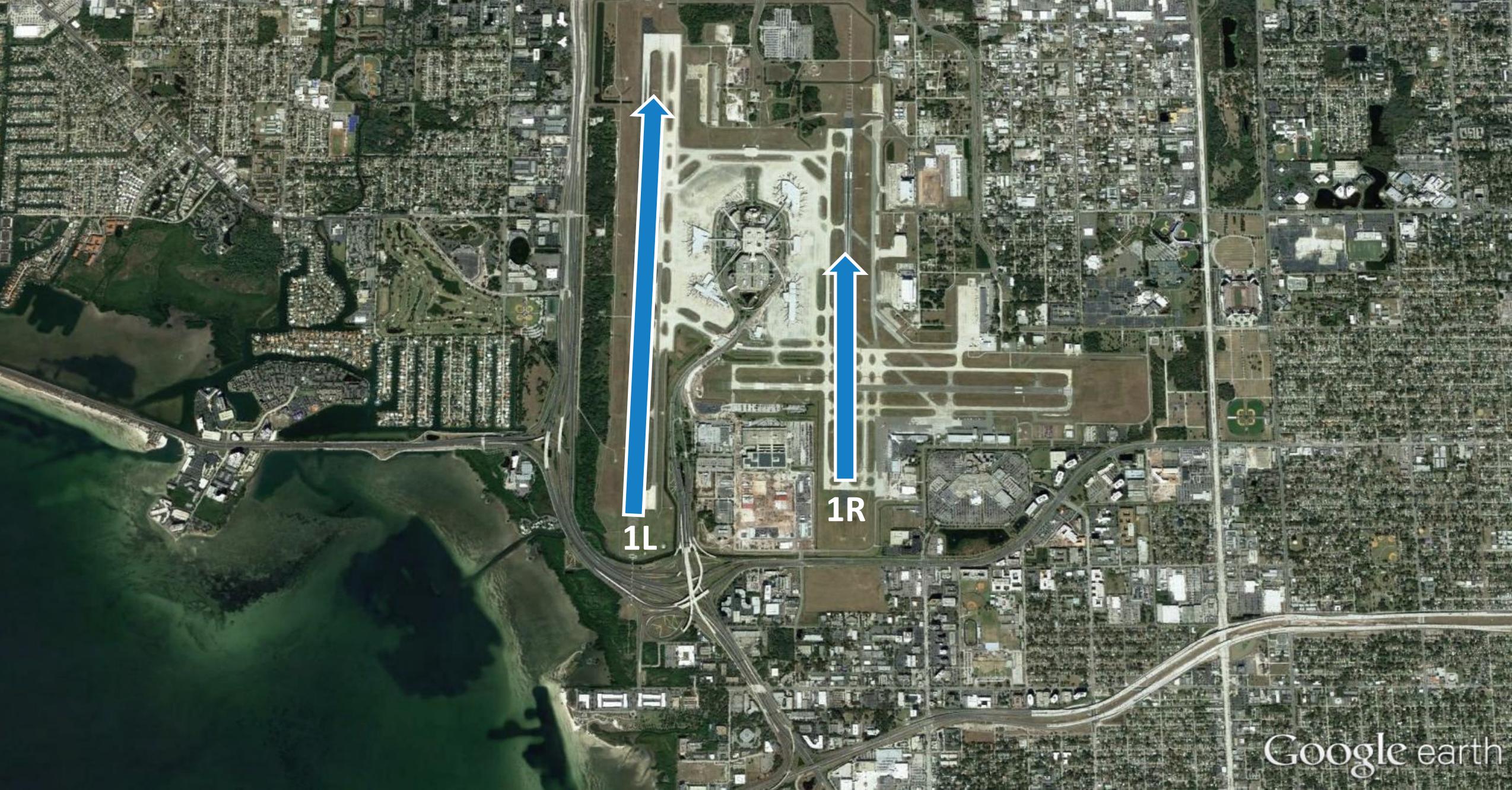
# South Flow Operations



19R

19L

# North Flow Operations



1L

1R



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# Noise Office Systems

# Noise Office Systems

- The Noise Office uses advanced flight monitoring and tracking tools provided by the Harris Corporation.
- Harris has provided noise office software and noise monitoring capabilities to TPA since the early 2000's.
- Multiple airports around the country use the Harris system, including:
  - Boston Logan International Airport
  - Orlando International Airport
  - Atlanta International Airport
  - Charlotte International Airport
  - Phoenix Sky-Harbor International Airport

# Noise Office Systems (cont'd)

- The Airport concluded its most recent, five year contract with Harris on September 30, 2016.
- The Airport began a new, one year contract with Harris on October 1, 2016, with four, one-year options.
- Over the next 12 months, the Airport will be formally evaluating potential and alternative providers and/or applications that may or may not replace the existing Harris system in use today.



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# Public Tools

# Public Flight Tracking Tools

- In March of 2016, the Airport initiated an application called PublicVue.
  - Provides residents the ability to see flights operating in to, out of and around Tampa International Airport.
  - The ability to see airline name, aircraft type, altitude, speed and other data points.
  - Historical flight tracking capability to track and review flights over the past year.

# Daily Deviations

- In March of 2016, the Airport began posting daily deviation information on the Airport's website.
  - All commercial jet departures on Runway 19L and stated cause.
  - All jet arrivals to Runway 1R with references to causes for all commercial jet arrivals.
- TPA is the only airport in the nation to proactively post such information on daily basis.



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# Laws and Regulations on Aircraft Noise

# Aviation Safety and Noise Act (ASNA)

- This legislation was passed in 1979.
- 14 C.F.R (Code of Federal Regulation) Part 150 resulted from this legislation.
  - A Part 150 study is optional for airports (not mandatory).
- Created federal framework for FAA review of noise compatibility:
  - Day-Night Level (DNL) noise metric.
  - Established 65 DNL compatibility threshold.
- A Part 150 study establishes a plan that:
  - Is a vehicle for funding.
  - Provides means of supporting noise control measures, but tied to FAA's DNL 65 threshold.
  - Provides recommendations on noise abatement procedures.

Retrieved from presentation by John E. Putnam, Kaplan, Kirsch, and Rockwell.

# Tampa International Airport – 65 DNL Noise Contour (Part 150 Study)

Represents Projected 2005 Noise Exposure Map From Part 150 Study.



# Airport Noise and Capacity Act (ANCA)

- This legislation was passed in 1990.
- Phased out noisiest large aircraft.
- Restricts an airports ability to adopt access restrictions.
- For restrictions on Stage 3 aircraft, airport must complete study *and* secure FAA approval.



# History of Airport Noise Restrictions

- Since 1990, *many* airports have tried to adopt new use restrictions. ***Only two have been successful; both restrictions were on Stage 2 aircraft that have since been prohibited by Congress from operating nationwide:***
  - ***Naples Municipal Airport (APF)***
  - ***Van Nuys Airport (VNY)***
- Part 161 requires six conditions be met:
  - Reasonable, non-arbitrary and non-discriminatory.
  - **No undue burden on interstate or foreign commerce.**
    - **This condition necessitates benefits of a proposed restriction outweigh potential cost. Because no residents south of Runway 1R live within the 65 DNL, the benefit would be considered \$0, meaning that benefits would not outweigh the cost. On this one condition alone, the Airport would be unable to meet the required conditions of a Part 161 study.**
  - Maintain safe and efficient use of navigable airspace.
  - Does not conflict with existing federal statute or regulation.
  - Adequate opportunity for public comment.
  - No undue burden on national aviation system.



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# Overview of Deviation Causes

# Deviation Categories – Pilot Request

- Pilot Request:
  - 14 C.F.R. (Code of Federal Regulation) 91.3 states:
    - “The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.
  - A pilot in command of his or her aircraft may request an alternative runway from what is assigned, which may deviate from the Airport’s Voluntary Noise Abatement program. If the requested runway is available to accept the aircraft, Air Traffic Control cannot prohibit an aircraft from landing on that runway.
  - The Noise Office contacts air carriers in writing when a pilot request deviation occurs, **whether a complaint is received or not.**
  - Through continued airline partnership, since January of this year, commercial pilot request deviations have totaled 130, or less than 1% of the total operations at TPA.

# Deviation Categories – FAA Assigned

- FAA Assigned (Air Traffic Control):
  - Air traffic control is responsible for the safe movement of aircraft in the air and on the ground.
  - Air Traffic Control has full authority over ensuring safety throughout the National Airspace System and may assign an aircraft instructions that deviate from the recommendations in the Airport's Noise Abatement Program.

# Deviation Categories – Aircraft Emergencies

- Aircraft Emergencies:
  - Any aircraft experiencing a reported mechanical issue or a medical emergency will take priority. The pilot and Air Traffic Control will determine the most suitable runway for the arrival. Noise abatement procedures are not a consideration when managing an emergency.
  - Emergency arrivals may, depending on the circumstances, require a closure of the runway used for arrival. During such closure(s), arriving and departing aircraft may use the Airport's noise sensitive runway until the noise preferred runway is reopened.

# Deviation Categories – Runway Closures

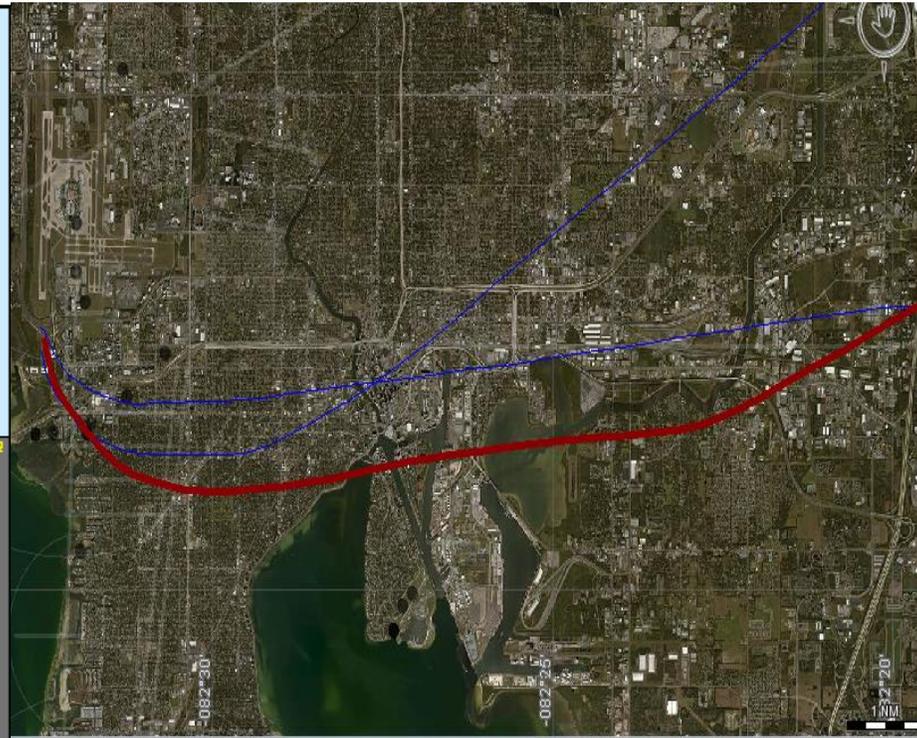
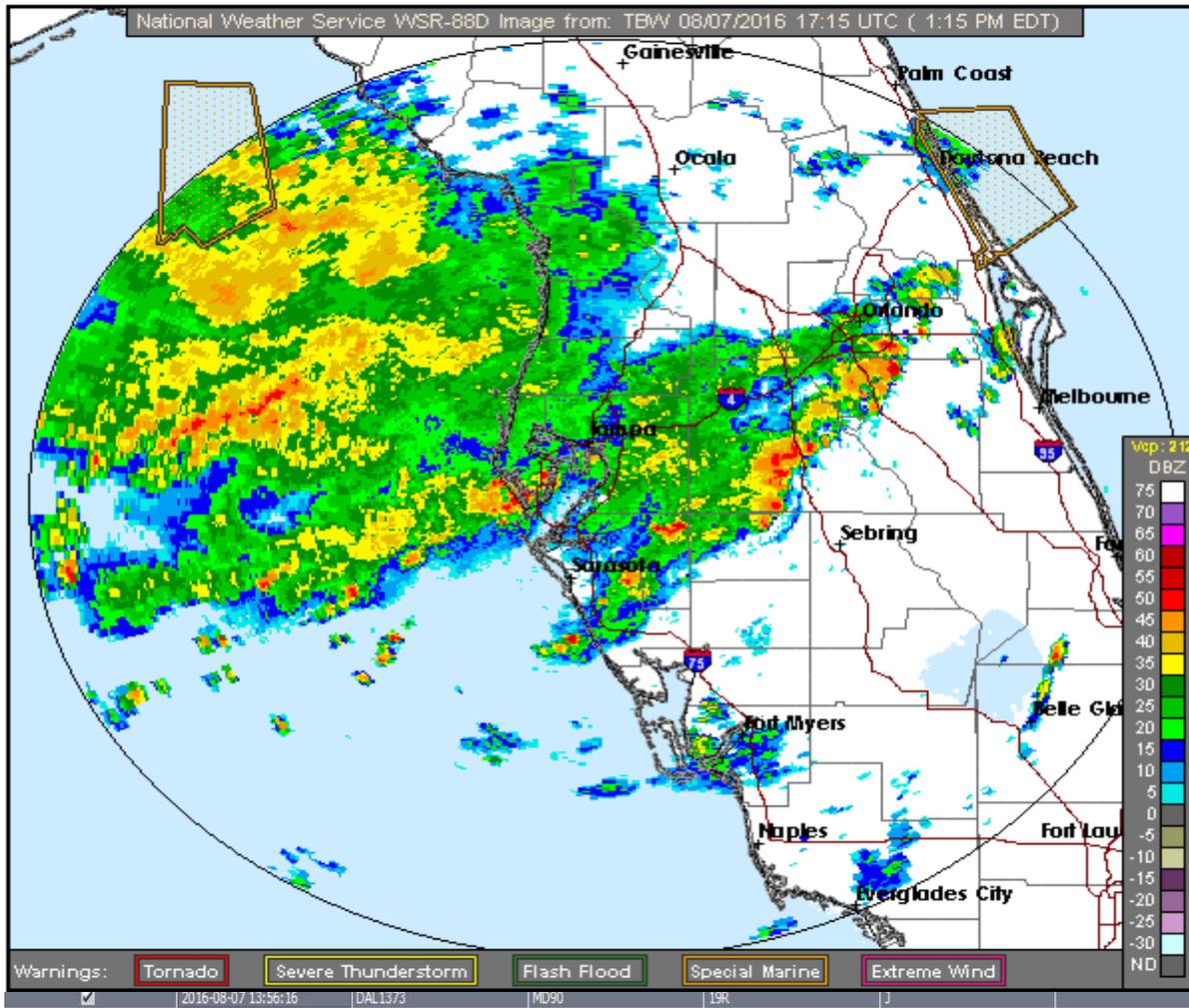
- Scheduled Runway Closures:
  - Are communicated in advance to those on the Airport’s CNC email distribution list.
  - Each of the Airport’s runways are closed once a month for scheduled monthly maintenance.
    - West runway generally the first Wednesday of each month.
    - East Runway generally the third Wednesday of each month.
  - Additional maintenance requirements throughout any given month may require additional closures. The maximum amount of work is coordinated to take place during each closure.
- Unscheduled Runway Closures:
  - Aircraft emergencies.
  - Wildlife strike reports.
  - FOD (foreign object debris).
  - Other safety matters that must be addressed immediately.

# Deviation Categories – Weather

- Weather:
  - Wind direction dictates whether aircraft arrive and depart to the south (south flow) or arrive and depart to the north (north flow).
  - Air Traffic Control monitors weather conditions and assigns instructions to crews based on numerous factors-all to ensure safety.



# Deviation Categories – Weather (cont'd)



Origin Airport	Destination Airport	Operation Type	Associated With Complaint	Associated Noise Events
2260 TPA	BWI	D	False	1
7776 TPA	DFW	D	False	1
7043 TPA	ATL	D	False	0

# Deviation Categories – Weather (cont'd)

- Runway 1L and Runway 1R:
  - Distance between the two runways is less than 1 mile.
  - Advanced technology used by Air Traffic Control monitors for strong winds, including wind shear.
  - Wind shear alerts may be received for the approach to one runway but not the other.
  - As a result, aircraft will be vectored to the safest runway during inclement weather events.

# Exempt Aircraft

- The following aircraft do not fall within the guidelines of the Airport's Voluntary Noise Abatement program:
  - Military.
  - Law Enforcement.
  - Medivac.



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# FAQ

# Can Tampa International Airport Force Planes to Stop Using The Noise Sensitive/East Runway?

The Airport Noise and Capacity Act of 1990 **prohibits** the Airport from implementing any restriction on runway use ***without completing a Part 161 application and receiving FAA approval of the application and the restriction.***

**One of six conditions set forth in Part 161 necessitates benefits of a proposed restriction outweigh potential cost. Because no residents south of Runway 1R live within the 65 DNL, the benefit would be considered \$0, meaning that benefits would not outweigh the cost. On this one condition alone, the Airport would be unable to meet the required conditions of a Part 161 study.**

# Can Tampa International Airport Implement a Curfew?

The Airport Noise and Capacity Act of 1990 **prohibits** the Airport from implementing a curfew ***without completing a Part 161 application and receiving FAA approval of the application and the restriction.***

**One of six conditions set forth in Part 161 necessitates benefits of a proposed restriction outweigh potential cost. Because no residents south of Runway 1R live within the 65 DNL, the benefit would be considered \$0, meaning that benefits would not outweigh the cost. On this one condition alone, the Airport would be unable to meet the required conditions of a Part 161 study.**

# Do Residents of Hillsborough County Pay Ad Valorem Property Taxes That Support The Airport?

**No.**

Although empowered to levy ad valorem property taxes, the Authority has not collected any tax funds since 1973.

The Authority is a self-supporting organization and generates revenue from airport users. Capital projects are funded through generated revenue, grants, facility charges, various forms of financing and bonds.

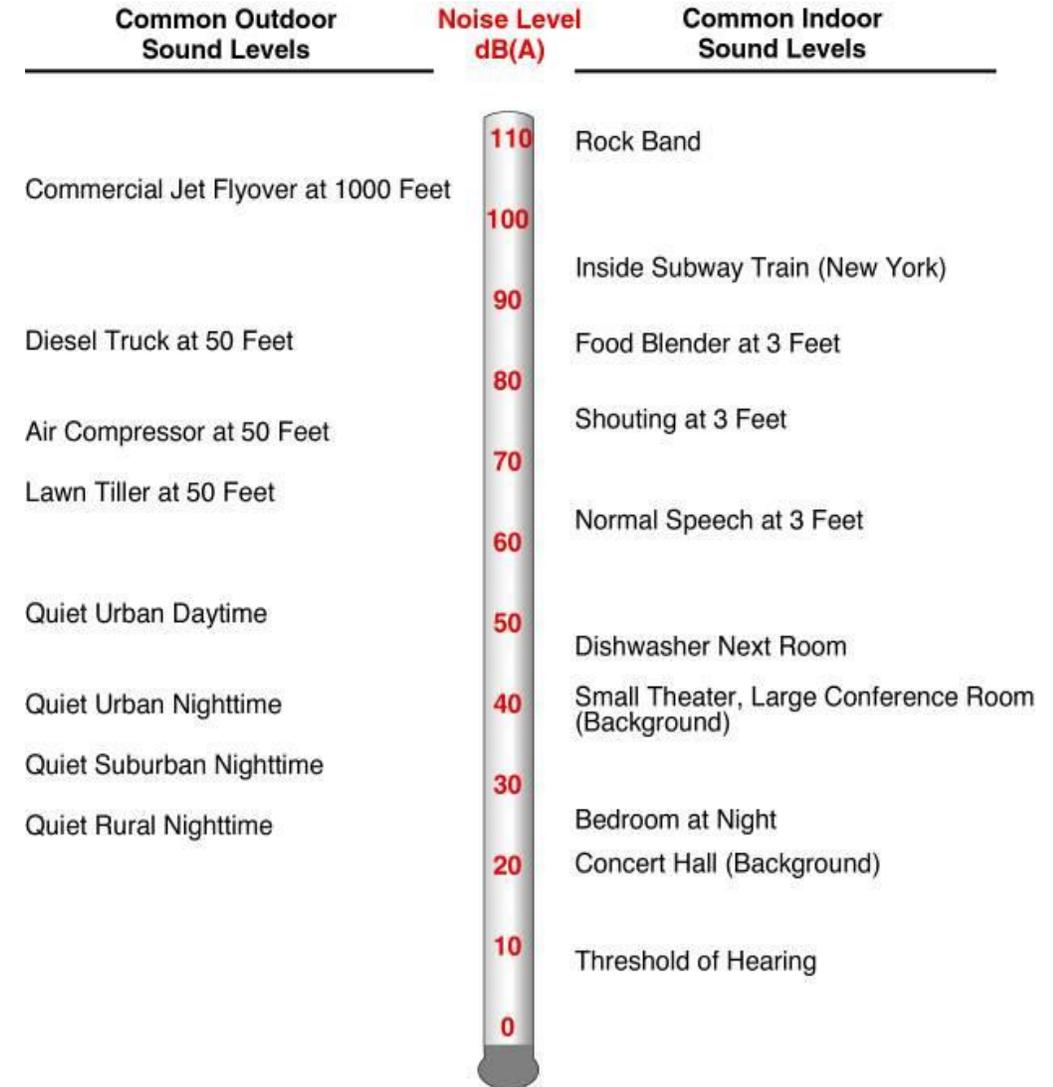
# What is the Difference Between *a Noise Level of 65 dB During an Aircraft Flyover* and 65 DNL?

***We use so-called “single event” noise metrics to measure individual events; those metrics only take into account the noise associated with that specific event.***

***DNL is a measure of cumulative noise exposure over a 24-hour period (or any number of 24-hour periods; e.g., a week, month, quarter, or year). To account for human sensitivity to noise between the hours of 10 p.m. and 7 a.m., noise events occurring during these hours receive a “penalty” when the DNL is calculated. Each nighttime event is measured as if ten daytime events occurred.***

# What is the Difference Between 65 dB and 65 DNL? (cont'd)

- Human auditory system not equally sensitive to all frequencies.
- To be a useful environmental analysis tool, we need a way to measure sound the same way the ear 'hears' it.
- The A-weighted level achieves this goal  
*Consistent with EPA's recommendation, the A-weighted level is used by federal, state, and local agencies for environmental noise analyses.*



Retrieved from presentation by HMMH – Basic Aircraft Noise Terminology.



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# Conclusion



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