### Airplane Noise and "NextGen"

### Queens Quiet Skies October, 2013

1

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### OBJECTIVES OF QUEENS QUIET SKIES

- Increase the number of noise monitors at LGA, EWR, and JFK. <u>We have far fewer than the U.S. norm!!</u>
- Implement a formal, standing, Aviation Community Roundtable for ALL OF QUEENS, with all decisions makers at the same table, mutually agreeing on outcomes. <u>Effective Roundtables operate all across</u> <u>the United States!!</u>
- Require that a "Part 150" Airport Noise Compatibility Study be performed by the Port Authority. <u>New York</u> <u>area airports are the only ones without such studies!!</u>
- Have the FAA provide a full Environmental Impact Study of <u>ALL</u> flight changes. <u>The FAA must stop using</u> <u>Categorical Exclusions for flight changes!</u>

# **OBJECTIVES TONIGHT**

- Discuss how satellite navigation has <u>SIGNIFICANTLY CHANGED</u> the precision of aircraft flights = more noise in New York.
- Review two FAA programs NextGen and Airspace Redesign, poorly handled by FAA, with drastic impacts on the entire NYC and Long Island area.
- Demonstrate noise reduction at other United States airports.
- Address <u>CATEGORICAL EXCLUSIONS</u> and the FAA's inappropriate use here.
- What must we all do?

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# **Key Players**

- Federal Aviation Administration (FAA) a branch of the U.S. Department of Transportation; establishes flight procedures; controls flights based on recommendations.
- The Port Authority of New York and New Jersey (The Port) – operates six area airports, including LGA and JFK, pays several hundred million dollars a year to the City of New York, for the LGA and JFK leases.
- The Airlines sub-lease space from the Port to operate from JFK and LGA, have immense operations centers that are in constant communications with the FAA, and the Port.

# Key Players, Continued...

- Radio Technical Commission for Aeronautics (RTCA) non-profit advocacy group, established in 1935,
  - Funded by the FAA, the airlines, and the aviation industry, with one lone representative for you and me.
  - Reviews proposed operating standards, reviews other proposed policy changes.
- NextGen Advisory Committee (NAC)
  - Subcommittee of the RTCA.
  - Provides recommendations to the FAA, regarding implementation of NextGen.

# Key Players, Continued...

- The State of New York one part of the Port Authority, along with the State of New Jersey
- The State of New York Legislature recently adopted a bill requiring the Port to do a Part 150 Study for LGA, JFK, and EWR
- The State of New Jersey second part of the Port, currently considering Part 150 legislation.
- Elected Officials from New York and New Jersey the people who can make changes.
- YOU the ones who can demand changes.

# **Key Words**

- Satellite Navigation GPS based navigation
- Flight procedures written procedures for airplane and departure procedures, based on satellite navigation, and often published in the Federal Register.
- Next Generation Air Transportation System (NextGen) – rewriting of all flight procedures across the country, based on satellite navigation.

### **Understanding Noise Generation**

# "AIRPLANE GROUND SCHOOL"

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# Old Airplanes Looked Like this:

DRAIN ALL FLEL MAPS DAILY

ATIS 123.8 GROUND 121.9 TOWER THE APPORT

MIXTURE

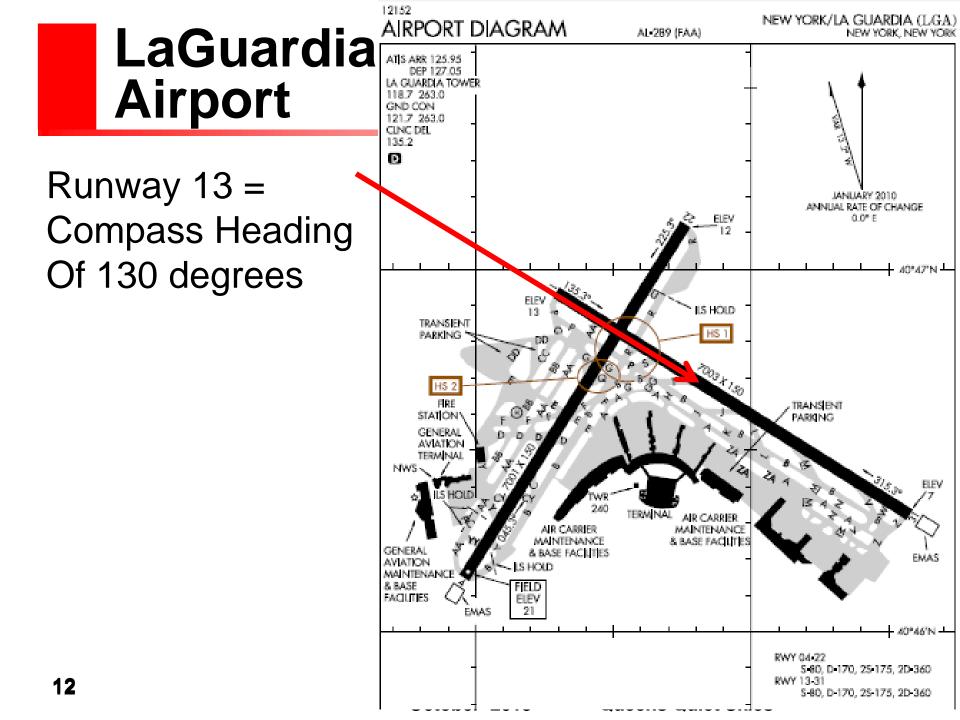
N4364P

IN HEAT

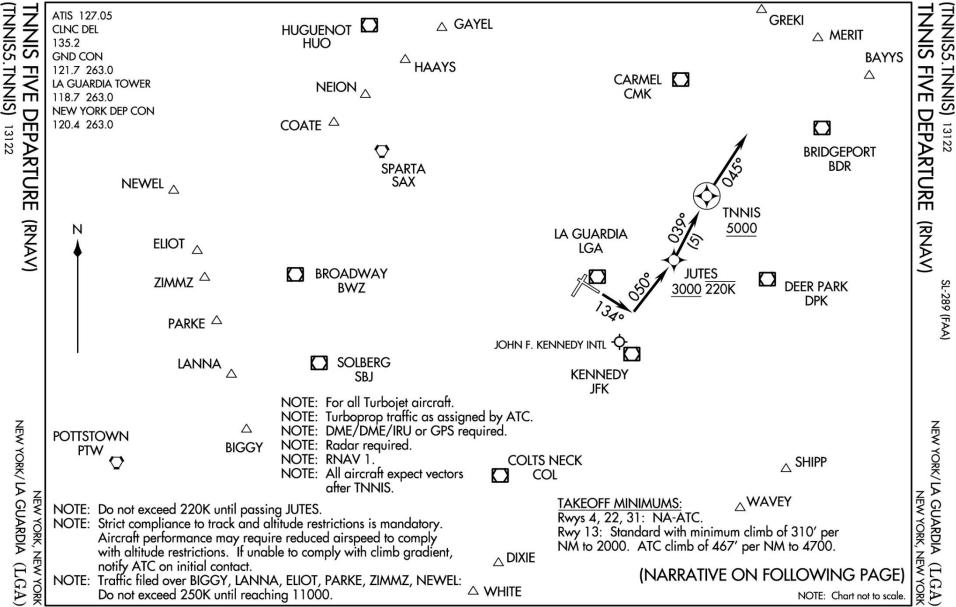
### New "Glass Cockpits" = NextGen







### **TNNIS FIVE RNAV SID Procedure**



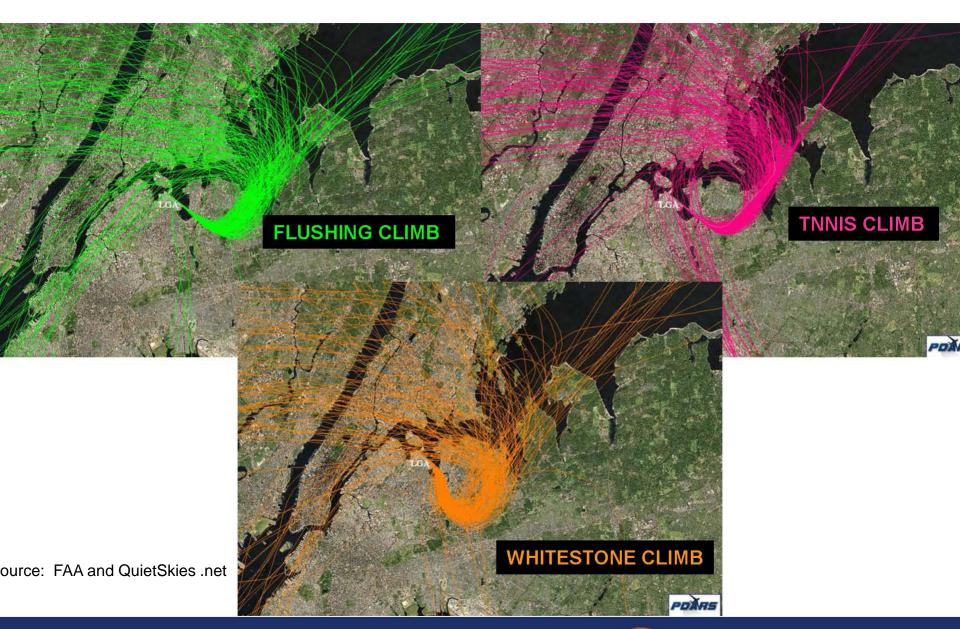
### TNNIS FIVE RNAV INSTRUMENT DEPARTURE

#### TNNIS 5000' AGL

#### JUTES 3000' AGL

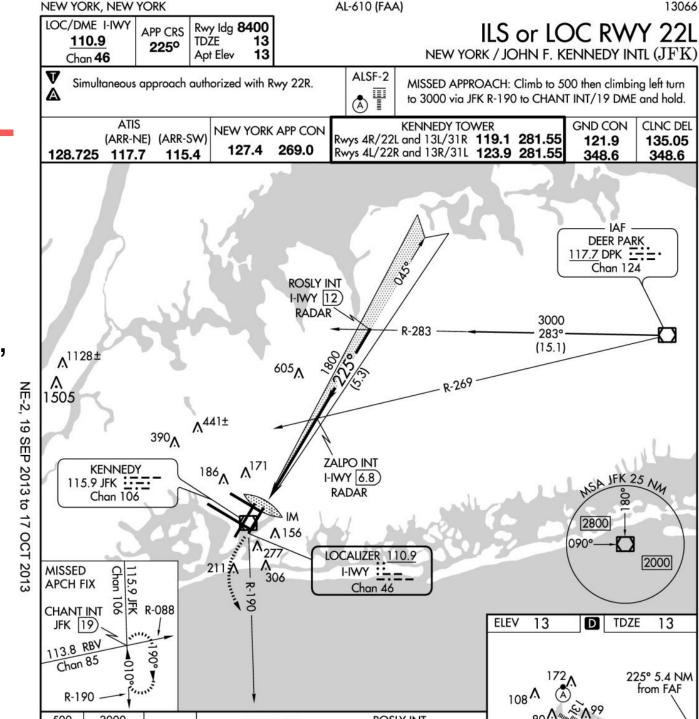
Google earth.

Data SIO, NOAA, U.S. Navy NGA, GEBCO

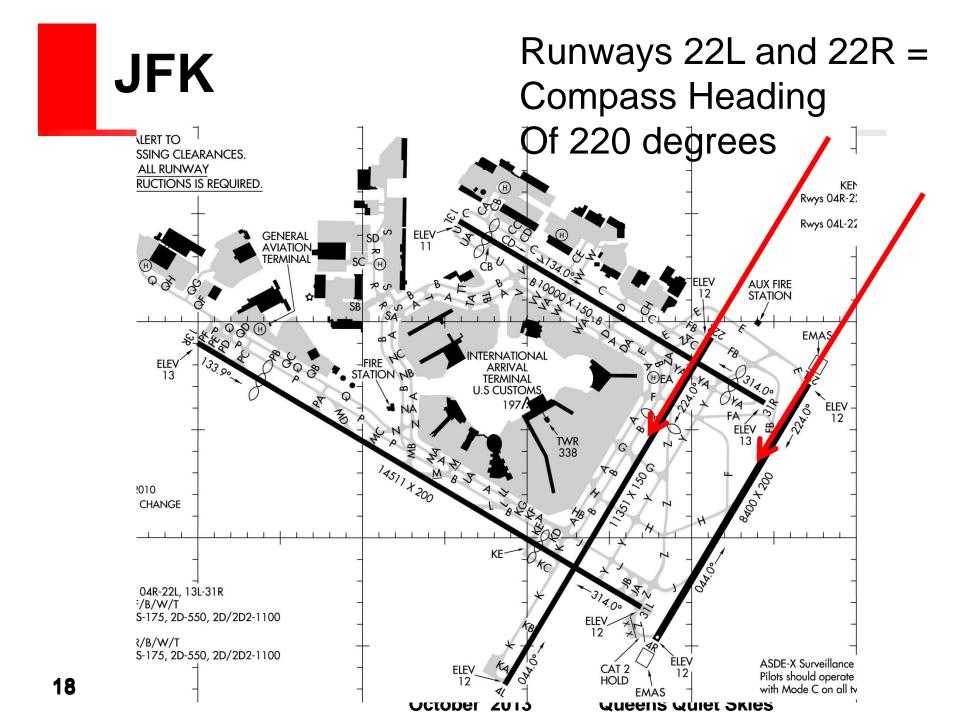


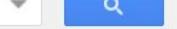




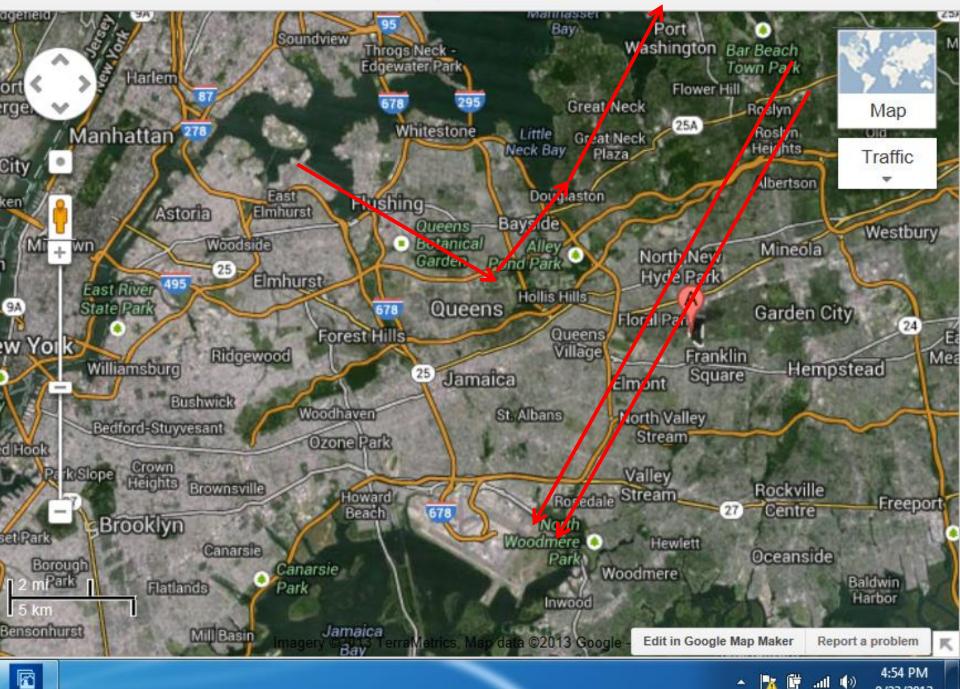


One of About 15 Airplane "procedures" for JFK Runway 22





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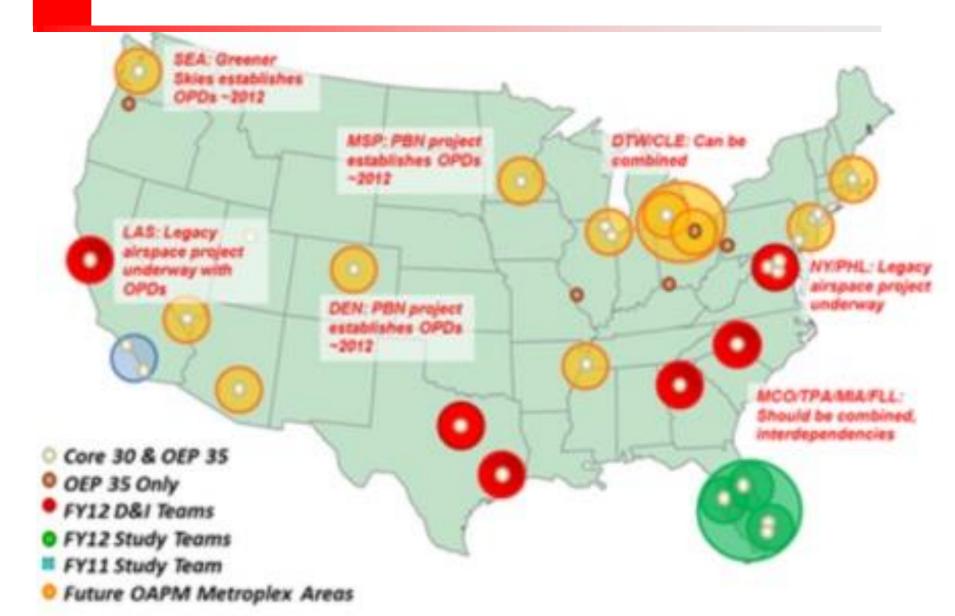


### NY Area 2007 Airspace Redesign

- Airspace Redesign = reduce delays by rearranging flight procedures.
- We were told that airspace redesign would not have major effects and, not impact our environment; this obviously is not the case.
- Airspace Redesign in later stages for the five NY Metro area airports (LGA, JFK, EWR, TEB, PHL).
- Limited environmental studies at that time DID NOT consider impacts of NextGen, nor were noise solutions provided.

# NextGen Impact on New York City

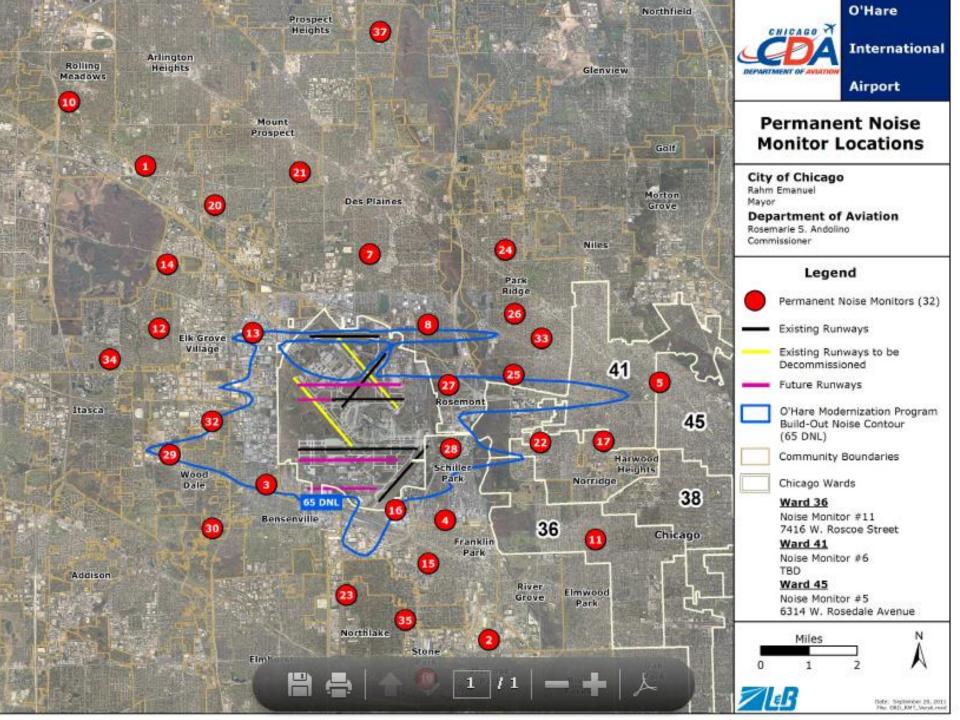
### "NextGen" Airspace Redesign Now



### NextGen: Aircraft Flights Becoming Very Concentrated

- There now will be more <u>*"lanes in the sky"*</u> because GPS satellite based systems will demand precision.
- Not just images on a screen the on-board computer known as the Flight Management System or FMS – flies the aircraft; Pilots are becoming computer operators more than ever – per the direction of their airline.
- Leading to less variation caused by wind, age of aircraft, weight of aircraft, pilot competency.
- Creates concentration of flights and noise in narrow path, allowing **MORE FLIGHTS!**

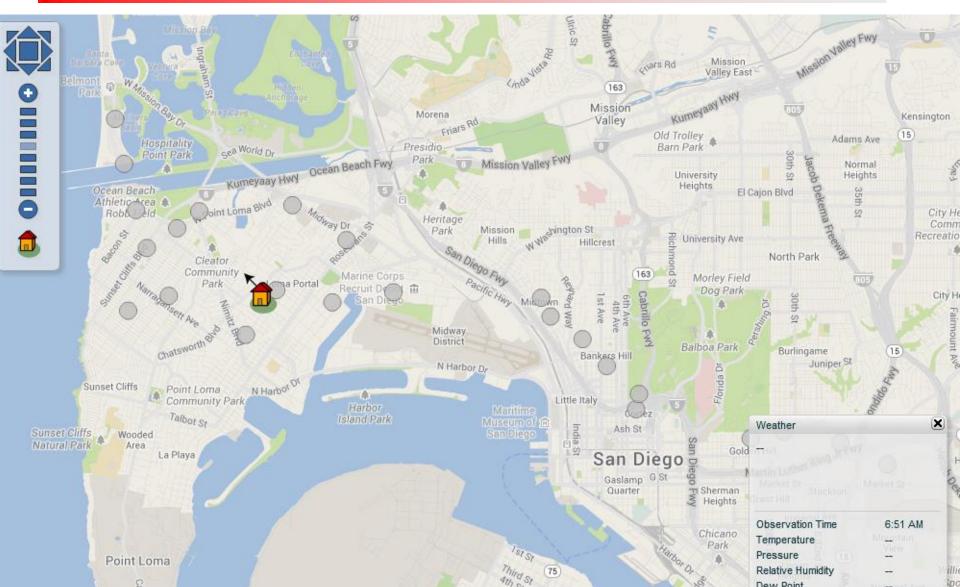
# **NOISE MONITORS**



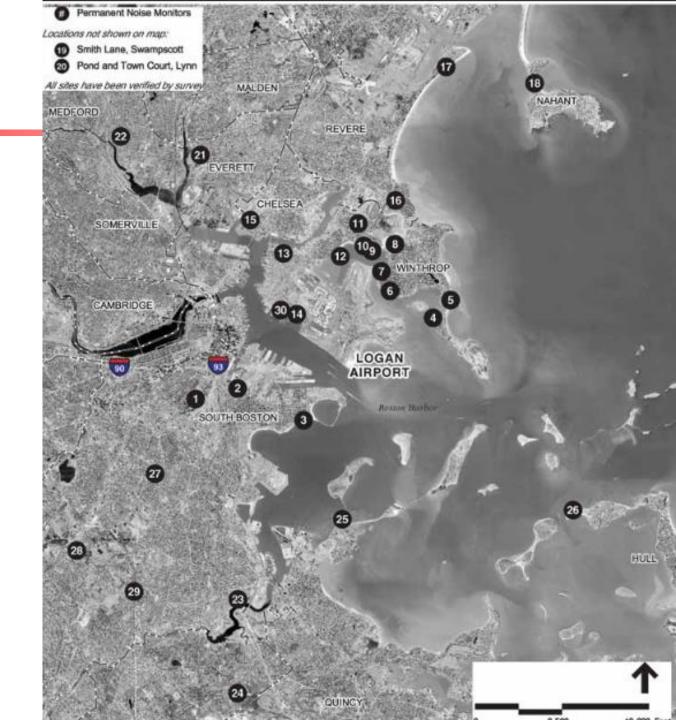
### Noise Monitors-SFO



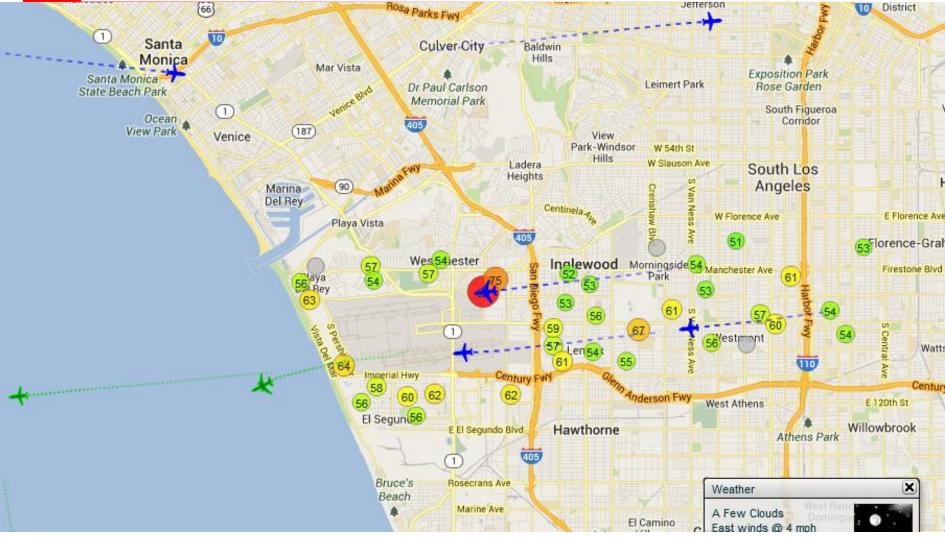
### Noise Monitors San Diego Airport



### Noise Monitors Boston

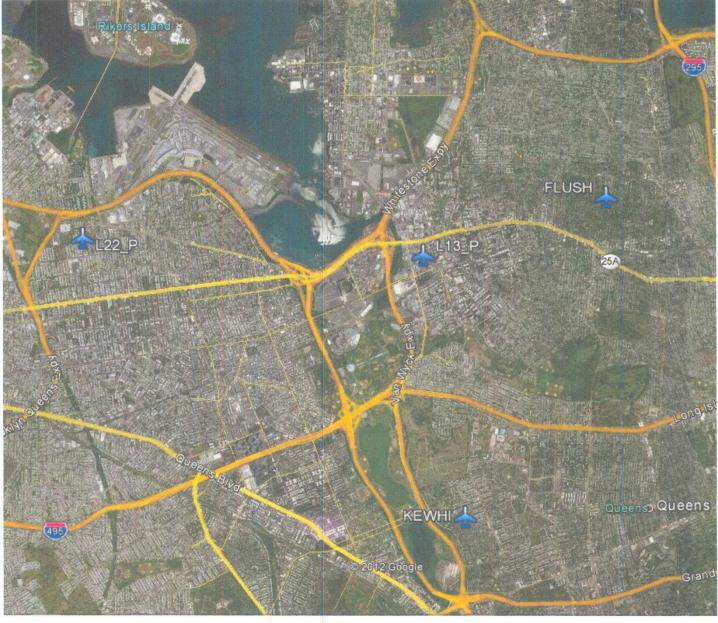


### Noise Monitors LAX



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### Noise Monitors LGA



Permanent Sites:	Portable Sites:		
L22 P	FLUSH		
L13_P	KEWHI		

### Noise Monitors JFK



Permanent Sites:	Portable Sites:		
J31LP	FLPRK		
J31RP	CEDAH		
J04BP	ATL65		
J13LP	ARV64		
J13RP			
J22RP			

## **Noise Monitors – Other Airports**

Chicago O'Hare:30 permanent noise monitorsLAX:40 permanent noise monitorsSan Diego SAN:20 permanent noise monitorsBoston Logan:27 permanent noise monitorsSFO:29 permanent noise monitors

LaGuardia:

JFK:

2 permanent noise monitors (and 2 portable noise monitors)6 permanent noise monitors (and 4 portable noise monitors)

# ROUNDTABLES

## **Airport Community Roundtables**

Airport	FAA Membership?	Meeting Frequency	Operating Agreement	Voice in Decisions?
San Francisco, CA	Yes	<b>Bi-Monthly</b>	MOU	Yes
Los Angeles, CA	Yes	<b>Bi-monthly</b>	By-laws	Yes
Chicago O'Hare, IL	Yes	<b>Bi-monthly</b>	City of Chicago	Yes
Denver Area, CO	Yes	<b>Bi-monthly</b>	MOU & Charter from Airports	Yes
Oakland, CA	Yes	Twice Yearly	MOU & Charter from Airport	Yes
Louisville, KY	Yes	<b>Bi-Monthly</b>	Charter from Airport	Yes
Portland, OR	Yes	Monthly	Charter from Airport	Yes
Teterboro, NJ	Yes	Quarterly	Charter from Port Authority	Yes
San Diego, CA	Yes	<b>Bi-monthly</b>	Charter from Airport	Yes
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## **Community Aviation Roundtables**

- <u>The airports, the community, the airlines, and the FAA</u> address noise issues over a very wide geographical area where there are many airports.
- ALL make a PUBLIC POLITICAL COMMITMENT in response to airplane noise problems; address issues early and often.
- Achieve noise mitigation through a cooperative sharing of authority by the airline industry, FAA, Airport management, and local elected officials. FAA COMMITMENT IS ESSENTIAL!!
- Directed, dedicated single focus staff, and an aviation consultant working on behalf of the Roundtable, not just the FAA or the Airport.
- Work under very specific OPERATING AGREEMENTS AND MOUs negotiated with all the stakeholders, with specific work
  product DELIVERABLES.

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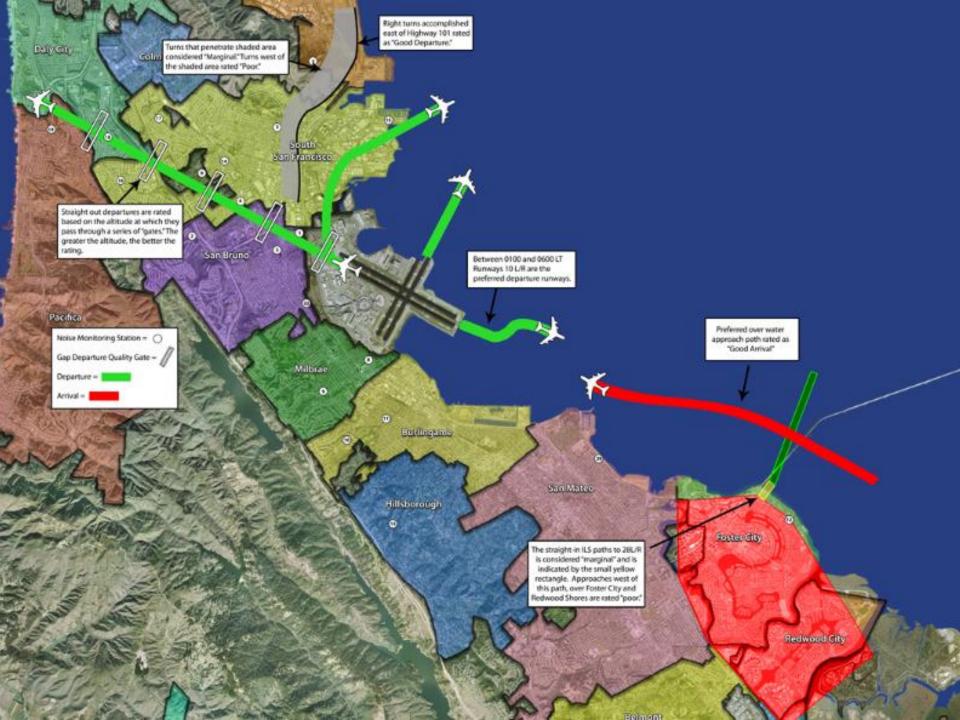
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### San Francisco International Airport (SFO) Community Roundtable

- 1<sup>st</sup> Roundtable SFO, 1981.
- Signed MOU between 17 cities, two counties, with funding by all members.
- Roundtable voting membership:
  - Elected officials from Cities and Counties,
  - Airport Representatives,
  - Airline Representatives,
  - FAA,
  - Airline Pilot, and
  - Other professionals.
- Dedicated single focus staff, and an aviation consultant working for the Roundtable, not the FAA or the Airport.
- Performance based noise monitoring program = report, complaint, awards, and "awards" system.
- Still operating, now funded by SFO, staffed by San Mateo County.

#### SFO Roundtable-delivered Flight Improvements

- Foster City "Quiet Bridge" Arrival arrive over San Mateo Bridge.
- Shoreline VFR Departure from runways 28L/28R right turn as soon as possible after takeoff.
- "Gap" Departure SID maintain as high an altitude as possible after takeoff.
- Fleet quality rating quiet aircraft used by each airline at SFO.
- Noise "exceedance" ratings from 33 noise monitors.
- Reduce night time noise preferential runway departure from Runways 10L/10R – "Over the Bay" Departure.



#### LAX Successes

- Arrival Flight Procedure Changes: REEDR THREE, BASET THREE These arrival procedures are being used during east flow. Per the Roundtable request, the FAA increased the minimum altitudes on two waypoint fixes, REEDR and BASET, by 1000 ft. to provide noise relief for residents in the beach cities including Manhattan, Hermosa, and Redondo Beach.
- Departure Flight Procedure Changes: HOLTZ NINE, OSHNN FOUR, KARVR THREE RNAVs

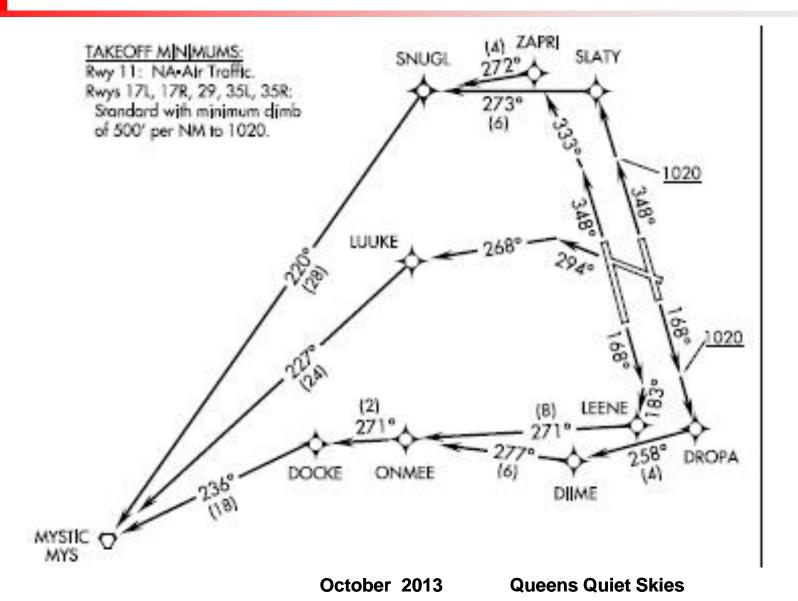
RNAV departure procedures used during normal west flow operations. When these procedures were first implemented, aircraft departing RWY 25R were using the waypoint, HIIPR, which caused them to turn southbound, flying closer to El Segundo. As a result, LAWA issued a letter to FAA to advise them of the problem. FAA then issued revised procedures that included a new waypoint, DOCKR, for aircraft departing from 25R resulting in a reduction of aircraft from turning southbound upon departure.

• **Accountability** for noise complaints and aviation issues

#### **Community Noise Forum Flight Improvements at Louisville**

- Engine run up restricted to certain times of the day.
- Preferential runway use put in place, with random use where possible.
- Noise abatement flight tracks developed.
- When two new runways were constructed, they were rotated 20 degrees: to deal with noise created by the new runways, and to deal with increased traffic, new RNAVs were modified, (including a 5 degree change in flight path):
  - MYSTIC
  - APALO
  - FEDRA
  - STREP

#### **MYSTIC ONE RNAV Procedure**



41

## **ONCC** Improvements

- Chicago O'Hare "Fly Quiet" program:
  - FAA tower flight instructions to pilots prior to take off.
  - Preferential take off and landing runways at night.
  - Designated run up areas.
  - Runway and taxiway signs alerting pilots of program.
  - Outreach and training to airlines and pilots.
- After airport expansion is completed, these procedures take effect:
  - Runway 14R designated as primary runway for SIDs under westerly wind conditions.
  - Runways 22L and 27L designated as primary runways for instrument departures under easterly wind conditions.
- Flight improvements and "PARTNER" studies to address these issues:
  - Health effects of Airport Noise.
  - Noise exposure response: Annoyance.
  - Noise exposure response: Sleep Disturbance.

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#### Improvements Delivered by CNAC

- The need for new RNAVs originated as part of the Part 150 Noise Study in 2006, and were subsequently developed with community and aircraft operator input.
- FAA solicited input from airline users and the airport. The airport solicited input from community.
- Having the community, the airport, airport users (pilots) and air traffic control all at the table ensured everyone's interests were understood and allowed consensus and compromise.
- The new RNAV procedures included these procedures for the two parallel air carrier runways:
  - CASCADE ONE
  - HRMNS THREE
  - LAVAA FIVE
  - MINNE FOUR
  - WHAMMY THREE

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# **PART 150**

## PART 150 STUDIES

- Airport Noise and Land Use Compatibility Part 150 CFR
  - Measure noise to prepare accurate Noise Exposure Maps
  - Determine exposure of individuals to airplane noise
  - Provide for reduction in airplane noise
- Number of Airports across the Country participating (almost all voluntarily):

#### 256

• Number of New York Area Airports participating:

#### 0

• Federal Funds spent in the United States for noise reduction:

#### \$9.1 Billion

• Federal Funds spent in the New York area for noise reduction:

#### Unknown

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# ENVIRONMENTAL REVIEW IN 50 WORDS OR SLIGHTLY MORE

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#### **KEY ENVIRONMENTAL CONCEPTS**

- National Environmental Policy Act (NEPA)
- What is some of the key language in NEPS?
- Categorical Exclusion the easiest way for the FAA to put something in place – with dire consequences for all of us.
- What is "Cumulative Impact" and why do we care?

#### National Environmental Policy Act (NEPA)

- Adopted in 1969
- Ensures that a federal agency obtains and considers information about environmental impacts;
- Guarantees that the information is available to wider public.
- Procedural not substantive (*Robertson v. Methow Valley (1989)*
- The assumption is that this information will be "action forcing"

## **NEPA Policy**

it is the continuing policy of the Federal **Government . . . to use all practicable** means and measures. . . to create and maintain conditions under which man and nature can exist in productive **harmony**, and fulfill the social, economic, and other requirements of present and future generations of Americans.

## **NEPA Key Language**

"major Federal actions significantly affecting the quality of the human environment"

- Is it major?
- Is it a Federal action?

 Does it significantly affect the quality of the human environment?

#### **NEPA CatEx Definitions**

"...categories of actions that <u>normally do not</u> <u>individually or cumulatively have</u> <u>significant adverse effects on the human</u> <u>environment</u> and which have been found [by the federal agency] to have no such effect."

In categorically excluding an action, the agency meets its NEPA responsibilities

#### What is an Extraordinary Circumstance?

5050.4B

04/28/06

#### Table 6-3. An Annotated Summary of Extraordinary Circumstances. (Note: The asterisk (\*) signifies there is a special purpose law outside of NEPA that addresses this

(Note: The asterisk (\*) signifies there is a special purpose law outside of NEPA that addresses this extraordinary circumstance. See paragraph 9.t for more information on special purpose laws. Smaller font provides information and agencies that may need to be consulted to comply with a particular special purpose law).

EXTRAORDINARY CIRCUMSTANCE	ANNOTATED DESCRIPTION	CITE FROM FAA ORDER 1050.1E
* Air quality.	An action that would violate applicable Federal, State, Tribal, or local air quality standards under the Clean Air Act of 1990, as amended. Note: Contact a State or Tribal air quality	304g.
*Coastal zone areas.	agency, as appropriate. Federal actions in or affecting coastal resources must meet requirements of Coastal Zone Management Act programs. Note: Contact the State agency having authority for these programs.	304c.
Community disruption.	An action dividing <sup>4</sup> or disrupting <sup>4</sup> an established community or planned development, or that is inconsistent with plans or goals of a community where the project would occur. Note: Contact local land use authorities.	304d.
Cumulative impacts.	An action likely to cumulatively cause	
Cumulauve Impacts.	significant impacts.	304k.
* Endangered species.	An action that may affect listed or condidate species under the Endangered Species Act, including designated or proposed critical habitats. Note: Contact: the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. For	304c.
	Service or the National Marine Fisheries Service. For state species, contact state agency.	

Table 6-3 (continued). An Annotated Summary of Extraordinary Circumstances.

<sup>&</sup>lt;sup>5</sup> "Disruption" would occur if a proposed action would change an existing or planned community so drastically that the community would no longer meet planning criteria used to establish the community. Disruption would also occur if the action would drastically reduce community cohesiveness. Cohesiveness is a trait found most often in long-established communities. It is often ethnically, culturally, or racially-based. An example of community cohesiveness is often found where residents feel comfortable due to the community's unique amenities. A project disrupts this cohesiveness when it requires relocating many residents of these neighborhoods, or it causes loss of community facilities.



<sup>&</sup>lt;sup>4</sup>"Dividing" would occur if a proposed action causes or requires purchasing homes and relocating their occupants on one side of a street, while the portion of the established or planned community on the other side of the street remains. An example is a neighborhood remnant that would lack the "neighborhood spirit" or "cohesiveness discussed below in "disruption."

EXTRAORDINARY CIRCUMSTANCE	ANNOTATED DESCRIPTION	CITE FROM FAA ORDER 1050.1E
* Farmlands conversion.	An action that would convert important farmland protected by the Farmland Protection Act Note: Contact the Natural Resources Conservation Service or state agricultural agency.	304c.
* Flood plains.	An impact on natural, ecological, or scenic floodplain resources of Federal, State, Tribal, or local significance caused by an action in the 100-year floodplain. Note: Contact local U.S. Army Corps of Engineers or Federal Emergency Management Agency offices for information on determining actions in the 100-year floodplain.	304c.
* Hazardous materials.	An action involving or causing contamination of areas, based on Phase I or II Environmental Due Diligence Audits. Note: Contact EPA's regional Office of Solid Waste and Emergency Response	304k.
Highly controversial action.	See paragraph 9.i for more information on controversy.	304i.
* Historic or cultural property.	An action causing an adverse effect on historic or cultural property protected by Section 106 of the National Historic Preservation Act. Note: Consult FAA and the State or Tribal Historic Preservation Officer, as appropriate.	304a.
Inconsistency with applicable laws.	An action that is likely to be inconsistent with any applicable Federal, State, local, or Tribal law relating to the proposed action's	304j.
Noise.	environmental aspects. Noise impact on noise-sensitive areas. See paragraph 9.n for information on noise sensitive areas.	304.f.

### What is a Cumulative Impact?

#### CEQ Reg. 40 C.F.R. 1508.7: the

incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the agency, Federal or non-Federal, undertaking such actions. **Cumulative impacts can result from** individually minor, but collectively significant, actions taking place over a period of time.

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## What Is "Highly Controversial" ?

**ORDER 5050.4B(i):** The term controversial means that a substantial dispute exists concerning the size, nature, or effect of a proposed Federal action. Effects are considered highly controversial when reasonable disagreement exists over a project's risks of causing environmental harm. Opposition on environmental grounds by a Federal, State, or local government agency or by a Tribe or by a substantial number of people the action would affect should be considered in determining whether reasonable disagreement regarding a proposed actions environmental effects exists.

### **FAA Growth Projections**

- Cumulatively, air traffic growth for U.S. carriers—measured by revenue passenger miles—is expected to rise by more than 90 percent in the next 20 years.
- Over the next 20 years, large airports will continue to grow faster than their smaller counterparts in the United States.

from FAA Aerospace Forecast Fiscal Years 2012-2032

#### FAA Modernization Act of 2012

# Section 213(c) COORDINATED AND EXPEDITED REVIEW.—

(1) IN GENERAL.—Navigation performance and area navigation procedures developed, certified, published, or implemented under this section **shall be presumed to be covered by a categorical exclusion** . . . unless the Administrator determines that extraordinary circumstances exist with respect to the procedure.

### **FAA Modernization Act of 2012**

(2) NEXTGEN PROCEDURES.—Any navigation performance or other performance based navigation procedure developed, certified, published, or implemented that, in the determination of the Administrator, would result in **measurable** reductions in fuel consumption, carbon dioxide emissions, and noise, on a per flight basis, as compared to aircraft operations that follow existing instrument flight rules procedures in the same airspace, shall be presumed to have no significant affect on the quality of the human environment and the Administrator shall issue and file a categorical exclusion for the new procedure.

#### FAA Modernization Act of 2012

Section 208: NEXTGEN Office has the duty of: "establishing specific quantitative goals for the safety, capacity, efficiency, performance, and environmental impacts of each phase of Next Generation Air Transportation System planning and development activities and measuring actual operational experience against those goals, taking into account noise pollution reduction concerns of affected **communities** to the extent practicable in establishing the environmental goals."

### SUMMARY

- Increase the number of noise monitors at LGA, EWR, and JFK. <u>DEMAND MORE NOISE MONITORS!</u>
- Implement a formal, standing, Aviation Community Roundtable for ALL OF QUEENS, with all decisions makers at the same table, mutually agreeing on outcomes. <u>ASK YOUR ELECTEDS TO GET BEHIND</u> <u>AND JOIN THE NY/NJ ROUNDTABLES!!</u>
- Require that a "Part 150" Airport Noise Compatibility Study be performed by the Port Authority. <u>ASK THE</u> <u>GOVERNOR TO SIGN THE BILL!!</u>
- Have the FAA provide a full Environmental Impact Study of <u>ALL</u> flight changes. <u>DEMAND FULL</u> <u>ENVIRONMENTAL REVIEW OF FLIGHT CHANGES!!</u>

October 2013

#### **THANK YOU!!**