



Welcome!

Newark Liberty International Airport

14 CFR Part 150 Noise Compatibility Planning Study

Public Information Workshop #1

October 14, 2015



EWR Part 150 Study | Public Information Workshop #1

THE PORT AUTHORITY OF NY & NJ

Part 150 Overview

- Federal Aviation Administration (FAA) developed the Part 150 Program in response to the federal Aviation Safety and Noise Abatement Act of 1979 (“ASNA”)
- Codified under Title 14 of the Code of Federal Regulations (CFR) Part 150
 - Formal *citation* is “14 CFR Part 150,” informal is “Part 150”
 - Formal *title* is “Airport Noise Compatibility Planning”
- *Voluntary* FAA-defined process for airport noise studies
 - 250+ airports have participated
- *Why do airports participate?* Primary reasons include:
 - Provides access to FAA funding of some approved measures
 - Well-established, understood, accepted, and comprehensive process



Part 150 Overview

- In response to ASNA, Part 150 prescribes standards and systems for:
 - Measuring noise
 - Estimating cumulative noise exposure using computer modeling
 - Describing noise exposure
 - coordinating with local land use agencies
 - documenting the analytical process
 - Submitting the documentation to FAA
 - FAA and public review processes
 - FAA approval or disapproval process



Part 150 Overview: Major Elements

- Two primary components
 - Noise Exposure Map (NEM)
 - Noise Compatibility Program (NCP)
- Consultation required with
 - All local, state, and federal entities with control over land use within DNL 65+ dB
 - FAA regional officials, regular aeronautical users of the airport
 - All parties interested in review of and comment on draft items
- PANYNJ will significantly exceed all “consultation” requirements
 - Improved stakeholder relations is typically one of the most valuable study results
- Opportunity must be offered for a final public hearing on the NCP
- Detailed FAA guidance at www.faa.gov/airports/environmental/airport_noise/



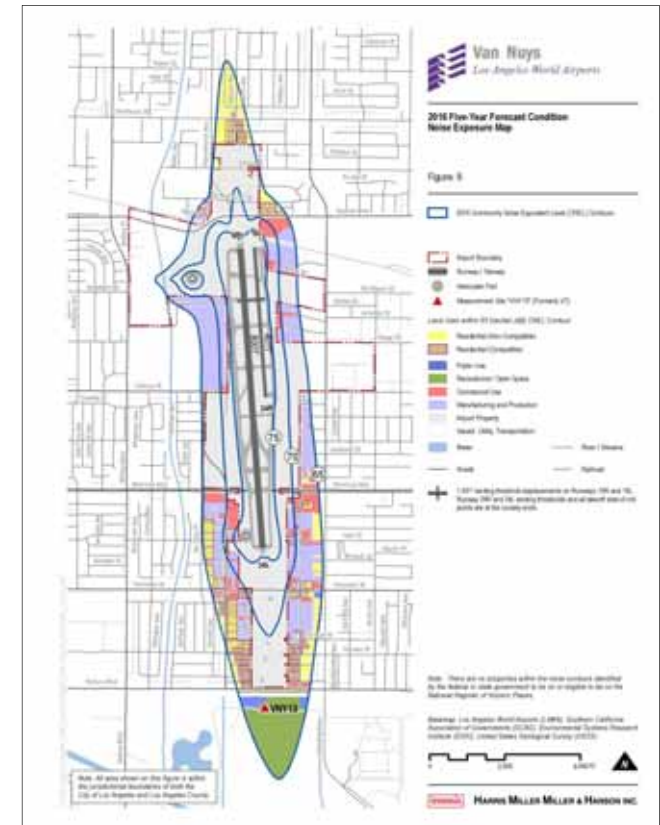
Part 150 Overview: Noise Exposure Map

- FAA “accepts” NEM as compliant with Part 150 standards
- NEM must include detailed description of
 - Airport layout, aircraft operations, and other inputs to noise model
 - Aircraft noise exposure in terms of Day-Night Average Sound Level (DNL)
 - Land uses within DNL 65+ decibel (dB) contours
 - Noise / land use compatibility statistics within DNL 65+ dB contours
- NEM must address two calendar years
 - Year of submission
 - Forecast (at least five years from year of submission)
- FAA reviews forecasts for consistency with Terminal Area Forecast (TAF)



Part 150 Overview: Noise Exposure Map Example

- Van Nuys Airport (California)
 - One of three airports operated by Los Angeles World Airports (LAWA)
- NEM Major graphical components include:
 - DNL 65, 70 and 75 dB contours
 - Information detailed within the 65 dB DNL contour:
 - Generalized land use categories
 - Historic properties, schools, places of worship, health care facilities, other “discrete” sensitive uses
 - Clear identification of all noncompatible land uses
 - Jurisdiction(s) responsible for land use controls
 - Flight tracks (typically on supplemental figures)



Part 150 Overview: Noise Compatibility Program

- NCP must address three major categories of proposed actions
 - Noise abatement measures
 - Compatible land use measures
 - Program implementation
- FAA *accepts* NCP for review
- FAA reviews and *approves* or *disapproves* proposals as compliant with Part 150 standards on an element-by-element basis



Part 150 Overview: Noise Compatibility Program

- Noise abatement measures can:
 - Shrink noise contours or move them away from noncompatible uses
 - Make changes to aircraft operations, airport layout, flight track and runway use, etc.
- Compatible land use measures can:
 - Address existing noncompatible uses
 - Prevent introduction of new noncompatible uses
- Program implementation includes:
 - Required actions, responsible parties, costs
 - NEM and NCP review and update processes



Roles and Responsibilities: Noise Compatibility

Defined by “FAA Noise Abatement Policy Statement” (November 1976)

- Federal Government – controls noise by regulating source emissions, managing air traffic, and providing funding and technical assistance for noise remediation projects
- State and Local Government – can affect land use near airports by zoning, planning, development, and regulation
- Aircraft operators – can affect noise generation by flight scheduling, improving fleet equipment and changing cockpit procedures
- Air travelers and shippers - bear the costs of reducing noise levels since they, by demand, generate the noise
- Current and potential residents – seek to act in an informed manner to understand the impacts of noise
- Airport operators - plan and implement noise compatibility measures



Roles and Responsibilities: Part 150 Overall

- **The Port Authority**
 - Directs study - it is the Port Authority's project
 - Submits NEM and NCP documentation to FAA
- **FAA**
 - Provides input to, reviews and assists with analysis of noise abatement flight procedures
 - "Accepts" documentation and "approves" NCP measures
 - Responsible for implementation of noise abatement flight procedures
 - Assists in funding eligible measures in all three categories
- **Local governments**
 - Provide input to recommended land use measures
 - Implement and enforce land use measures to maintain and improve noise compatibility
- **All stakeholders, including aviation interests, residents, and other interested parties**
 - Monitor study process, provide input, assist with implementation



Roles and Responsibilities: Newark Liberty TAC

- The Technical Advisory Committee (TAC) is advisory to the Port Authority solely for purposes of the EWR Part 150 Study, including
 - Review of study inputs, assumptions, analyses, documentation, etc.
 - Input, advice, and guidance related to NEM and NCP development
- TAC members are expected to provide two-way communication between the TAC and their organizations / constituents
- The Port Authority shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and Port Authority recognize FAA is responsible for accepting NEM and NCP submissions and for approving NCP proposals

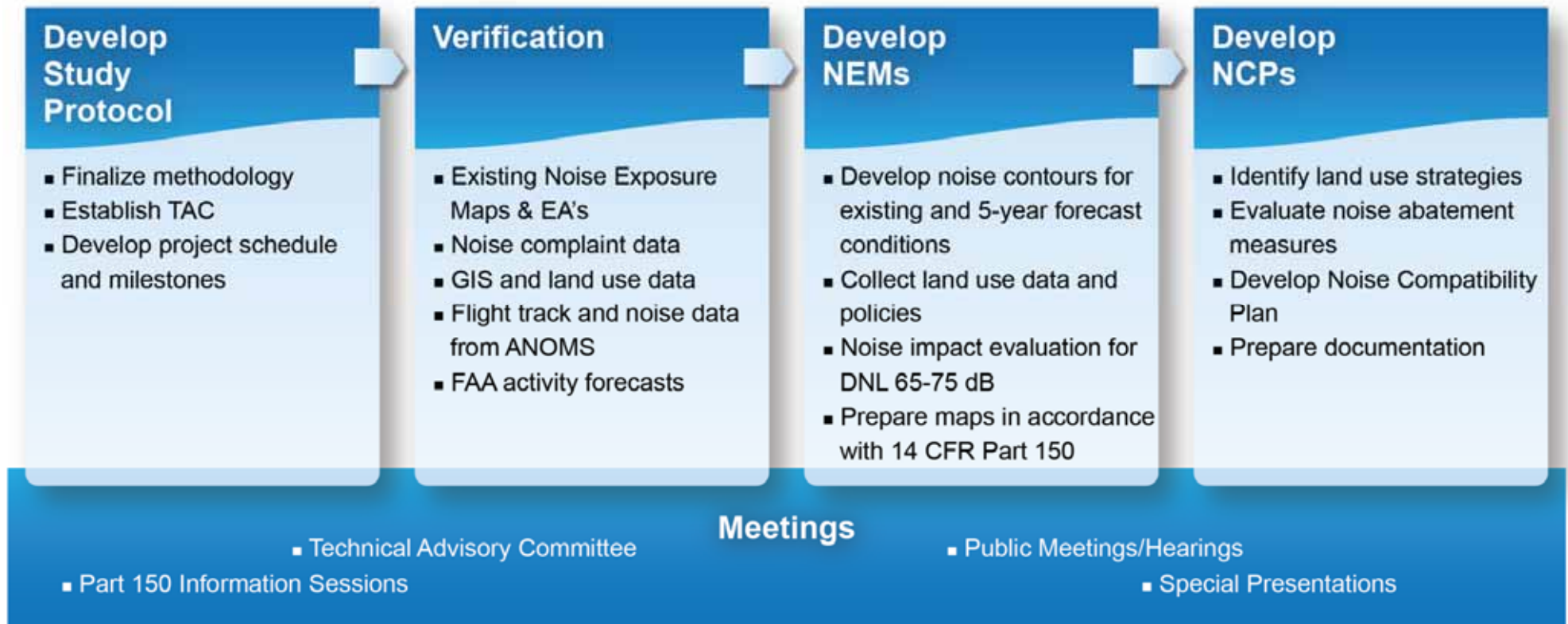


Roles and Responsibilities: EWR TAC Makeup

- TAC composed of stakeholders representing all significant interests
 - Key agencies; e.g., Port Authority, FAA
 - Local land use jurisdictions; e.g., Essex and Union Counties, Cities of Newark and Elizabeth, and Staten Island
 - Airport tenants and users; e.g., United Airlines, Southwest Airlines, FedEx, and Signature Flight Support
 - Aviation trade associations; e.g., Newark International Carriers Committee (NICC)
 - Established advisory bodies; e.g., Newark/Liberty International (EWR) Noise/Community Roundtable, Teterboro Aircraft Noise Abatement Advisory Committee (TANAAC)
- Members serve on a voluntary basis without compensation



Part 150 Study Process



Part 150 Study Process: Anticipated Schedule

TEB Part 150 Milestone	Anticipated Date
Project initiation	February 2015
Project kickoff meeting with FAA	March 2015
Public Information Workshop – Introduce Project	October 2015
Public Information Workshop – Present Noise Exposure Map	Fall 2016
Submit Noise Exposure Map to FAA for acceptance	Late 2016
Develop preliminary noise compatibility program measures	Spring 2017
Evaluate noise compatibility program measures	Summer/Fall 2017
Finalize recommended Noise Compatibility Program	Winter 2017/2018
Public Hearing – Present Noise Compatibility Program	Spring 2018
Submit Noise Compatibility Program to FAA for approval of measures	Fall 2018



Part 150 Study Process: EWR Study Area



Note: The purpose of this figure is limited to depicting the data rather than data use and right operations data will be collected, and does not include any step in addition of these operations. Data use compatibility, or eligibility for reuse collection. Consistent with data policy in 10 CFR Part 192, but not use compatibility will be assessed only when the meeting and for your financial condition (50 CFR 192) Data Right Storage, Source and (192) is published, when proposed and accepted by the FMS.

Newark Liberty International Airport
14 CFR Part 150 Study
Study Area

EWR Part 150 Study | Public Information Workshop #1

THE PORT AUTHORITY OF NY & NJ

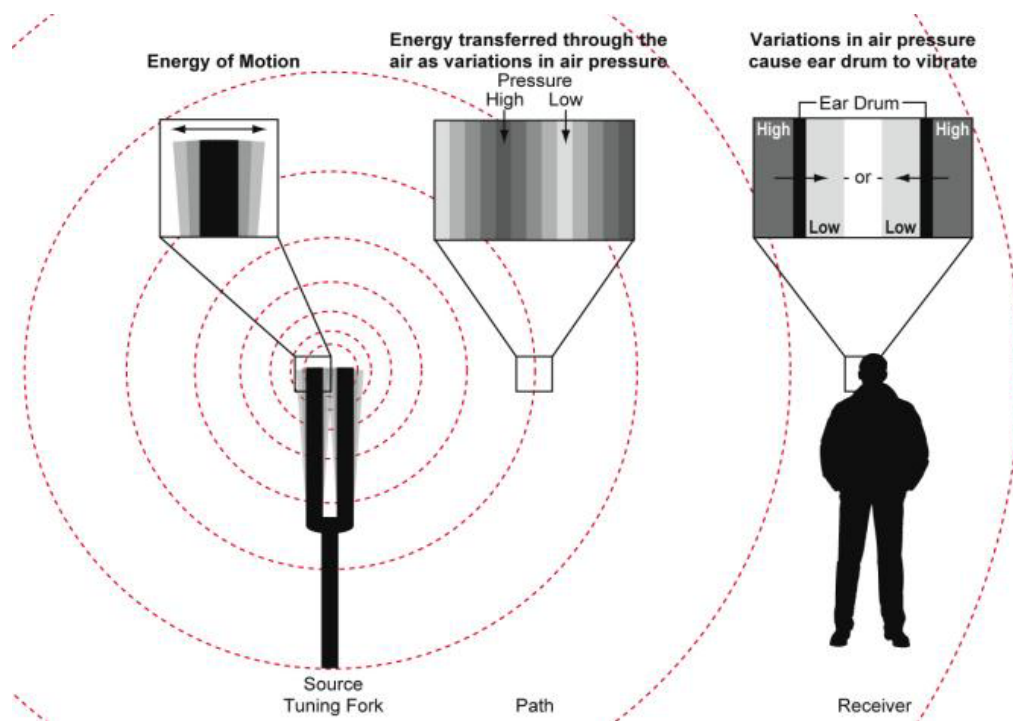
Noise Terminology

- Sound vs. noise
- The decibel scale (dB)
- The A-weighted decibel (dBA)
- Single event noise metrics - Lmax and SEL
- Cumulative exposure metric - DNL



Noise Terminology: What is “Noise”?

- Sound is pressure variation our ears can detect
 - An objective quantity
- Noise is “unwanted sound”
 - A subjective quantity
- We relate sound and noise by considering effects
 - Annoyance
 - Speech interference
 - Sleep disruption



Noise Terminology: The Decibel Scale

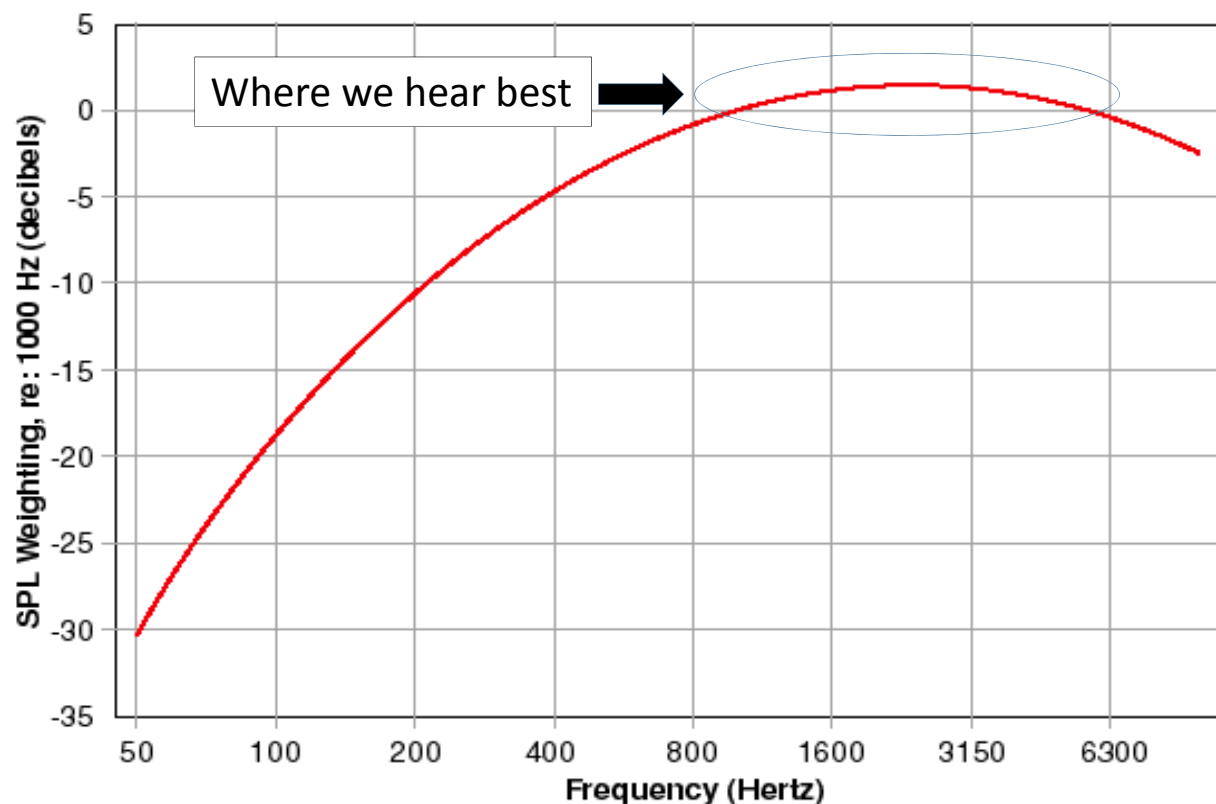
- We use a *logarithmic* scale – *decibels, or dB* to express sound levels and noise levels
- *Why?*
 - We hear sound pressures over a HUGE range
 - Decibels compress this range to match the way we interpret sound pressures
 - 0 to 140 dB
 - Equates to 0.000000003 to 0.003 lbs. per sq. inch
 - *We “hear” in decibels*

“Energy”	dB	Common sounds
100,000,000,000,000	140	Near a jet engine at start of takeoff
10,000,000,000,000	130	Threshold of pain
1,000,000,000,000	120	On stage at a loud rock concert
100,000,000,000	110	
10,000,000,000	100	Jack hammer at 6 feet
1,000,000,000	90	
100,000,000	80	Vacuum cleaner at user’s ear
10,000,000	70	Vacuum cleaner at 10 feet
1,000,000	60	Normal speech
100,000	50	
10,000	40	Quiet residential area
1,000	30	
100	20	Whisper
10	10	
1	0	Threshold of hearing
0.1	-10	



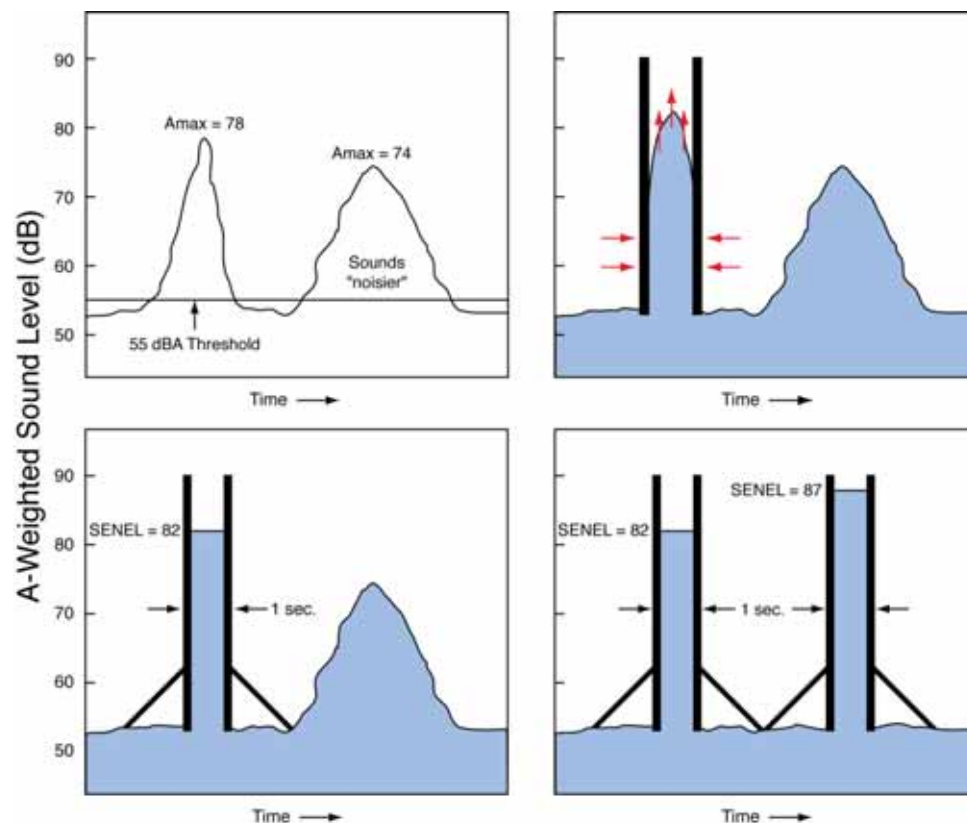
Noise Terminology: A-Weighted Sound Level

- Our ear is not equally sensitive to all frequencies
- A-weighted decibels (dBA) measure sound the way we “hear” it
- Part 150 specifies dBA metrics to describe
 - Single events
 - Cumulative exposure
- Consistent with worldwide practice



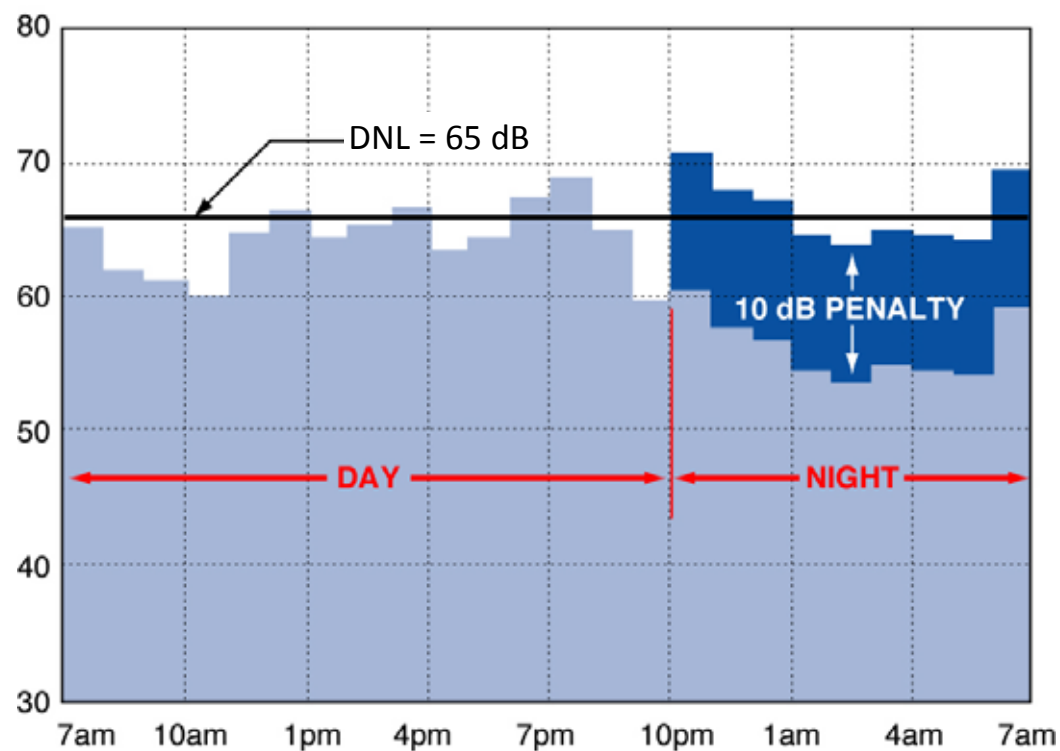
Noise Terminology: Sound Exposure Level, SEL

- Duration matters: A longer event may seem “noisier,” even if it has a lower or equal maximum level
- SEL measures the total “noisiness” of an event by taking duration into account

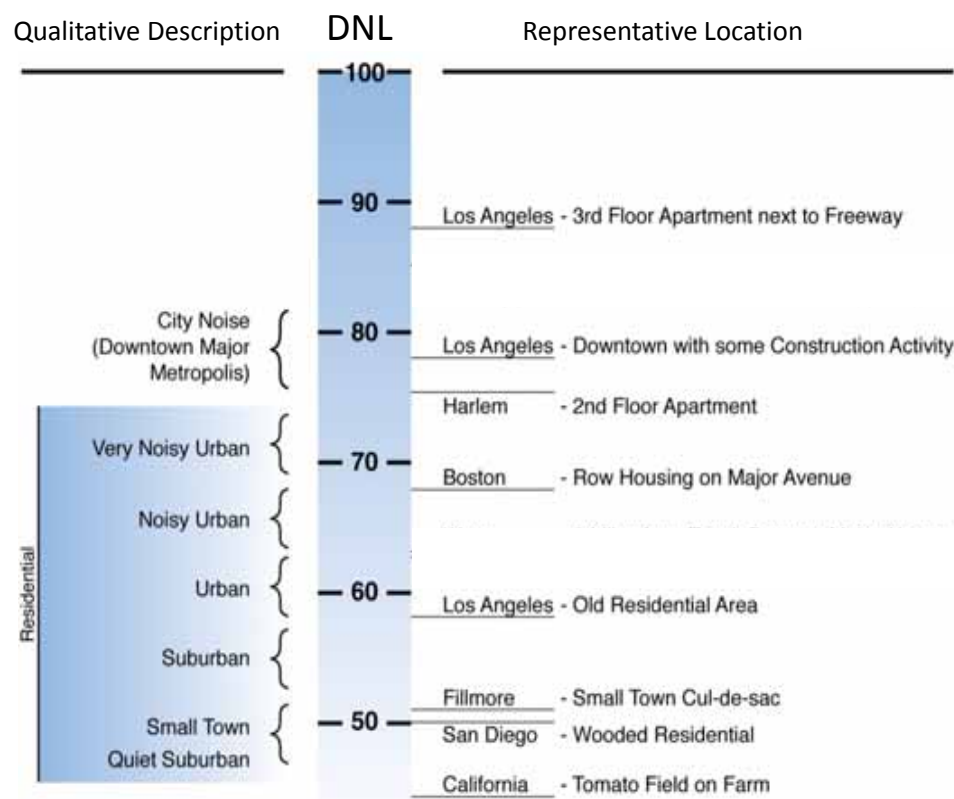


Noise Terminology: Day-Night Average Level (DNL)

- Average 24-hour exposure over the course of a year
- Noise from 10 pm to 7 am is factored up by 10 dB
 - “Penalty” is equal to counting each night aircraft 10 times
- Sometimes abbreviated Ldn
- DNL is the only measure that Part 150 requires us to consider



Noise Terminology: Typical Community DNL



Source: United States Environmental Protection Agency, Information on Levels Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. 14.

Noise Terminology: Noise Metric Summary

- The decibel is a complex logarithmic quantity based on sound pressure
- A-weighted decibels correlate well with how we hear
- Noise levels can be expressed many ways, including but not limited to:
 - Instantaneous maximum (Lmax)
 - Single event dose (SEL)
 - Long-duration exposure (DNL)
- Best metric to use depends on purpose
- FAA requires use of DNL in a Part 150 study to evaluate compatibility
- Part 150 guidelines consider all land uses compatible below 65 dB DNL



Noise Modeling

- We must use FAA-approved model
 - FAA's Integrated Noise Model, Version 7.0d (INM 7.0d) was the most current when the study was initiated
- Required inputs
 - Airport layout
 - Annual average meteorological data
 - Terrain
 - Aircraft operations for 2016 and 2021 - *FAA approves*
 - "User-defined modelling inputs" for EWR-specific flight procedures - *FAA approves*
 - Runway utilization rates by aircraft categories
 - Flight track geometry and use by aircraft categories
 - Maintenance runup locations and operations



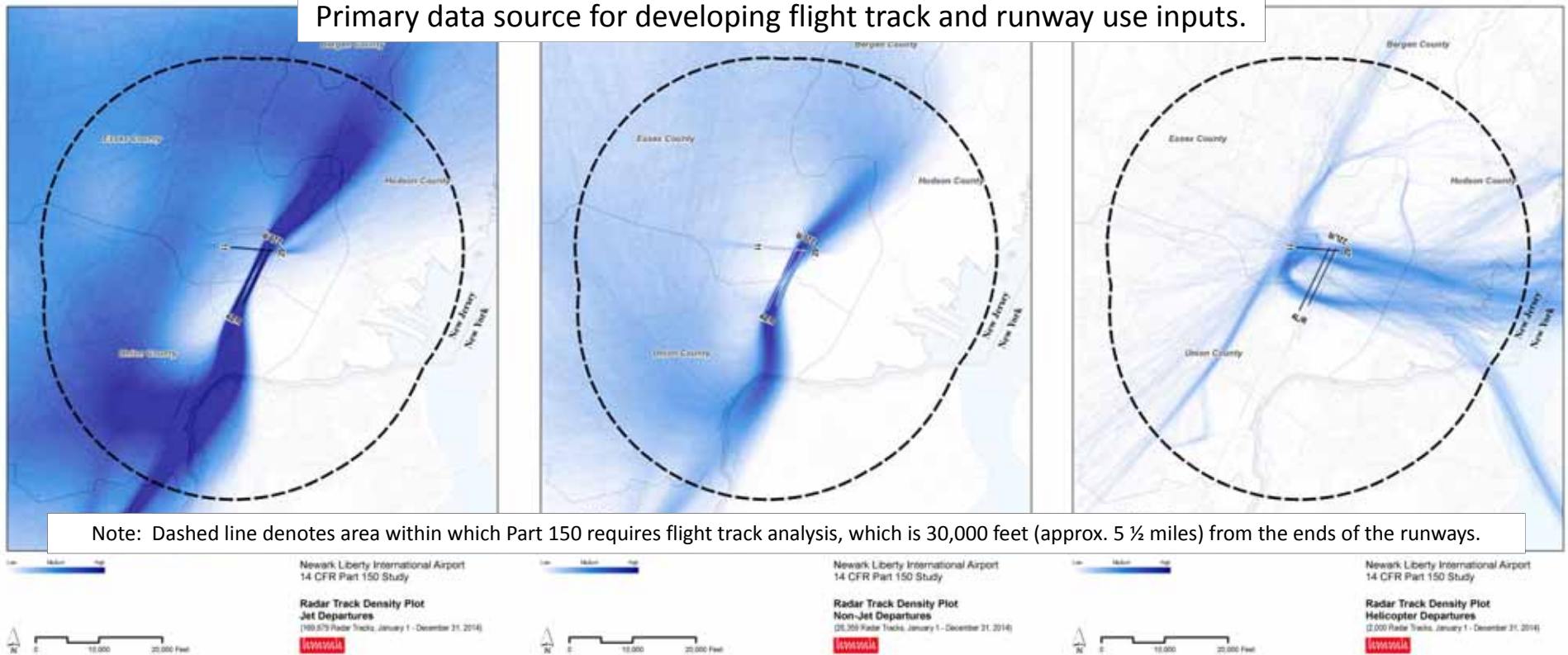
Noise Modeling: Major Data Sources

- Best available source(s) will be used for each specific category
 - *Airport layout* - PANYNJ drawing files, FAA airport diagram, EWR Airport Layout Plan (ALP)
 - *Meteorological* - NOAA National Climatic Data Center
 - *Terrain* - U.S. Geological Survey
 - *Baseline operations* - ANOMS monitoring system
 - *Forecast operations* - FAA's Terminal Area Forecast (TAF) and PANYNJ forecasts
 - *Flight tracks, profiles, and runway use* - 2014 data from ANOMS (Airport Noise & Operations Monitoring System) and FAA National Offload Program
- Data will be compared to formal and informal procedures
 - FAA Standard Instrument Departure (SID) and approach procedures (APs), etc.
 - Industry noise abatement procedures
- Modelling assumptions will be documented in detail and shared with:
 - All interested stakeholders at workshops and on website



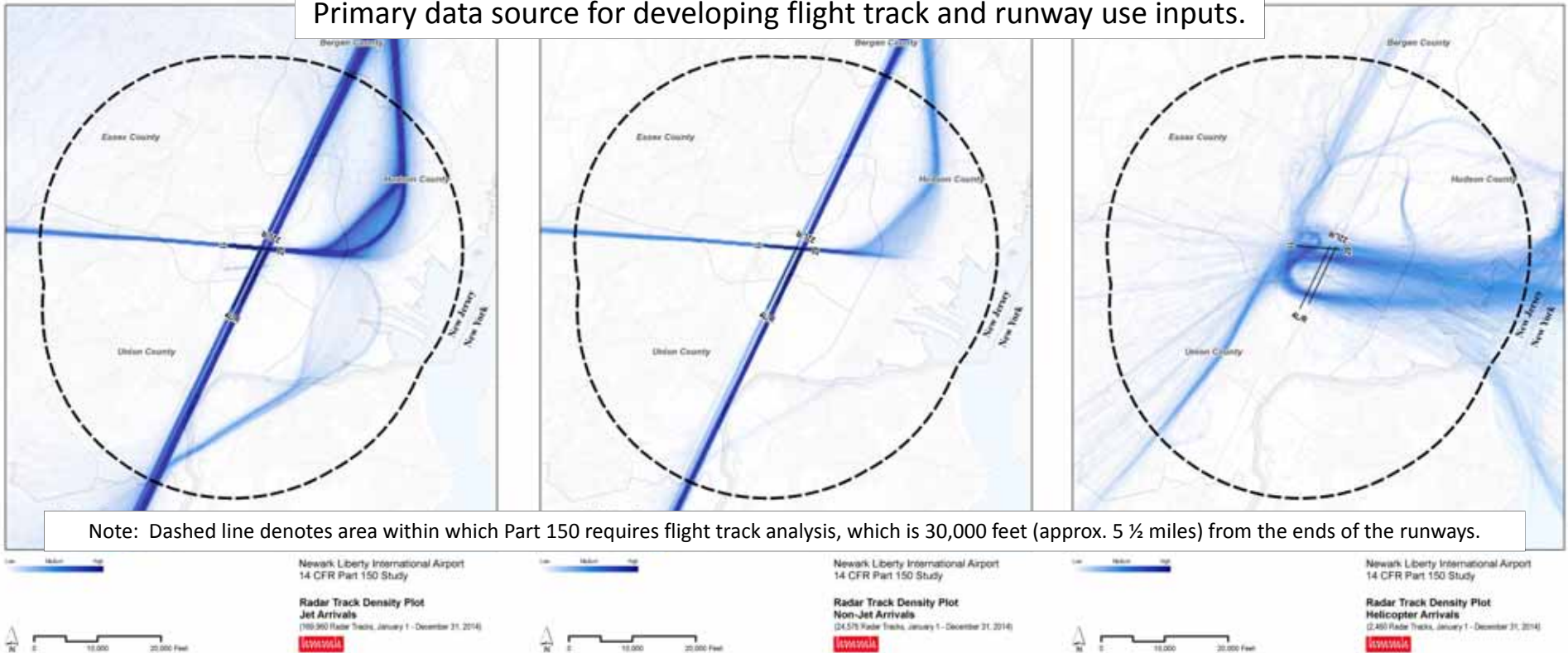
Noise Modeling: Flight Tracks (Departure Density Plots)

Primary data source for developing flight track and runway use inputs.



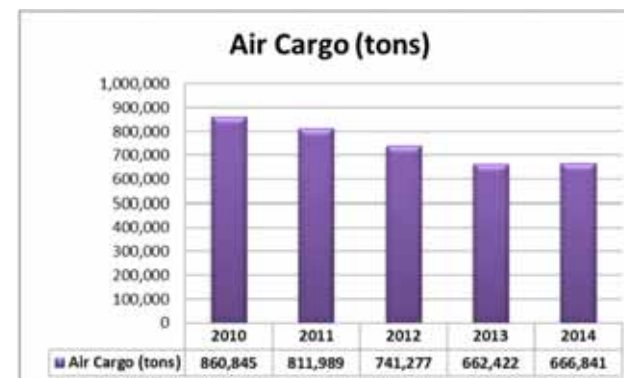
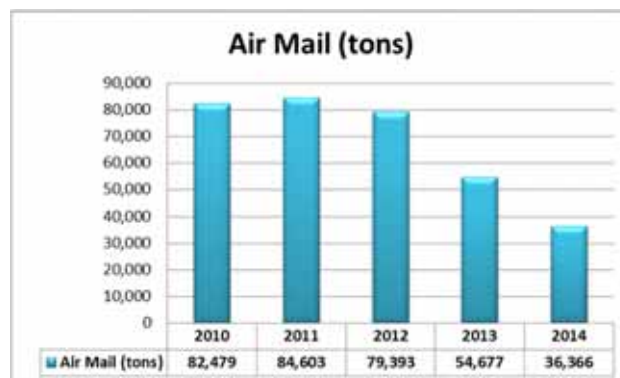
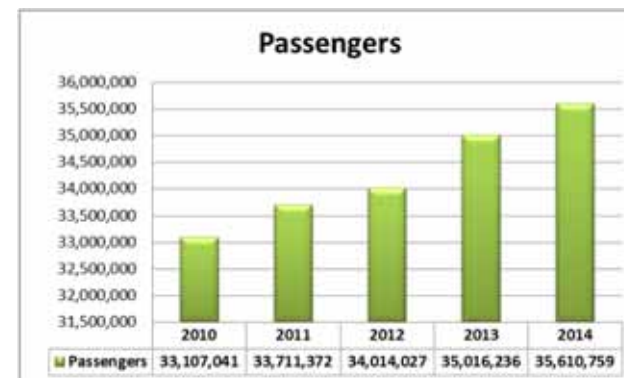
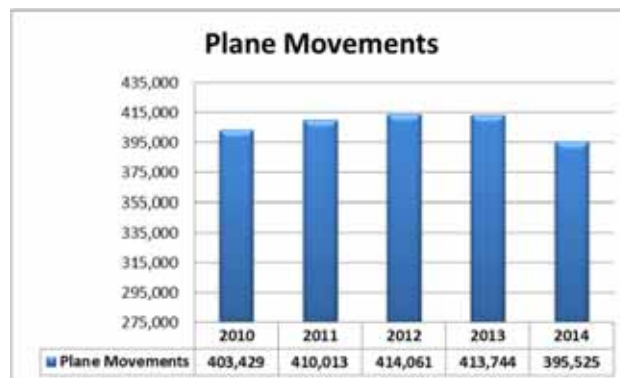
Noise Modeling: Flight Tracks (Arrival Density Plots)

Primary data source for developing flight track and runway use inputs.



Newark Liberty International Airport Overview

- Newark Airport is the nation's oldest airfield and home to the nation's first commercial airline terminal
- Located partly in Newark and partly in Elizabeth, Newark is located only 14 miles from Manhattan, serving a critical role for the New York-New Jersey metropolitan area



Newark Liberty International Airport Overview

- Existing Airport Facilities:

- 2,027 acres
- Three runways and one helipad
 - Runway 4L/22R – 11,000'x150'
 - Runway 4R/22L – 10,000'x150'
 - Runway 11/29 – 6,727' x 150'
 - Helipad H1 – 40'x40'
- Air cargo

Newark Liberty is the overnight small package center for the New York/ New Jersey region, offering a full range of short-, medium- and long-haul services to domestic and international destinations.
- AirTrain Newark

Airport connection to NJ Transit and Amtrak rail lines, serving over 2 million riders a year.
- Three terminals
- One general aviation facility



Port Authority Project Contacts and Websites

- Timothy Middleton, Program Manager - EWR and TEB Part 150 Studies
- Adeel Yousuf, Manager – Noise Office
- Address emails to NJPart150@panynj.gov
- EWR Part 150 Website provides most relevant information
 - Will be updated regularly for public outreach purposes
 - TAC will receive direct notices
 - http://panynjpart150.com/EWR_homepage.asp
- Port Authority noise information website provides broader information
 - www.panynj.gov/airports/aircraft-noise-information



Comments

- Please submit comments in the manner that is most convenient for you
 - Fill out a comment sheet and leave it today
 - Take the sheet with you and mail or email it to the PANYNJ
 - Write a letter and mail or email it
 - Submit via the study website
- We will consider all comments, address them as appropriate, include them in the study documentation, and provide copies to the FAA
- ***Thank you for your participation!***





Welcome!

Newark Liberty International Airport

14 CFR Part 150 Noise Compatibility Planning Study

Public Information Workshop #2

October 2016



Part 150 Overview

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- Codified under Title 14 of the Code of Federal Regulations (CFR) Part 150
 - Formal *citation* is “14 CFR Part 150,” informal is “Part 150”
 - Formal *title* is “Airport Noise Compatibility Planning”
- *Voluntary* FAA-defined process for airport noise studies
 - 250+ airports have participated
- *Why do airports participate?* Primary reasons include:
 - Provides access to FAA funding of some approved measures
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Part 150 Study Process

The presentation of the draft NEM documentation is the primary purpose of this workshop.

Develop Study Protocol

- Finalize methodology
- Establish TAC
- Develop project schedule and milestones

Verification

- Existing Noise Exposure Maps & EA's
- Noise complaint data
- GIS and land use data
- Flight track and noise data from ANOMS
- FAA activity forecasts

Develop NEMs

- Develop noise contours for existing and 5-year forecast conditions
- Collect land use data and policies
- Noise impact evaluation for DNL 65-75 dB
- Prepare maps in accordance with 14 CFR Part 150

Develop NCPs

- Identify land use strategies
- Evaluate noise abatement measures
- Develop Noise Compatibility Plan
- Prepare documentation

These two study elements are complete. The results may be reviewed in the draft NEM documentation.

Meetings

- Technical Advisory Committee
- Part 150 Information Sessions

- Public Meetings/Hearings
- Special Presentations



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Part 150 Overview: Noise Compatibility Program

Step 1: Identify Incompatible Land Uses

Existing conditions Noise Exposure Map
Forecast conditions Noise Exposure Map

Step 2: Consider Noise Abatement Strategies

Reduce exposure over incompatible uses
Limit growth in exposure over incompatible uses

Step 3: Consider Land Use Strategies

Mitigate residual incompatible uses
Prevent introduction of new incompatible uses

Step 4: Consider Programmatic Strategies

Implement and promote measures
Monitor and report on effectiveness
Update NEMs and revise NCP as appropriate

Analysis and Selection Process Applied in Steps 2 - 4

- Evaluate effectiveness of each measure in addressing objectives
- Evaluate feasibility (operational, safety, economic, etc.)
- Select preferred “package” of measures
- Identify implementation schedule, responsibilities, budget, funding sources, etc.
- If not recommended, document reasons



Roles and Responsibilities: Part 150 Overall

- **The Port Authority**
 - Directs study - it is the Port Authority's project
 - Submits NEM and NCP documentation to FAA
- **FAA**
 - Provides input to, reviews and assists with analysis of noise abatement flight procedures
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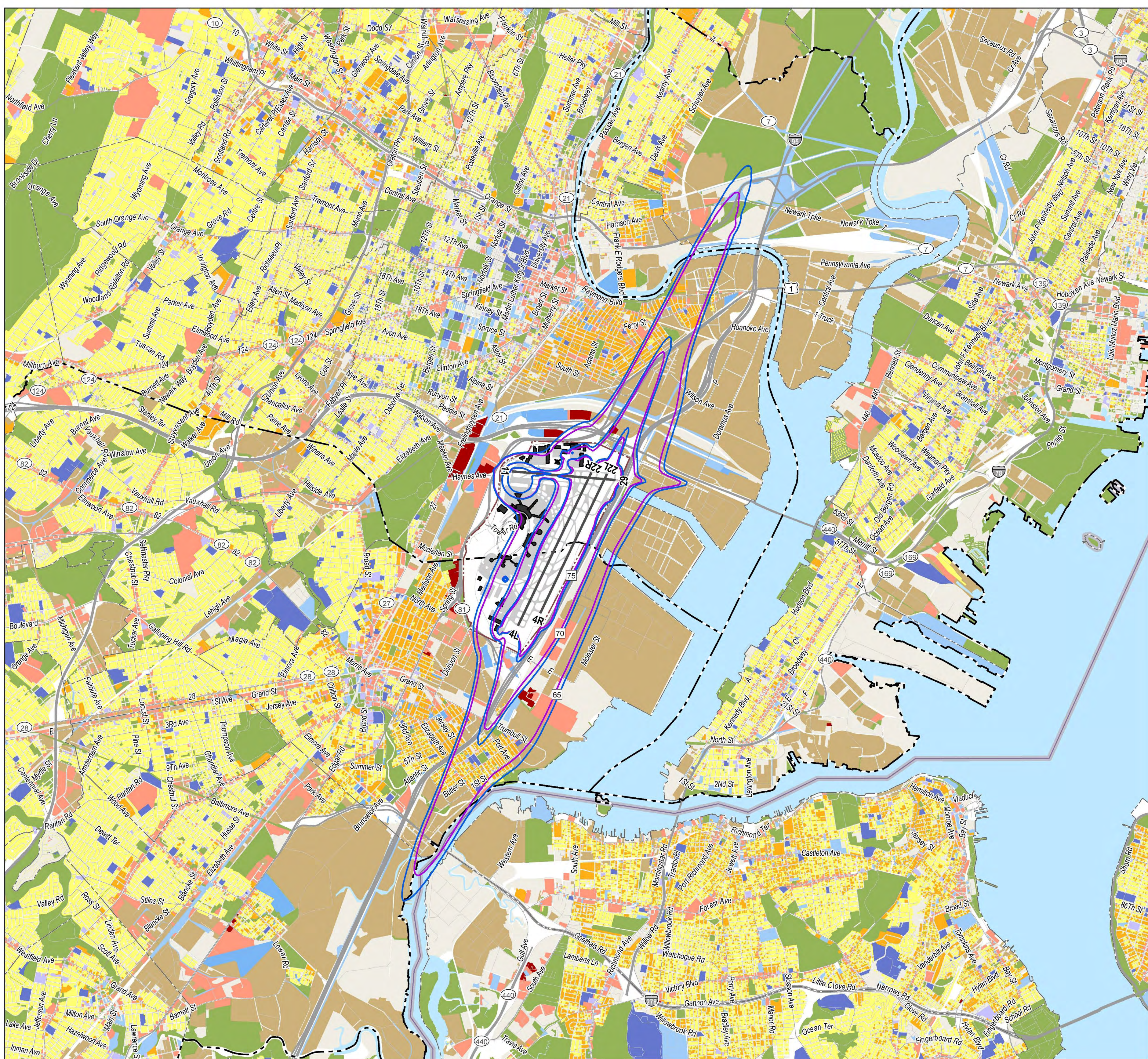
Roles and Responsibilities: EWR TAC Makeup

- TAC composed of stakeholders representing all significant interests
- Members serve on a voluntary basis without compensation

Name	Affiliation	Name	Affiliation
Bill Huisman	Aviation Development Council (ADC)	Russell Halleran	FAA ATCT
Philip Santos	Airlines (Cargo), FedEx	Robert Gibney	FAA ATCT
Rich Teilborg	Airlines, Southwest Airlines (SWA)	Eric Richardson	FBO, Signature Flight Support
Harel Margaritz	Airlines (Passenger), United	Yasmin Fisher	Greater Elizabeth Chamber of Commerce (GECC)
Glenn Morse	Airlines (Passenger), United	Alturrick Kenney	City of Newark
Gabriel Andino	AvPORTS TEB Staff	Norman Dotti	EWR Roundtable
Phyllis Reich	City of Elizabeth	Joe Lepis	Newark Airport Community Roundtable
Joseph DiVincenzo, Jr.	Essex County	Steve Brown	National Business Aviation Association (NBAA)
Sanjeev Varghese	Essex County	Ricky Ahmed	Newark International Carriers (NICC)
Andrew Brooks	Federal Aviation Administration (FAA)	Chip Hallock	Newark Regional Business Partnership (NRBP)
Lindsay Butler	FAA	Barbara Kauffman	Newark Regional Business Partnership (NRBP)
Suki Gill	FAA Airports District Office (ADO)	Chris DiCicco	Staten Island
Steven Kapsalis	FAA Airports District Office (ADO)	Jason Razefsky	Staten Island
Tom Malone	FAA Flight Standards District Office	Fred Dressel	Teterboro Aircraft Noise Abatement Advisory Committee (TANAAC)
Steve McClain	FAA TRACON	Bruce Bergen	Union County
Kimberly Clarke	FAA TRACON	Al Faella	Union County



Noise Exposure Map – 2016 and 2021 NEMs



THE PORT AUTHORITY OF NY & NJ
Newark Liberty International Airport
Airport Noise Compatibility
Part 150 Study
2016 and 2021 Noise Exposure Maps

Comparison of Existing (2016) and Forecast (2021) Noise Exposure Maps

- 2016 DNL Contours (65-75)
 - 2021 DNL Contours (65-75)
 - EWR Airport Boundary (Approximate)
 - Runway
 - State Boundary
 - Municipal Boundary
 - County Boundary
 - Park / Open Space
 - Water
 - Highway
 - Minor Roads
 - Major Roads
- Non-Compatible within DNL 65**
- Single Family Residential
 - Multi-Family Residential
 - Mobile Home
 - Transient Lodging (Hotel, Motel, etc.)
 - School / University / Daycare
 - Place of Worship
- Compatible within DNL 65**
- Recreational / Open Space / Cemetery
 - Commercial Use
 - Manufacturing and Production
 - Public Use
 - Vacant / Undefined

Note: Land uses depicted on this map have not been independently verified outside DNL 65 contours.

0 6,000 12,000 Feet

Preliminary Draft - Subject to Change

Source: The Port Authority of NY & NJ, Cornell University
Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS,
NYC Open Data, Environmental Systems Research Institute (ESRI)

Compatible and Non-Compatible Land Area within the 2016 and 2021 65 DNL Contours

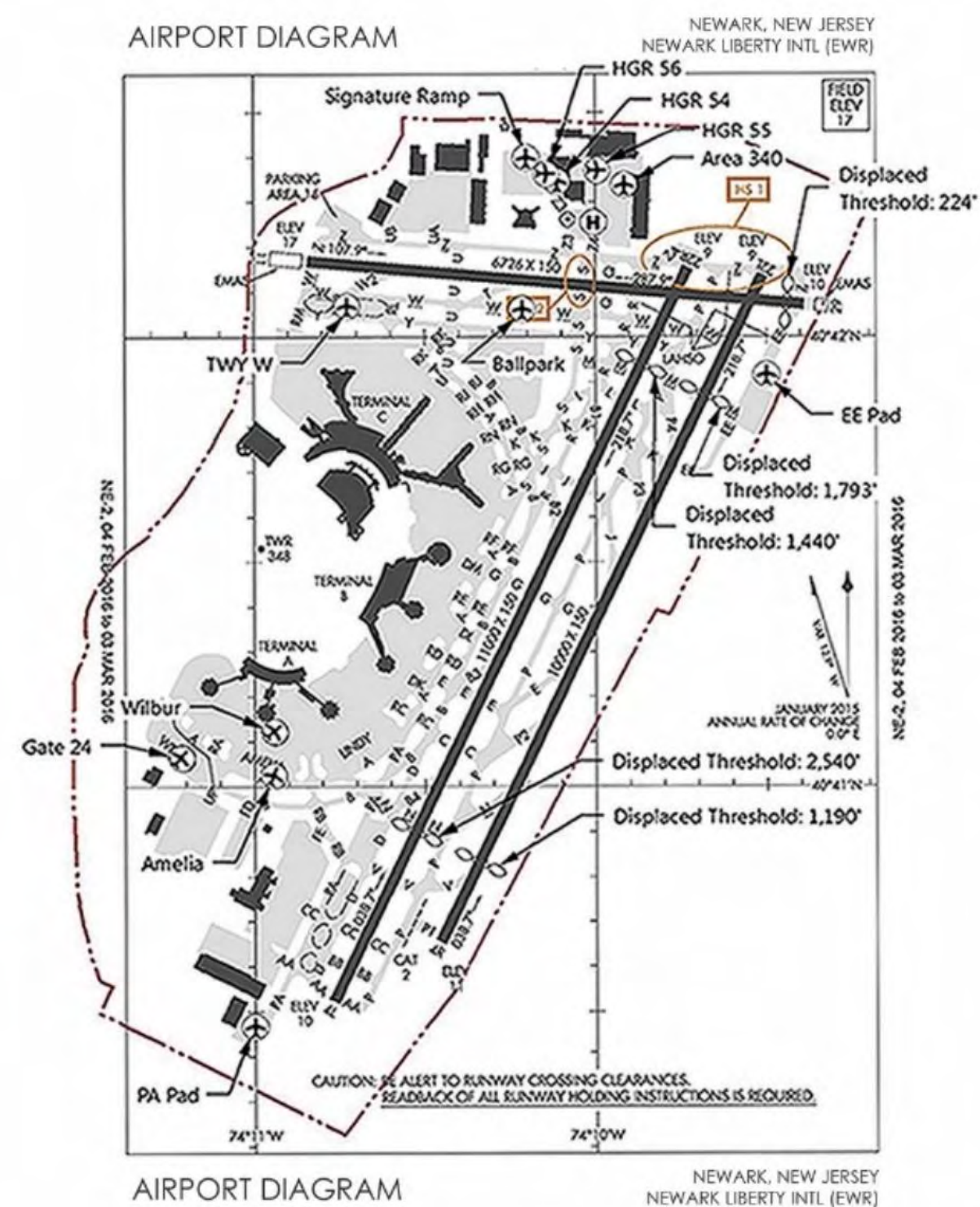
Year	Land Use within the 65 DNL	Area Outside Airport Boundary (Square Miles)
2016	Compatible	4.36
	Non-Compatible	0.49
	Total	4.85
2021	Compatible	5.16
	Non-Compatible	0.61
	Total	5.77

Source: HMMH, 2016



Airport Overview

NEWARK LIBERTY INTERNATIONAL AIRPORT



- \$5.2 billion in upgrades by the Port Authority since 1948
- 2027 acres of land
- 425 acre Central Terminal Area (CTA)

ECONOMY



- 9.2 billion in annual wages
- 25.3 billion in economic activity in the New York-New Jersey metropolitan region

AIRFIELD AND LANDSIDE FACILITIES



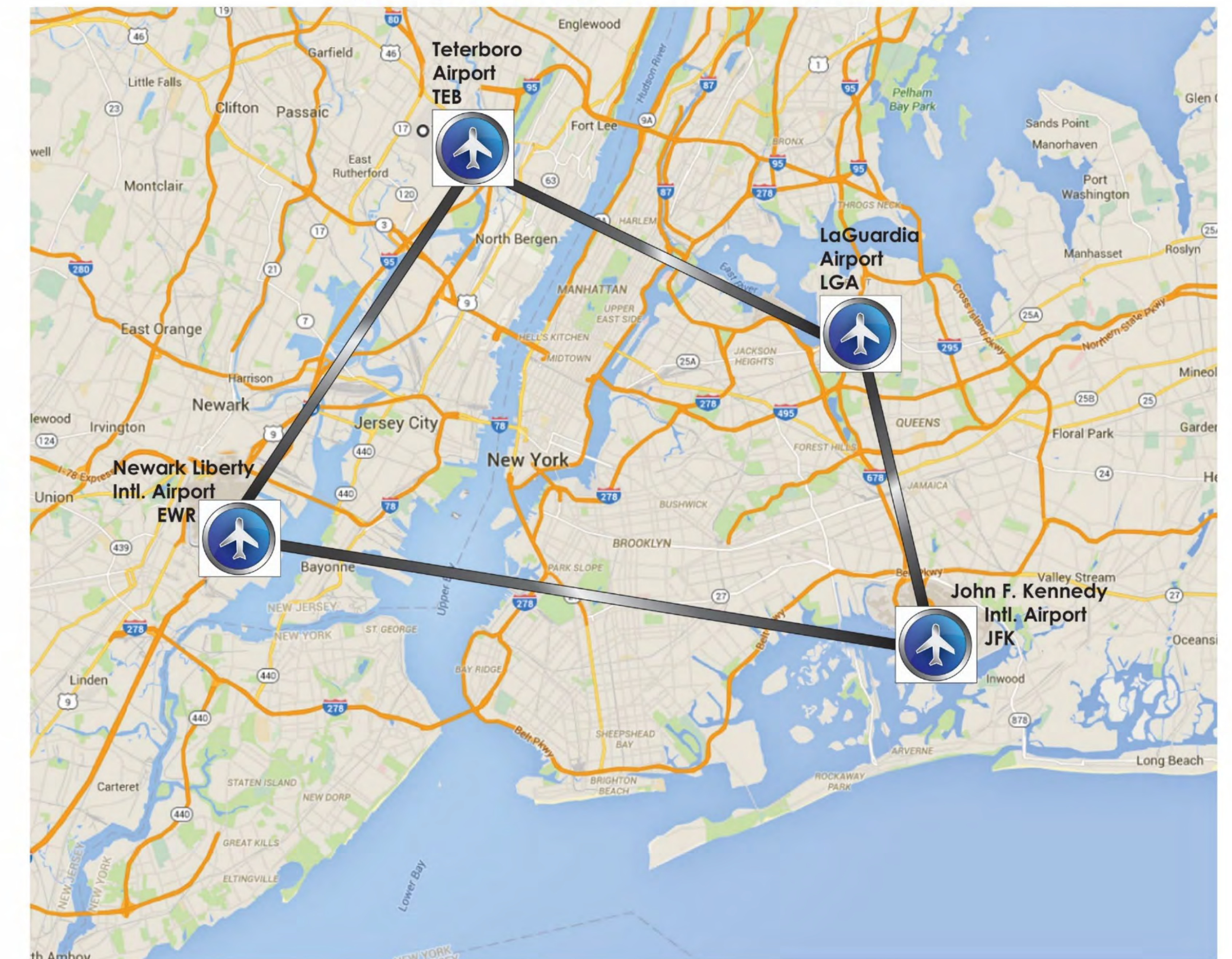
- The CTA consists of three central terminals and a 585-room hotel
- Terminal A - 28 gates
- Terminal B - 15 international arrivals gates
- Terminal C - 57 gates
- In 1996, AirTran Newark, the airport's automated monorail, opened for service between terminals and parking lots
- EWR is the overnight express package center for the NY/NJ region

RUNWAY LAYOUT



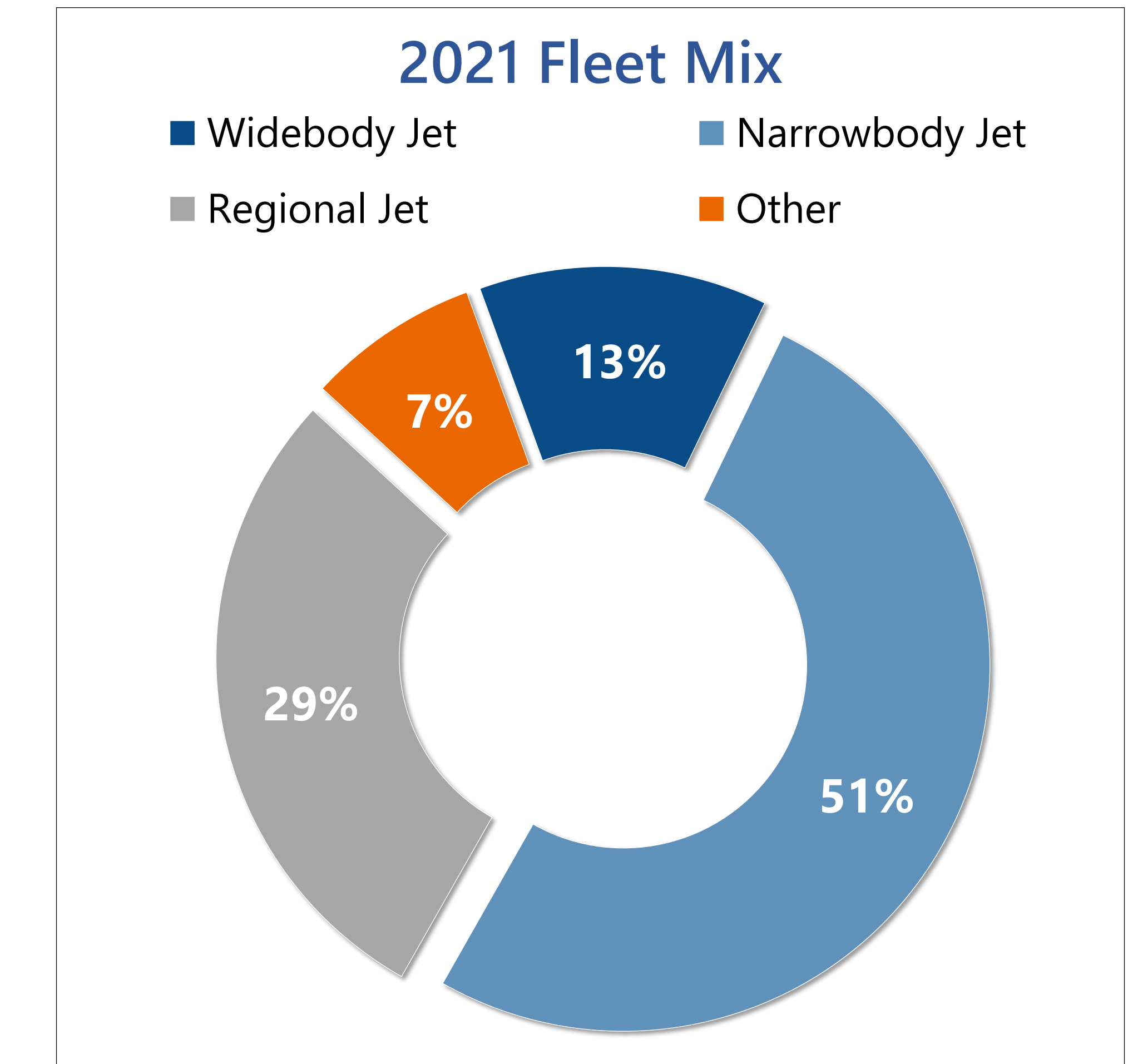
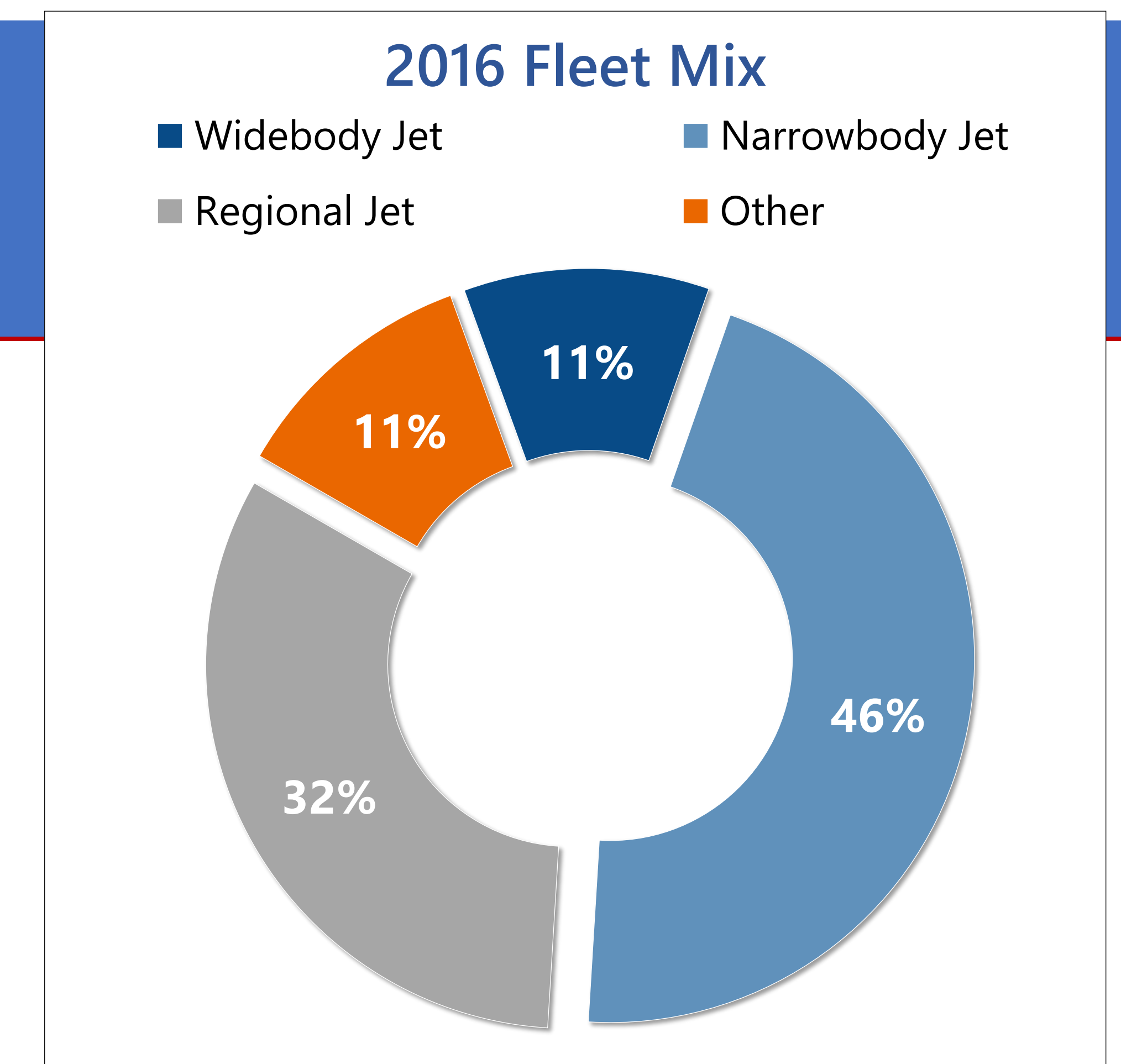
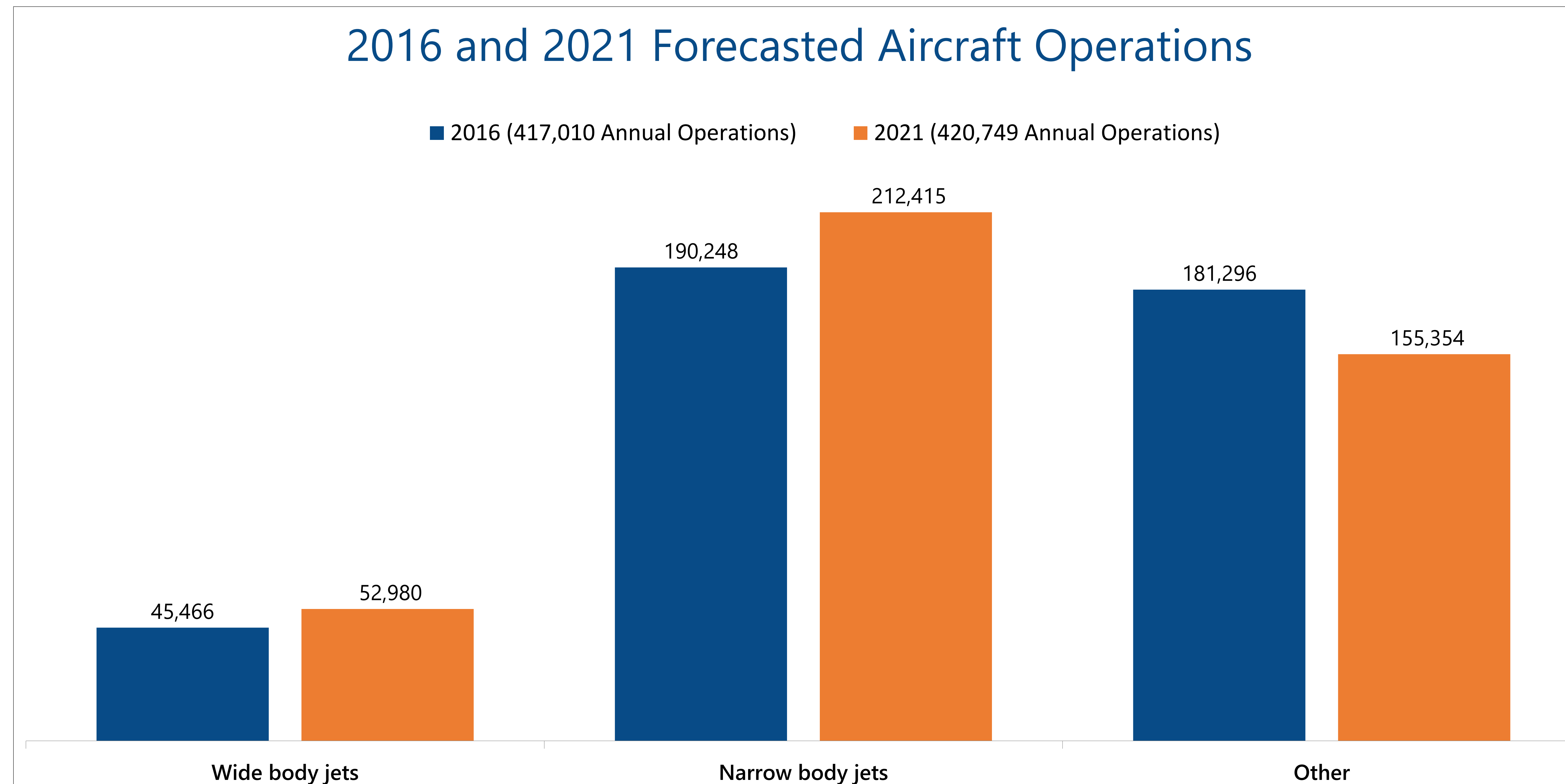
- Three runways in total; two parallel (4R-22L, 4L-22R) and one intersecting (11-29)
- Runway 4R-22 is 10,000 ft long, 150 ft wide
- Runway 4L-22R is 11,000 ft long, 150 ft wide
- Runway 11-29 is primarily used for commuter aircraft traffic
- Approximately 12 miles of taxiways
- 325-foot air traffic control tower built in 2003

REGIONAL CONTEXT



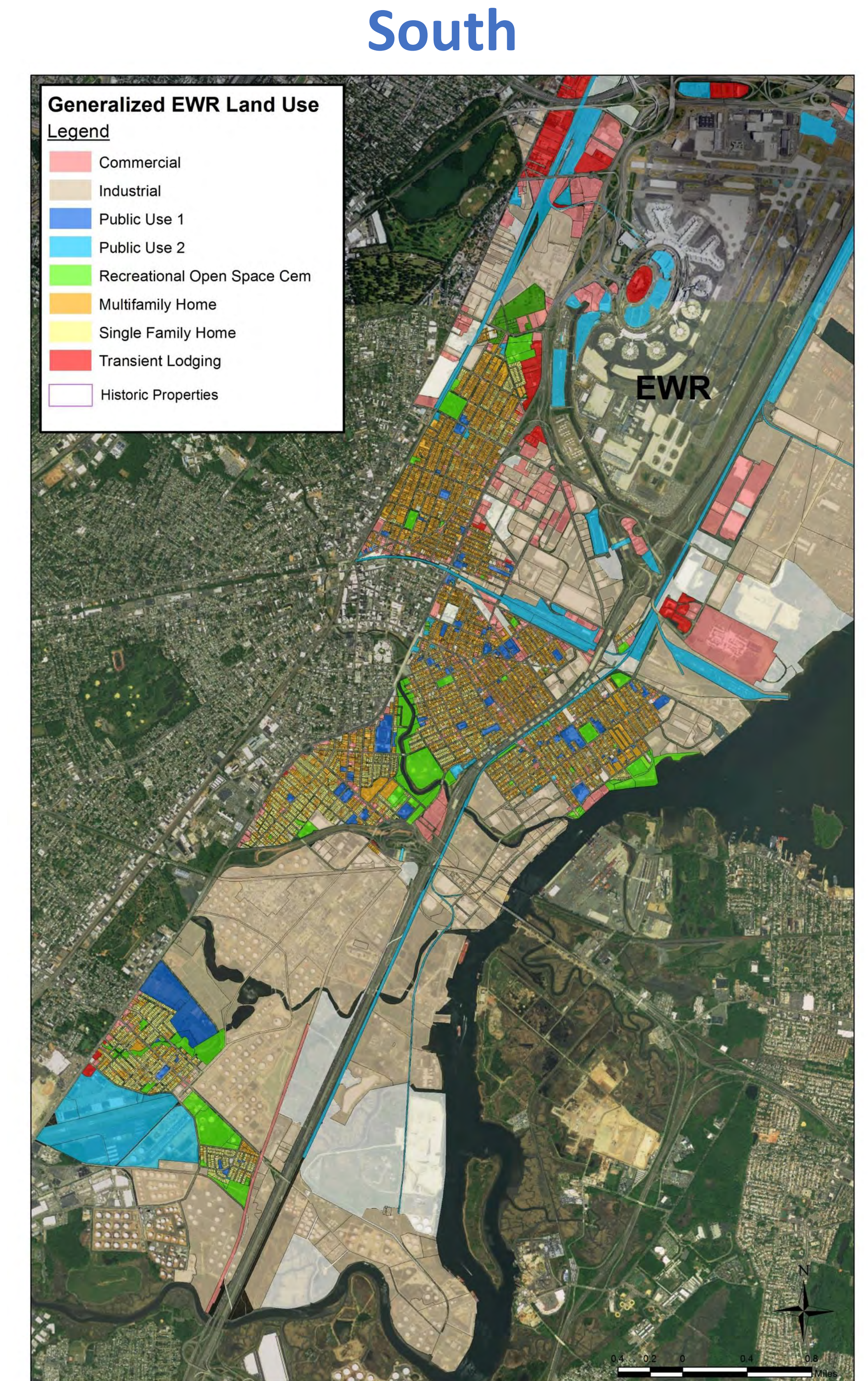
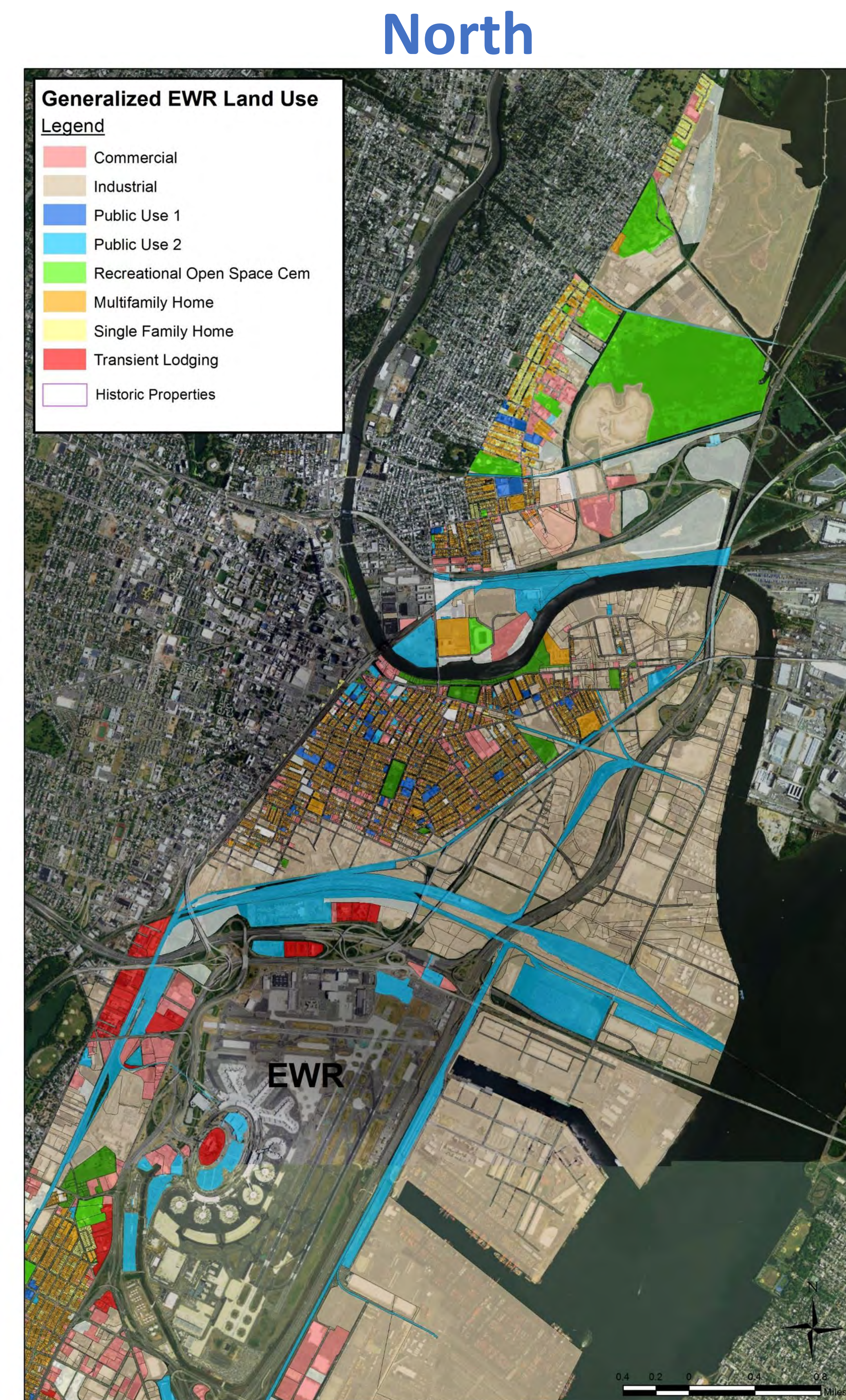
Operations / Forecast

- The Port Authority and the Study Team developed the detailed forecast
- FAA approved forecast as consistent with its “Terminal Area Forecast”



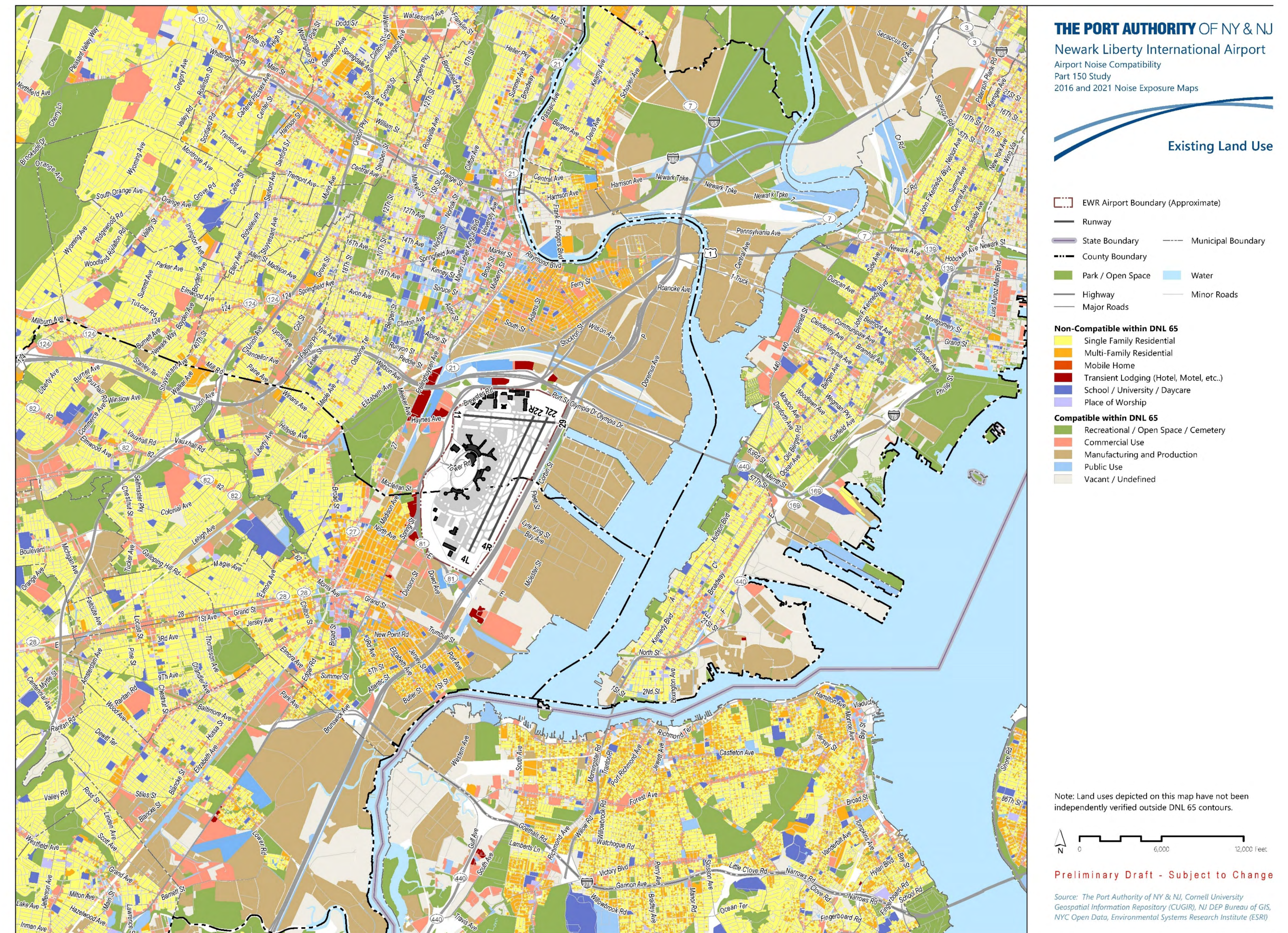
Land Use – Process and Jurisdiction

- Primary data collection steps include:
 - Assemble and review land use, zoning, and population data
 - Identify local land use policies that address airport operations
 - Create existing land use maps
 - Conduct land use reconnaissance surveys
 - Assess and address any deficiencies of land use data
- Primary jurisdiction consultation steps:
 - Conduct initial outreach for data collection purposes
 - Interview land use planners and municipal officials
 - Identify and discuss existing land use policies and strategies



Land Use Map

- Generalized land uses over full area covered in NEM figures
- Part 150 only requires analysis of land use within 65 DNL
- Noise abatement alternatives may extend contours within this larger area
- Verified land uses within 65 DNL contour area



Land Use – Part 150 Land Use Compatibility Guidelines

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	Y(2)	Y(3)	Y(4)	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key

SLCUM:	Standard Land Use Coding Manual.
Y(Yes):	Land use and related structures compatible without restrictions.
N(No):	Land use and related structures are not compatible and should be prohibited.
NLR:	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35:	Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dBA must be incorporated into design and construction of structure.

Notes

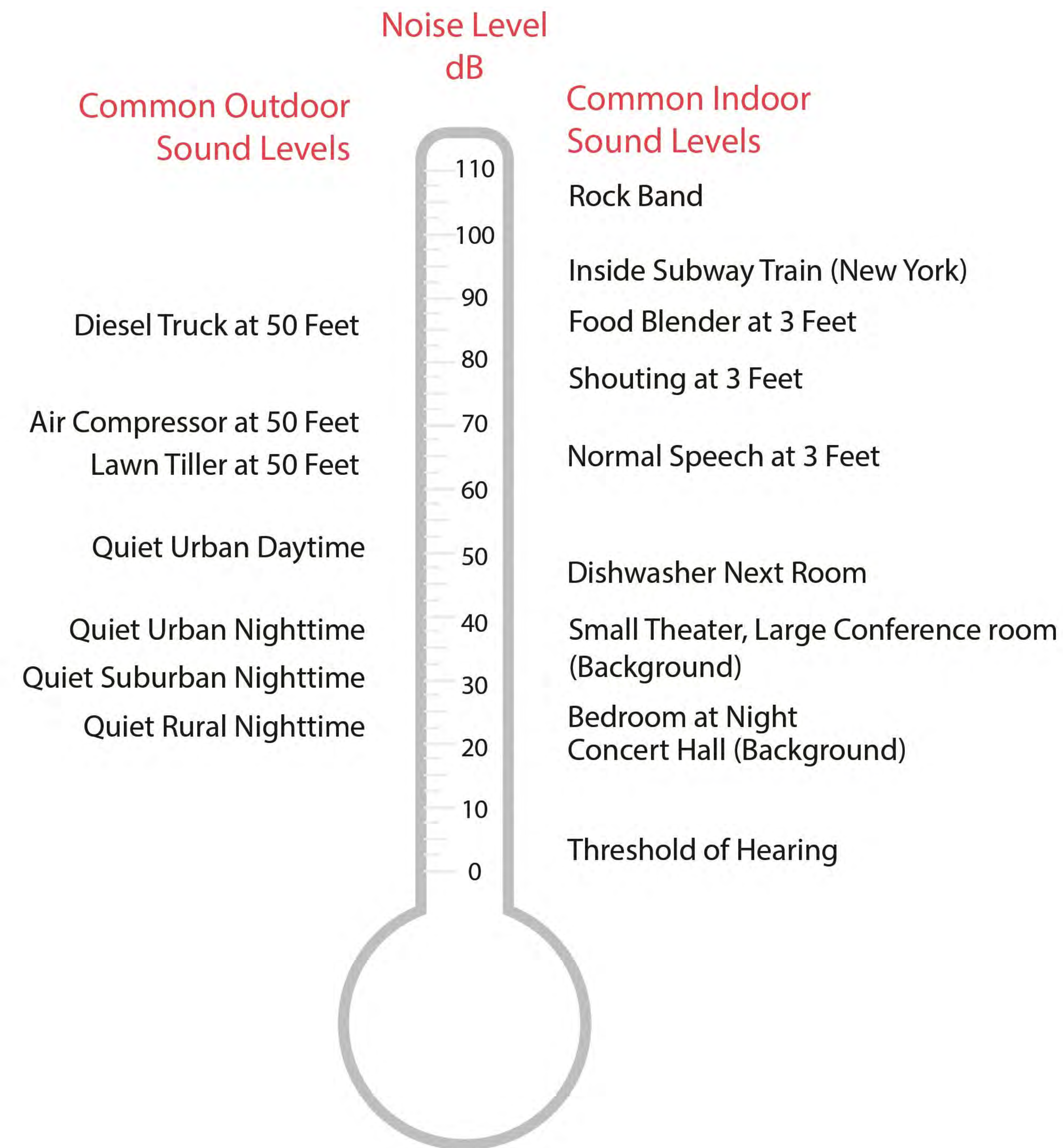
The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA and 30 dBA should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dBA, thus, the reduction requirements are often started as 5, 10, or 15 dBA over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR of 25 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- (3) Measures to achieve NLR of 30 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (4) Measures to achieve NLR of 35 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30
- (8) Residential buildings not permitted.



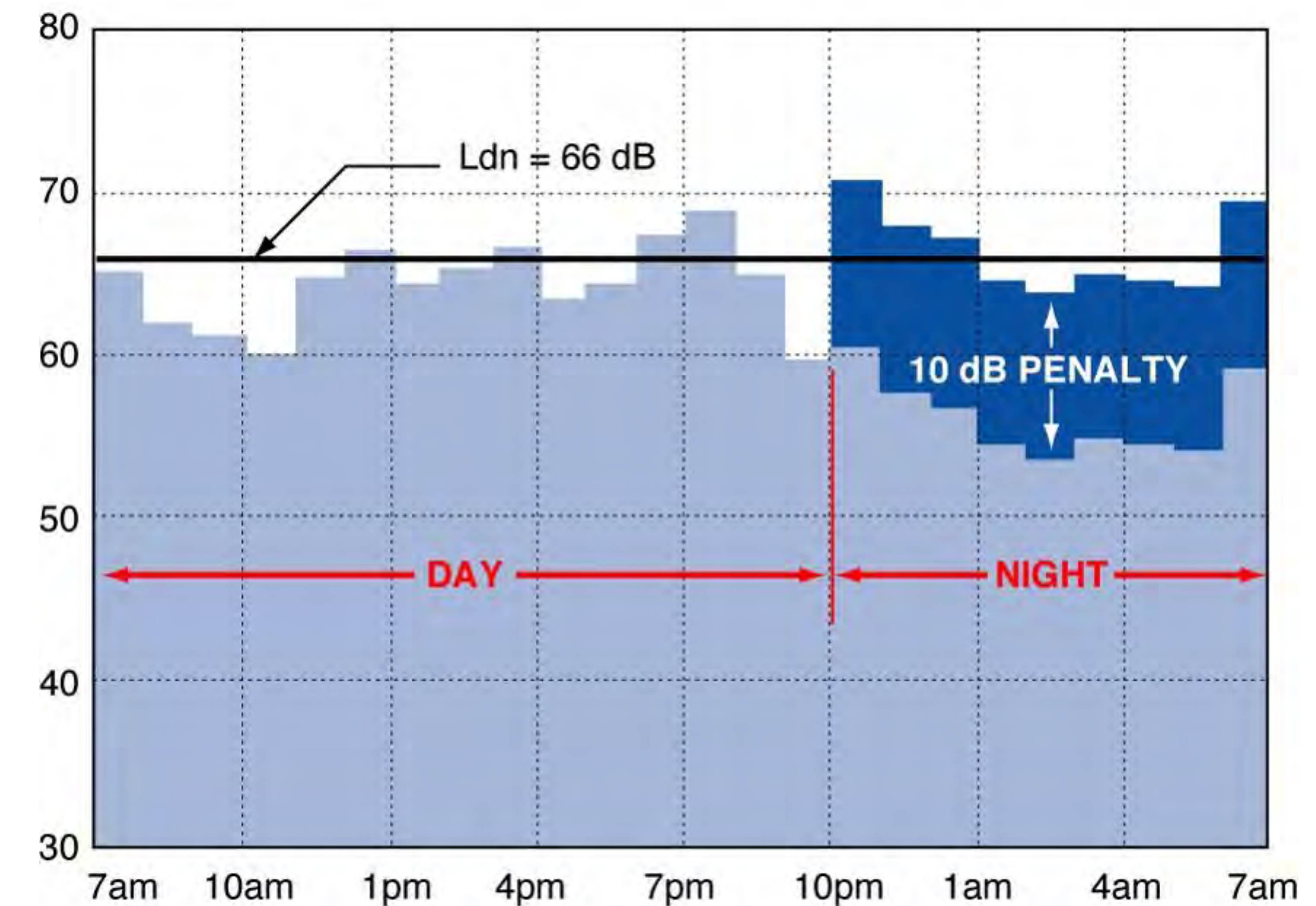
Noise Terminology

Common Sound Levels



Day-Night Average Sound Level (DNL)

- DNL is the only metric Part 150 requires us to consider
- Computed in the FAA's Integrated Noise Model (INM)
- DNL is an average 24-hour exposure over the course of a year
- Noise from 10 pm to 7 am is factored up by 10 dB
 - "Penalty" is equal to counting each night operation 10 times



Noise Model Inputs – Runway Utilization



Runway Use - Departures
(200,990 Total Operations)

April / May, 2013 and Jan – March and June – Dec, 2014



Runway Use - Arrivals
(201,427 Total Operations)



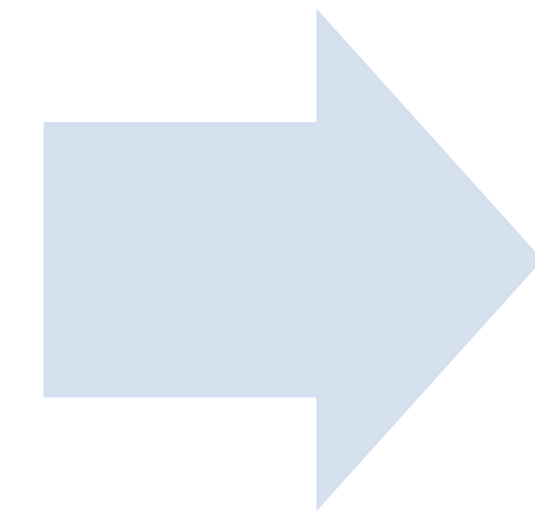
*EWR ANOMS Database, 2013 and 2014. Ten months of 2014 (January – March, June – December 2014) operations data was used with two months of 2013 runway data (April-May 2013) due to a runway closure that altered 'normal' runway and track use during the 2014 calendar year.



Noise Model Inputs — Flight Track Creation Process

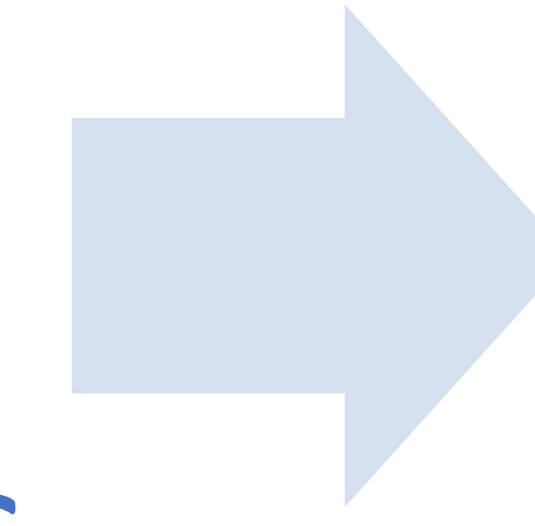
Step 1:

- Select a group of tracks
- Example: Domestic Jet departures on Runway 22R to the south



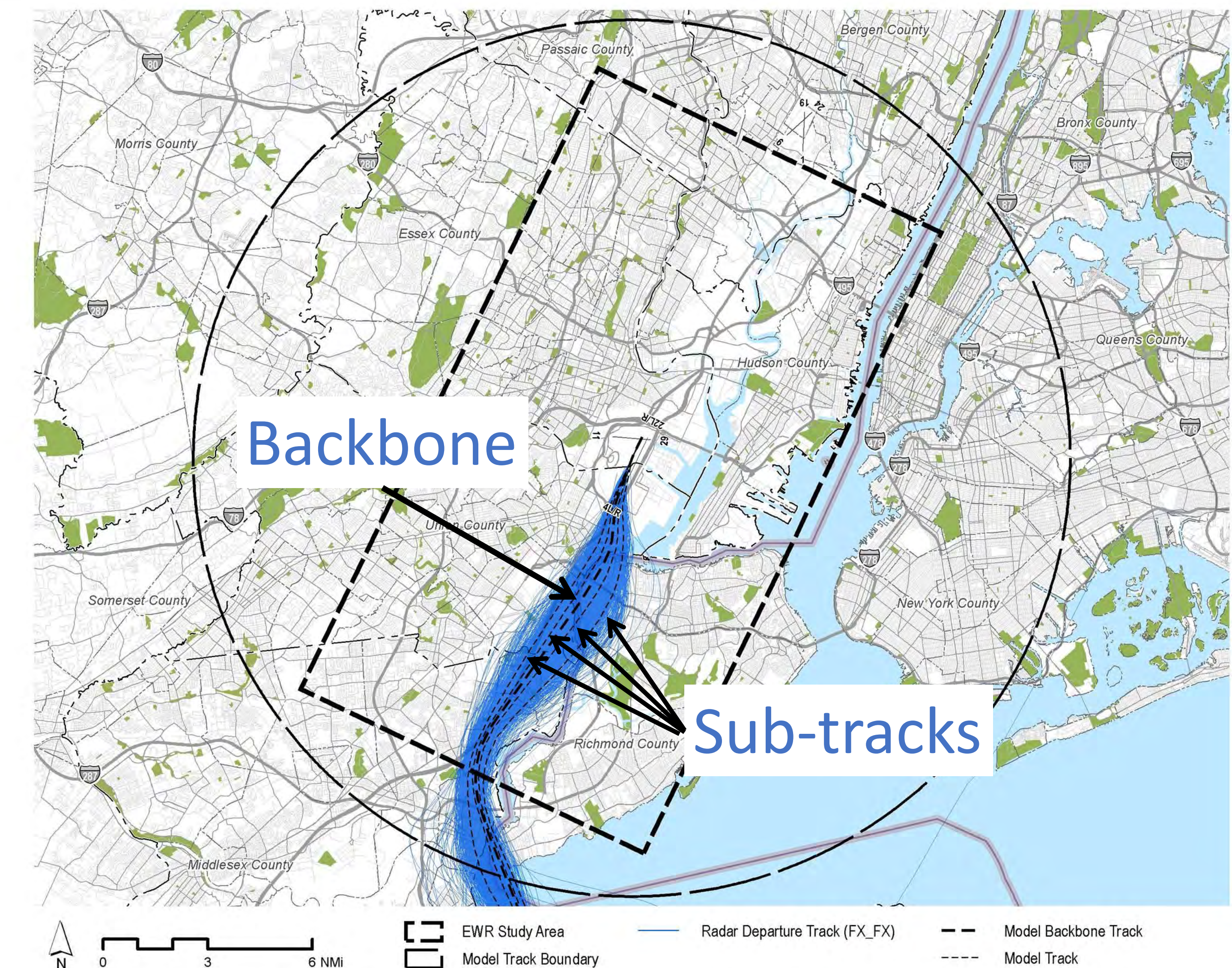
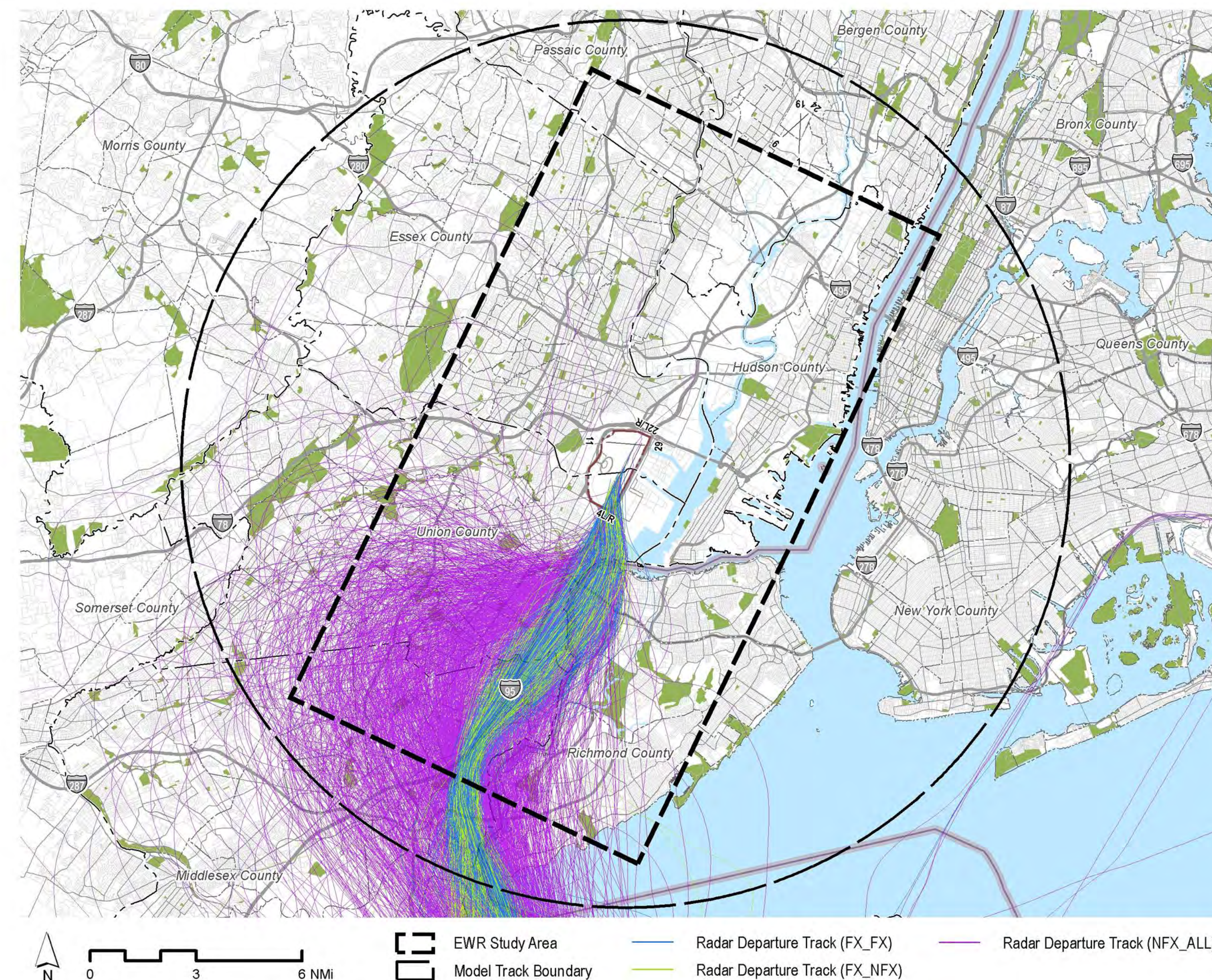
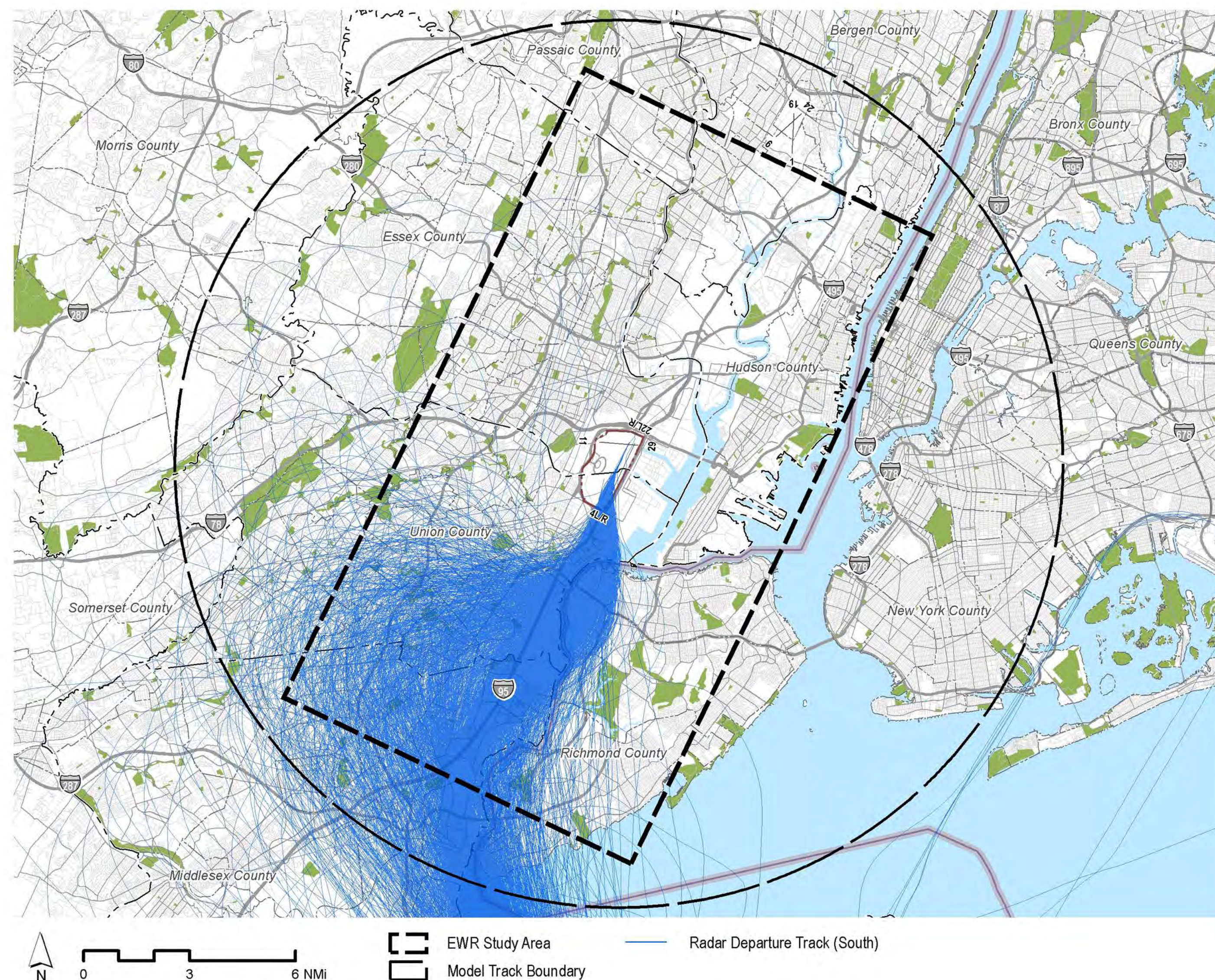
Step 2:

- Separate into bundles
- Example: Three bundles

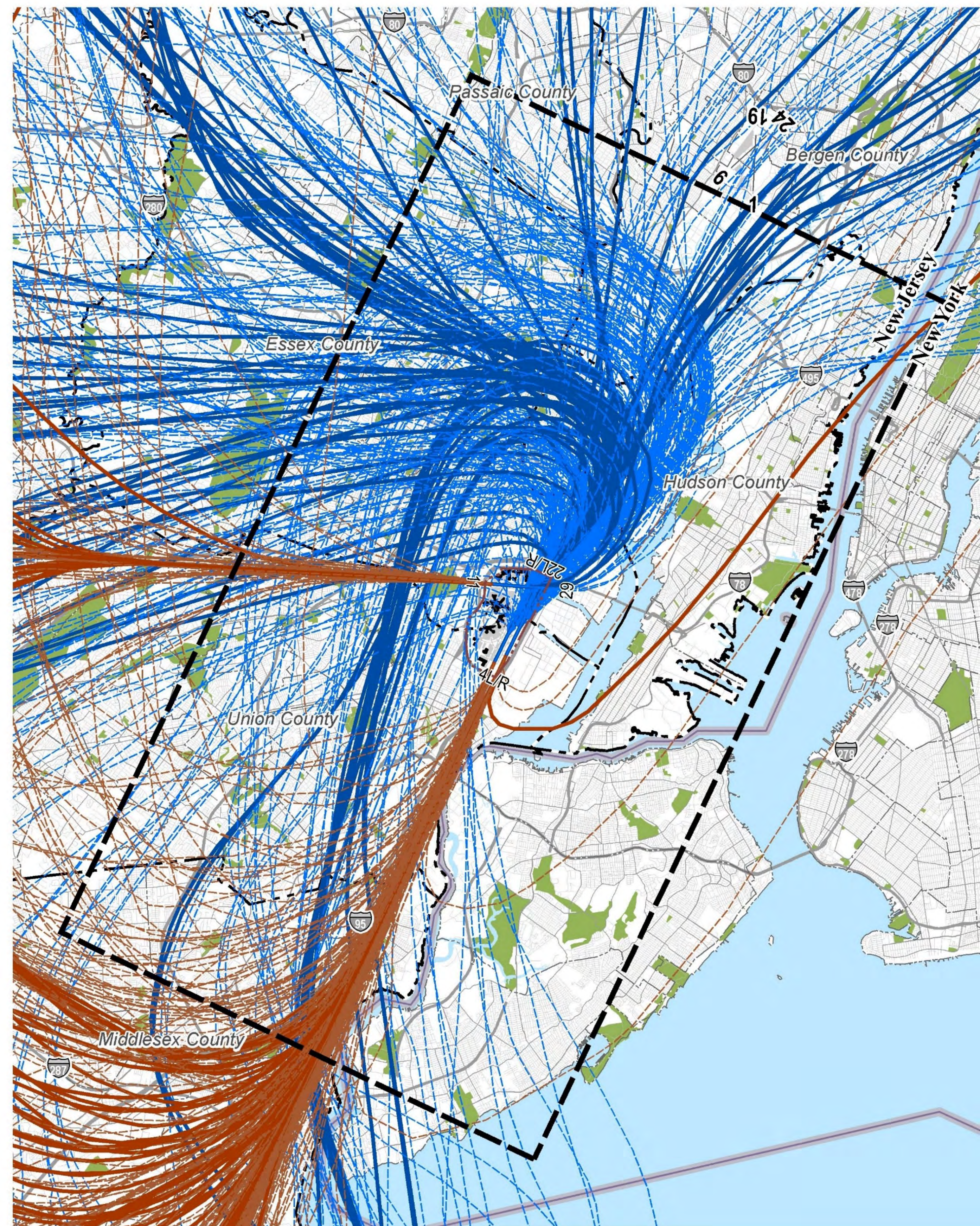


Step 3:

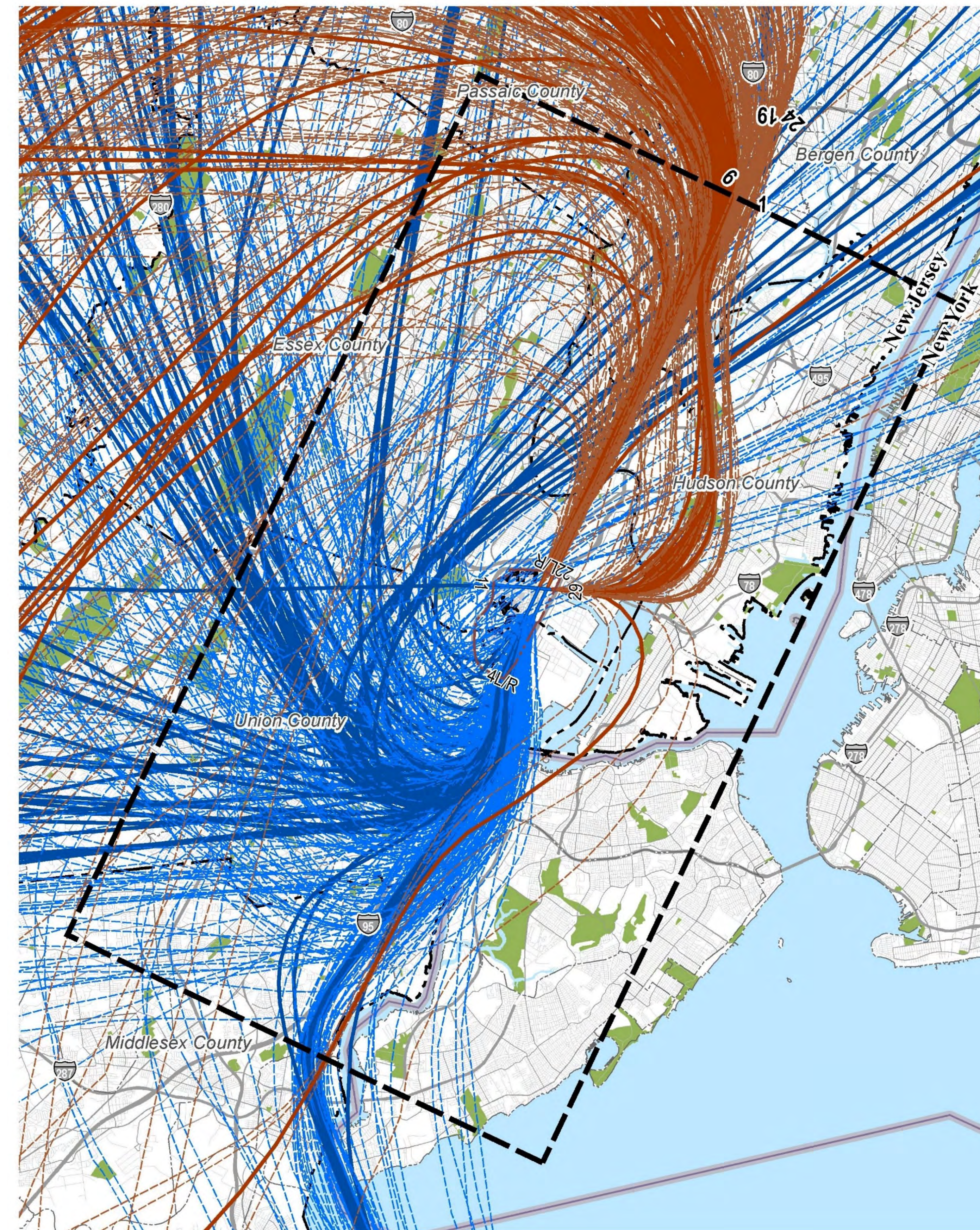
- Create model tracks for each bundle
- Example:



Noise Model Inputs — Modeled Fixed-Wing Flight Tracks



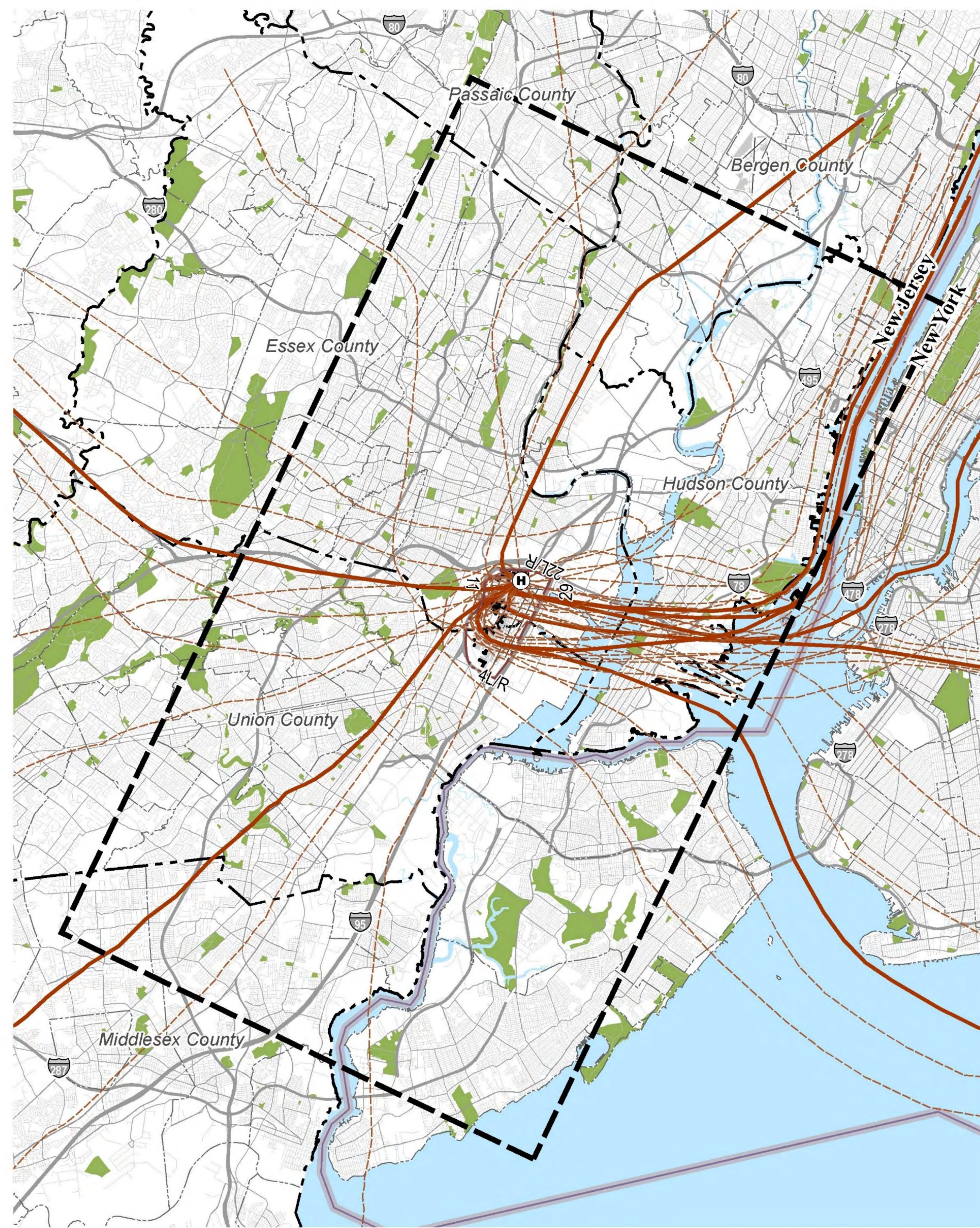
Source: ; The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



Source: ; The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



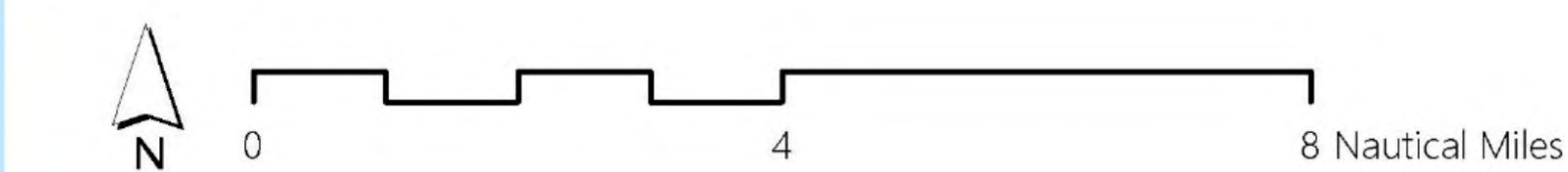
Noise Model Inputs — Helicopter Flight Tracks



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Airport Noise Compatibility
Part 150 Study
2016 and 2021 Noise Exposure Maps

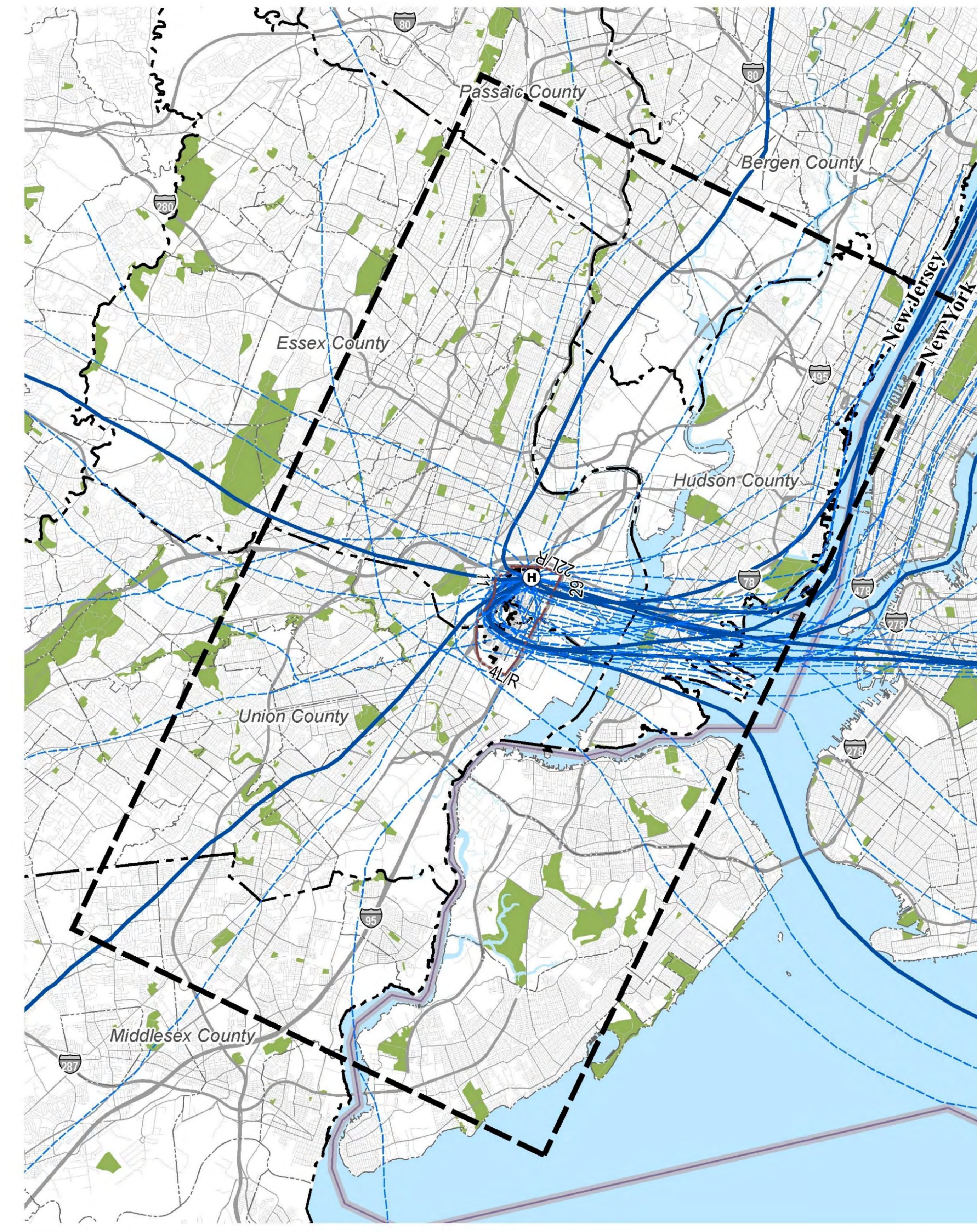
Noise Modeling Flight Tracks Helicopter Arrivals

- Model Backbone Track (9 Arrival Tracks)
- - - Model Track (36 Arrival Tracks)
- Ⓜ Helicopter Pad
- ▭ EWR Airport Boundary (Approximate)
- ▭ EWR Study Area
- ▭ Model Track Boundary
- Runway
- State Boundary - - - Municipal Boundary
- - - County Boundary
- Park / Open Space ■ Water
- Highway — Minor Roads
- Major Roads



Preliminary Draft - Subject to Change

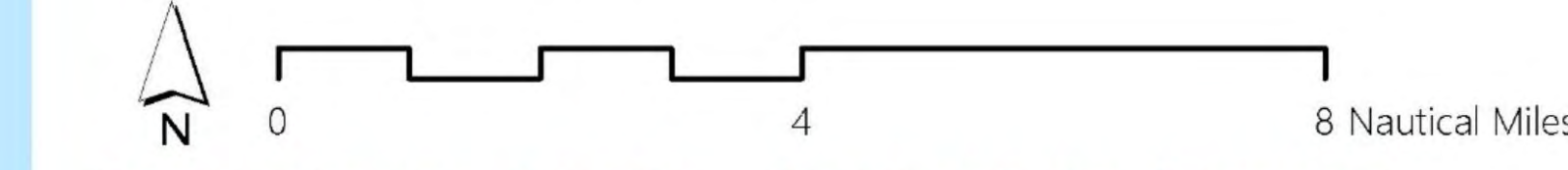
Source: ; The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



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Airport Noise Compatibility
Part 150 Study
2016 and 2021 Noise Exposure Maps

Noise Modeling Flight Tracks Helicopter Departures

- Model Backbone Track (10 Departure Tracks)
- - - Model Track (40 Departure Tracks)
- Ⓜ Helicopter Pad
- ▭ EWR Airport Boundary (Approximate)
- ▭ EWR Study Area
- ▭ Model Track Boundary
- Runway
- State Boundary - - - Municipal Boundary
- - - County Boundary
- Park / Open Space ■ Water
- Highway — Minor Roads
- Major Roads



Preliminary Draft - Subject to Change

Source: ; The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

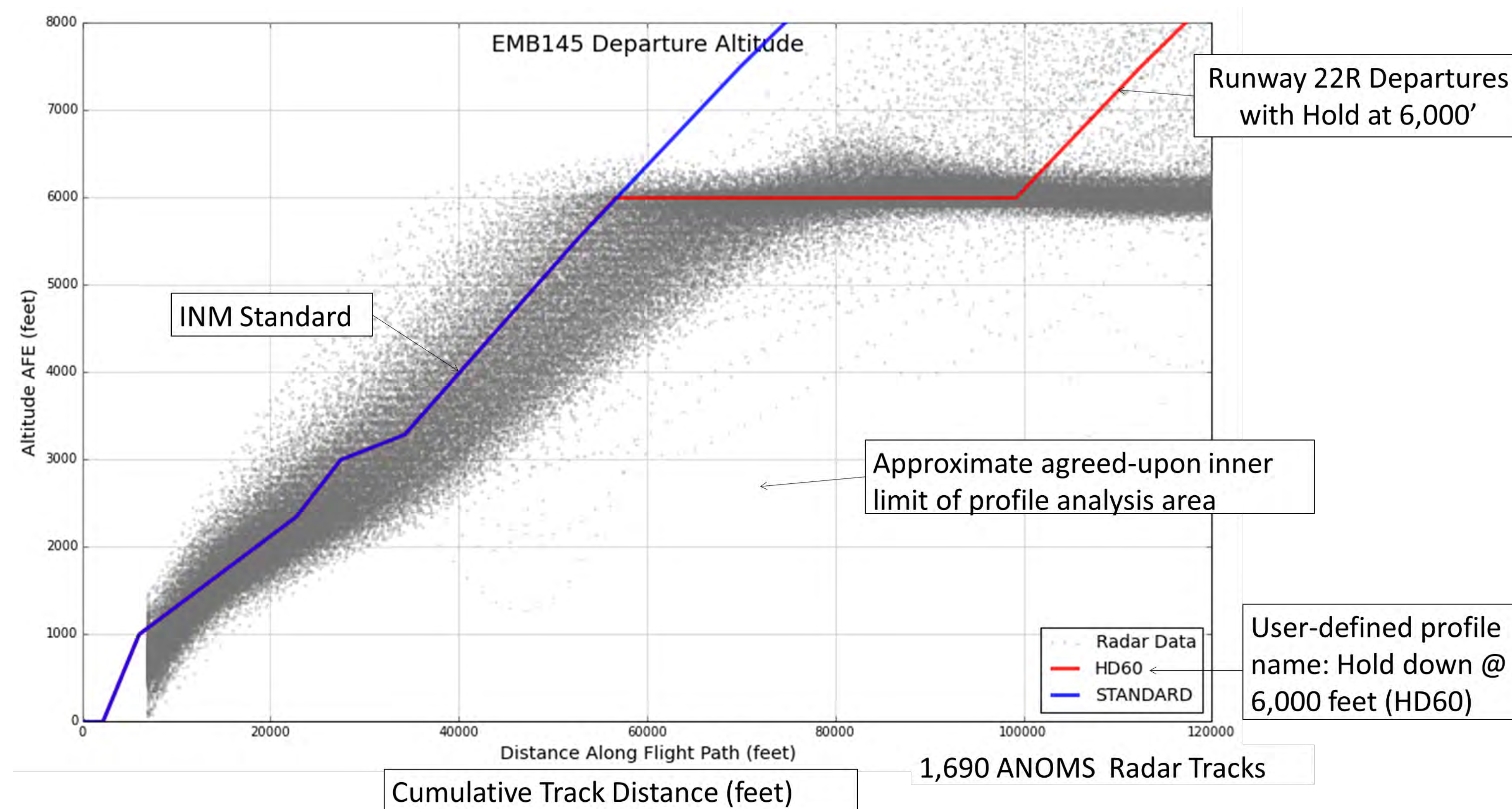


Noise Model Inputs — User-Defined Flight Profiles

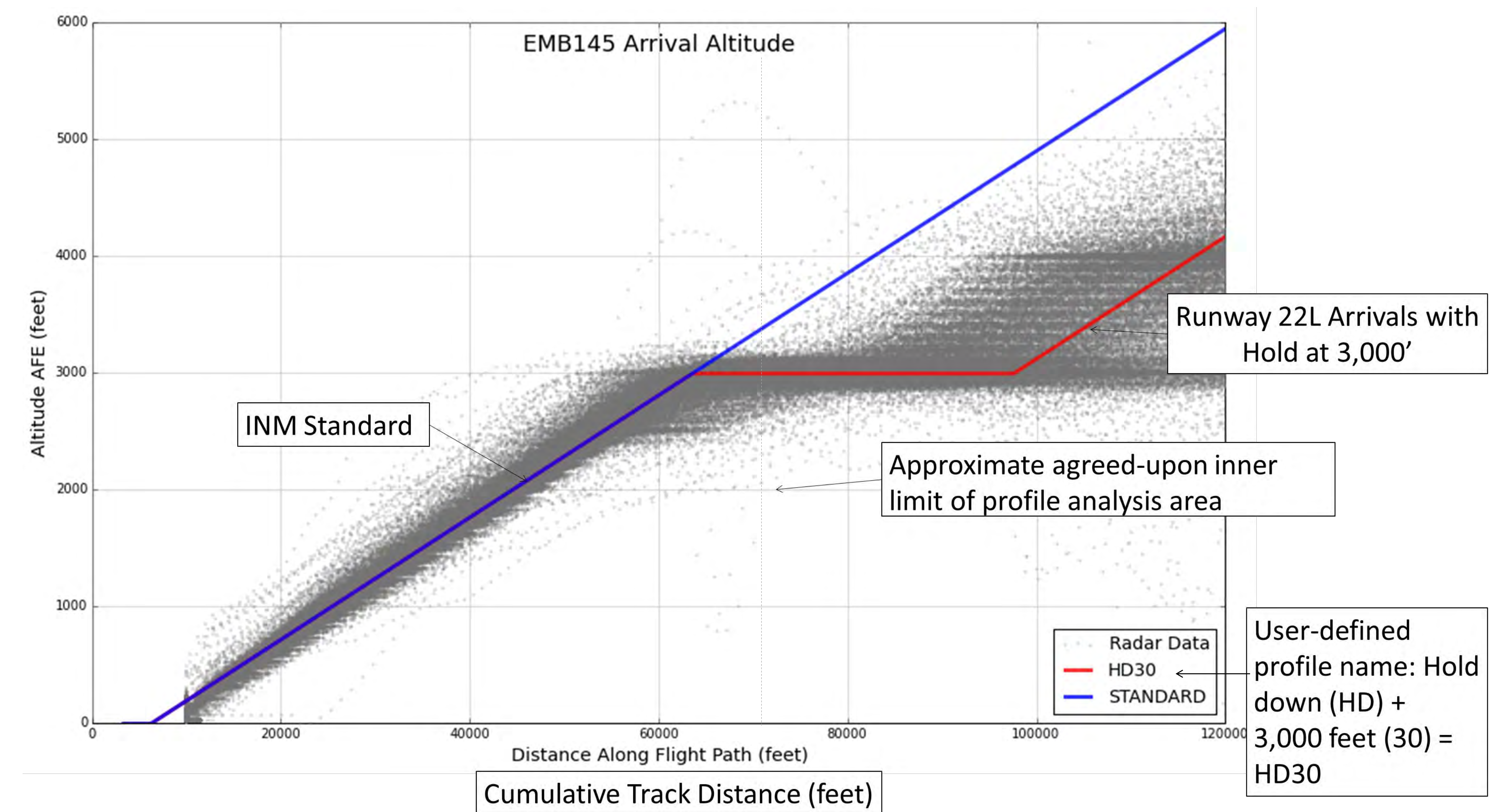
- Purpose is to reflect airspace-related altitude holds
- EMB145 departure and arrival examples presented below
- FAA has reviewed and approved



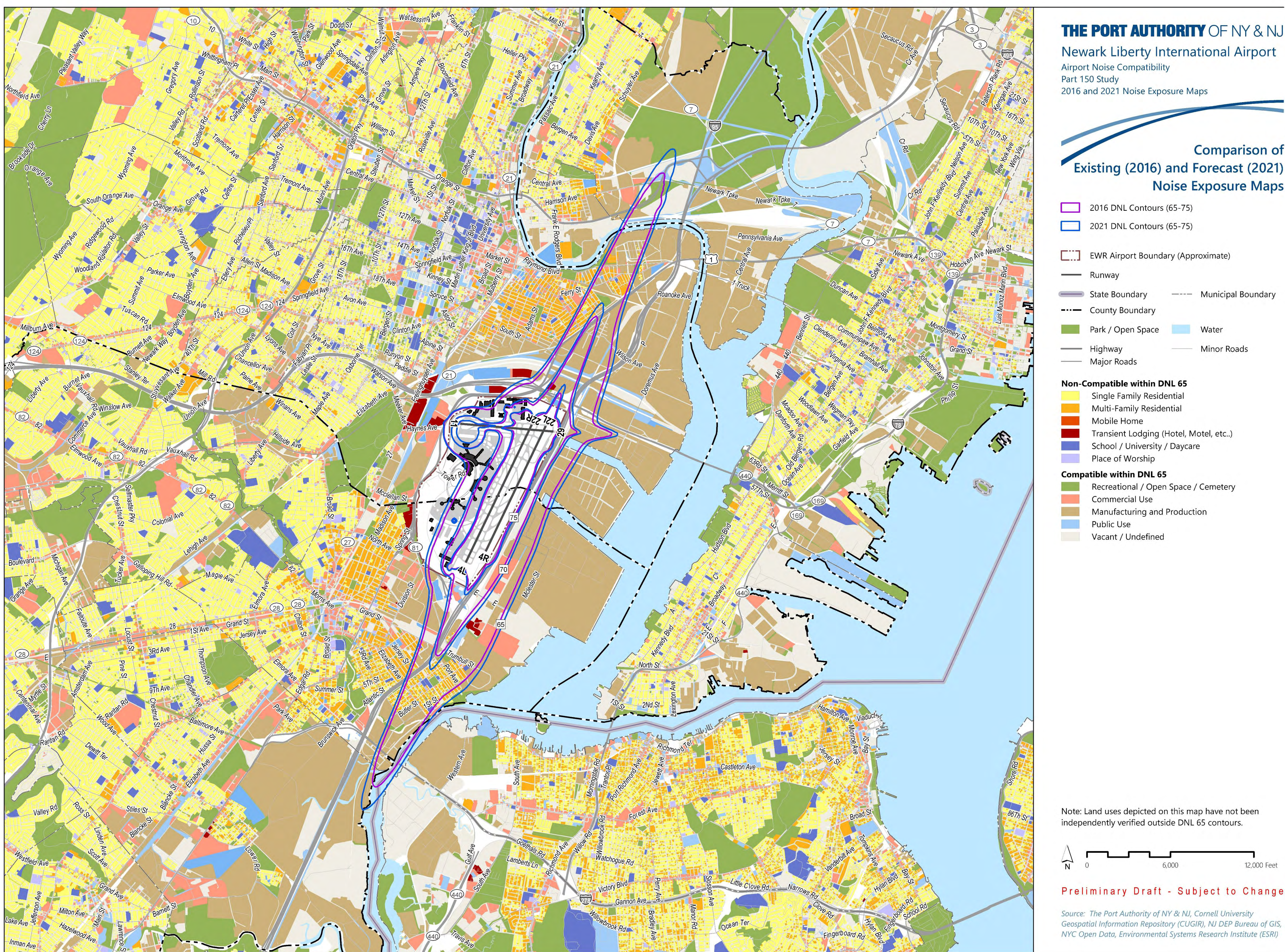
Departures



Arrivals



Noise Exposure Map – 2016 and 2021 NEMs

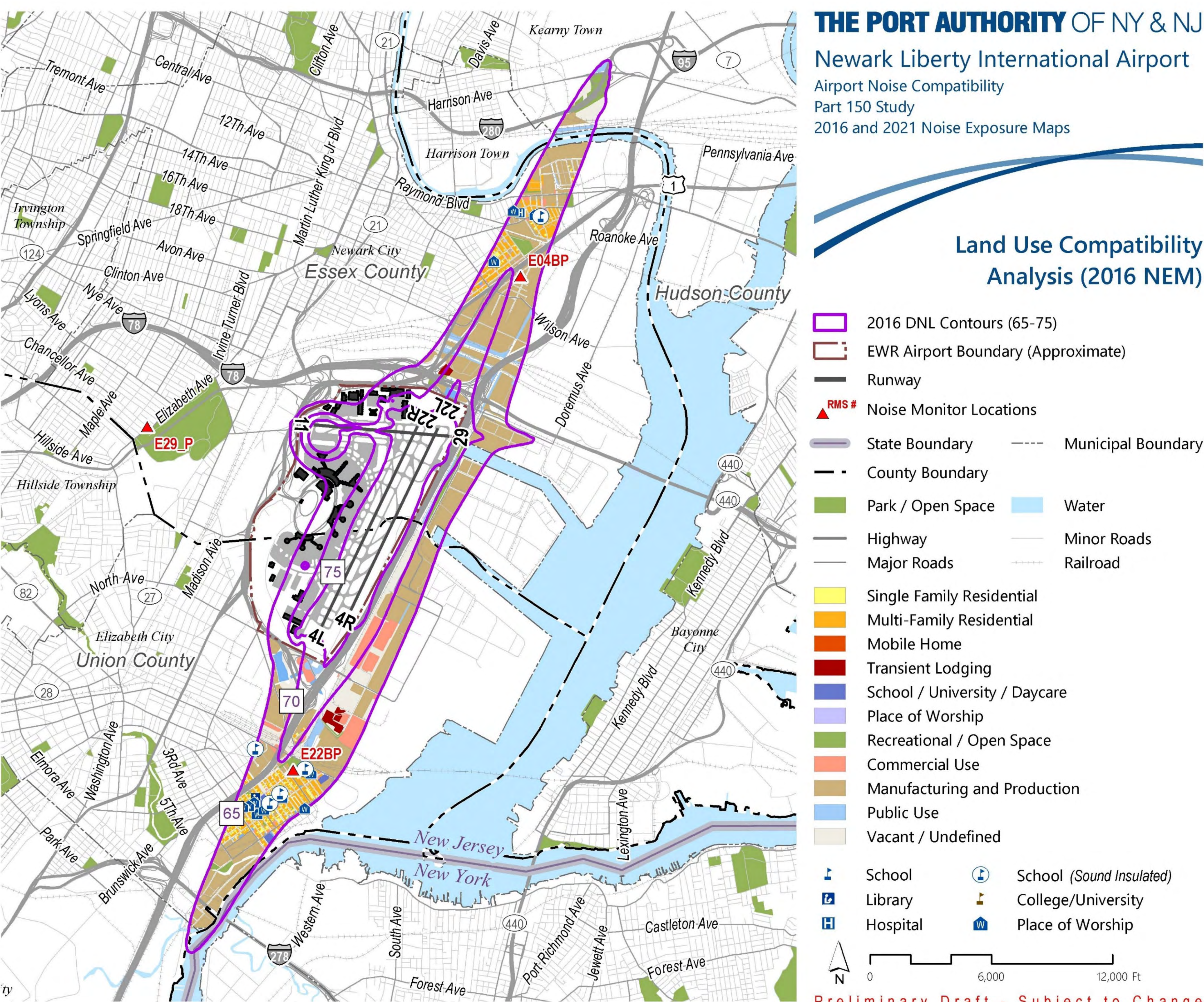


Compatible and Non-Compatible Land Area within the 2016 and 2021 65 DNL Contours

Year	Land Use within the 65 DNL	Area Outside Airport Boundary (Square Miles)
2016	Compatible	4.36
	Non-Compatible	0.49
	Total	4.85
2021	Compatible	5.16
	Non-Compatible	0.61
	Total	5.77

Source: HMMH, 2016

Noise Exposure Map — 2016 Land Use Compatibility Analysis



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Residential Units within 2016 65 DNL Contour Interval

Year	Metric	Dwelling Units within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2016	Single Family	700	5	0	705
	Multi-Family	7,964	42	0	8,006
	Total	8,664	47	0	8,711

Source: 2010 US Census Block Data, RS&H, HMMH, 2016

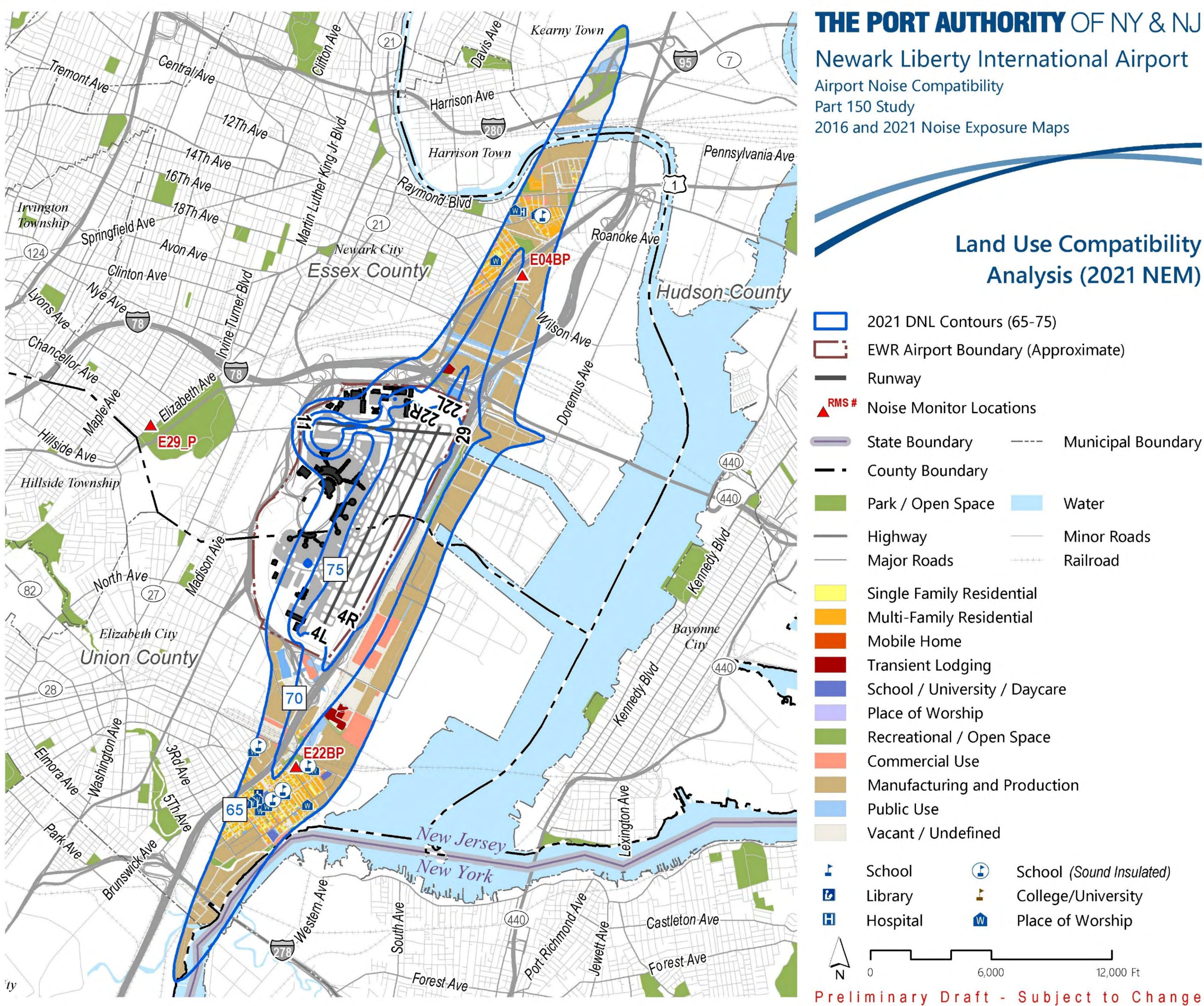
Population within 2016 65 DNL Contour Interval

Year	Metric	Population within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2016	Single Family	1,988	14	0	2,002
	Multi-Family	22,618	119	0	22,737
	Total	24,606	133	0	24,739

Source: 2010 US Census Block Data, RS&H, HMMH, 2016



Noise Exposure Map — 2021 Land Use Compatibility Analysis



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Residential Units within 2021 65 DNL Contour Interval

Year	Metric	Dwelling Units within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2021	Single Family	773	30	0	803
	Multi-Family	8,466	344	0	8,810
	Total	9,239	374	0	9,613

Source: 2010 US Census Block Data, RS&H, HMMH, 2016

Population within 2021 65 DNL Contour Interval

Year	Metric	Population within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2021	Single Family	2,195	85	0	2,280
	Multi-Family	24,043	977	0	25,020
	Total	26,239	1,062	0	27,300

Source: 2010 US Census Block Data, RS&H, HMMH, 2016



Noise Exposure Map – Noise Sensitive Sites

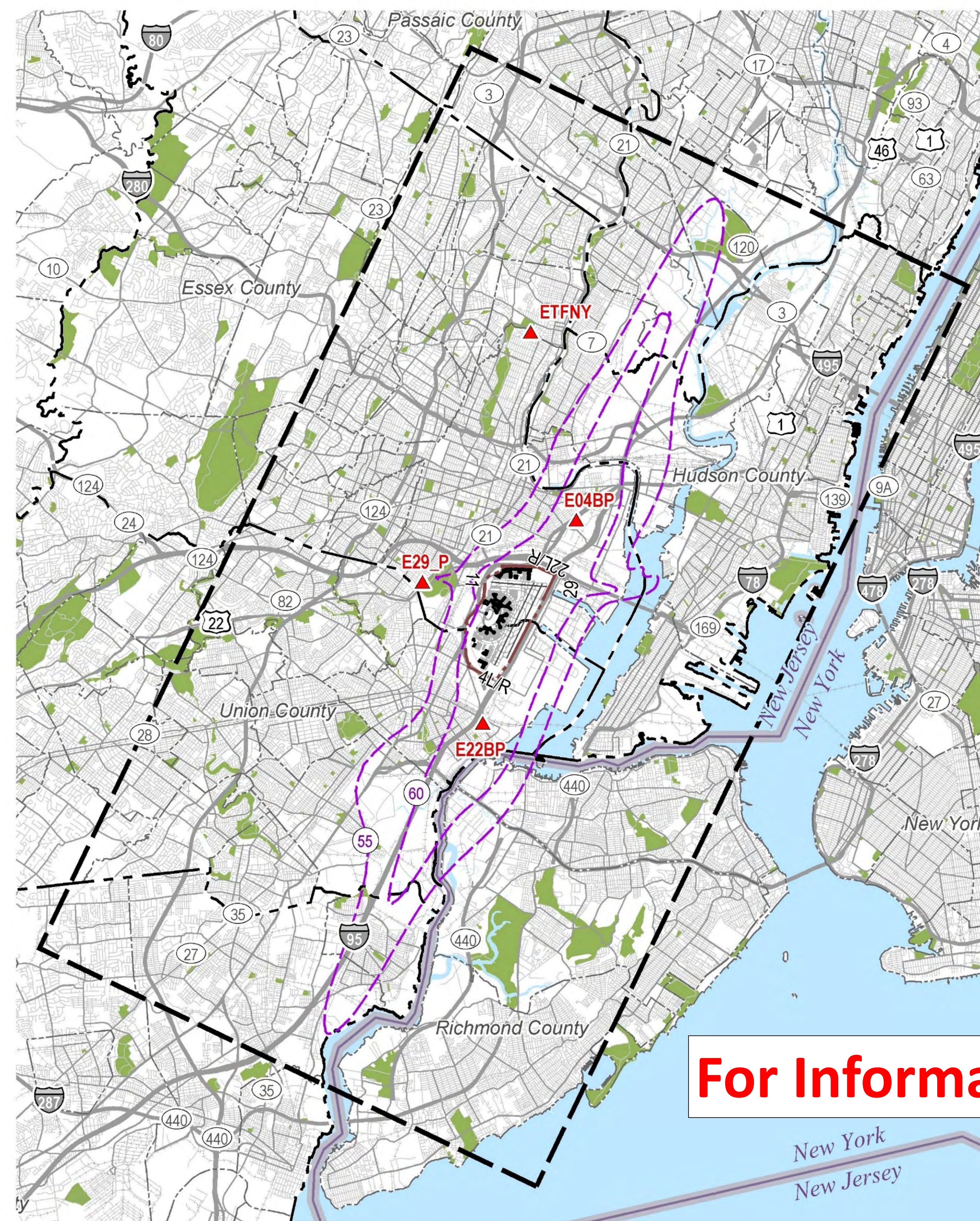
Year	Noise Sensitive Site	Type	Contour Interval	Address	Town
2016 and 2021	Elizabeth Public Library – East Port Branch	Library	65-70 dB	102 3rd Street	Elizabeth
	Neighborhood Health Center	Medical	65-70 dB	184 1st Street	Elizabeth
	Benjamin Franklin School No. 13*	School	65-70 dB	248 Ripley Place	Elizabeth
	Dr. Martin Luther King Jr. School No. 52	School	65-70 dB	130 Trumbull Street	Elizabeth
	iPrep Academy School No. 8*	School	65-70 dB	221-227 Court St	Elizabeth
	George Washington Elementary School*	School	65-70 dB	250 Broadway	Elizabeth
	John Marshall School*	School	65-70 dB	521 Magnolia Ave	Elizabeth
	Hawkins Street Elementary School*	School	65-70 dB	8 Hawkins Street	Newark
	Jerome Dunn Academy	School	65-70 dB	250 Broadway	Elizabeth
	Duarte – Marti School No. 28	School	65-70 dB	25 1st Street	Elizabeth
	St. Adalbert Polish Catholic Church	Worship	65-70 dB	24 – 38 3rd Street	Elizabeth
	St. Peter and Paul Roman Catholic	Worship	65-70 dB	211 Ripley Place	Elizabeth
	Iglesia de Dios Pentecostal Cristo Te Llama	Worship	65-70 dB	221 E Jersey St	Elizabeth
	Immaculate Heart of Mary and St. Patrick	Worship	65-70 dB	215 Court St	Elizabeth
	St. Adalbert's Church	Worship	65-70 dB	250 E Jersey Street	Elizabeth
	Church of the Nazarene Iglesia	Worship	65-70 dB	214 Fulton Street	Elizabeth

Year	Noise Sensitive Site	Type	Contour Interval	Address	Town
2016 and 2021	Immaculate Heart of Mary and St. Patrick	Worship	65-70 dB	215 Court St	Elizabeth
	St. Adalbert's Church	Worship	65-70 dB	250 E Jersey Street	Elizabeth
	Church of the Nazarene Iglesia	Worship	65-70 dB	214 Fulton Street	Elizabeth
	Trinity Reformed Church / The Rock Christian Fellowship	Worship	65-70 dB	483 Ferry Street	Newark
	St. Aloysius Church	Worship	65-70 dB	66 Fleming Avenue	Newark
	St. Benedict Church	Worship	65-70 dB	65 Barbara Street	Newark
	Iglesia Nueva Vida	Worship	65-70 dB	51 3rd Street	Elizabeth
	Mt. Calvary United Church of God	Worship	65-70 dB	223 1st Street	Elizabeth
	Liberty Baptist	Worship	65-70 dB	515 Court Street	Elizabeth
	Extended Stay America	Transient Lodging	65-70 dB	45 International Boulevard	Elizabeth
	Country Inn & Suites by Carlson	Transient Lodging	65-70 dB	100 International Boulevard	Elizabeth
	Courtyard Newark Elizabeth	Transient Lodging	65-70 dB	87 International Boulevard	Elizabeth
	Residence Inn	Transient Lodging	65-70 dB	83 International Boulevard	Elizabeth
	Embassy Suites	Transient Lodging	65-70 dB	95 International Boulevard	Elizabeth
	Howard Johnson Motor Lodge	Transient Lodging	70-75 dB	20 Frontage Road	Newark
2021	Wyndham Garden Hotel	Transient Lodging	65-70 dB	550 Route 1 and 9 South	Newark
	Springhill Suites	Transient Lodging	65-70 dB	652 Route 1 and 9 South	Newark

Note: Schools designated with a * have been soundproofed as a part of the School Soundproofing Program



DNL 55 and 60 Contours – Outside of Part 150

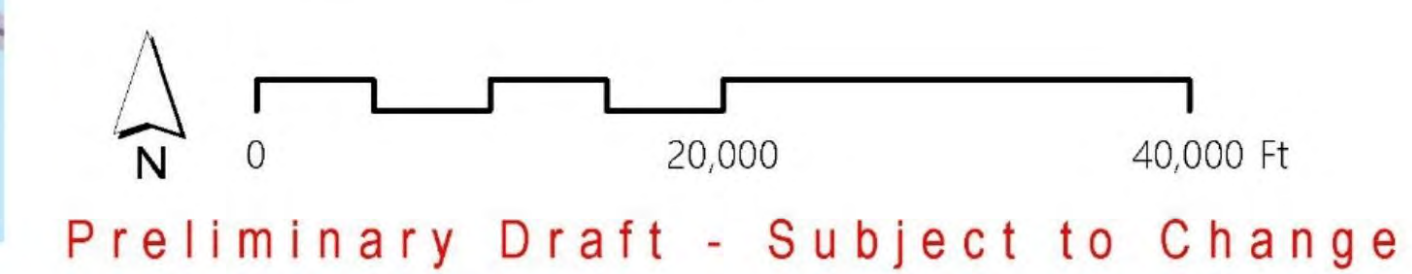


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Part 150 Study
2016 and 2021 Noise Exposure Maps

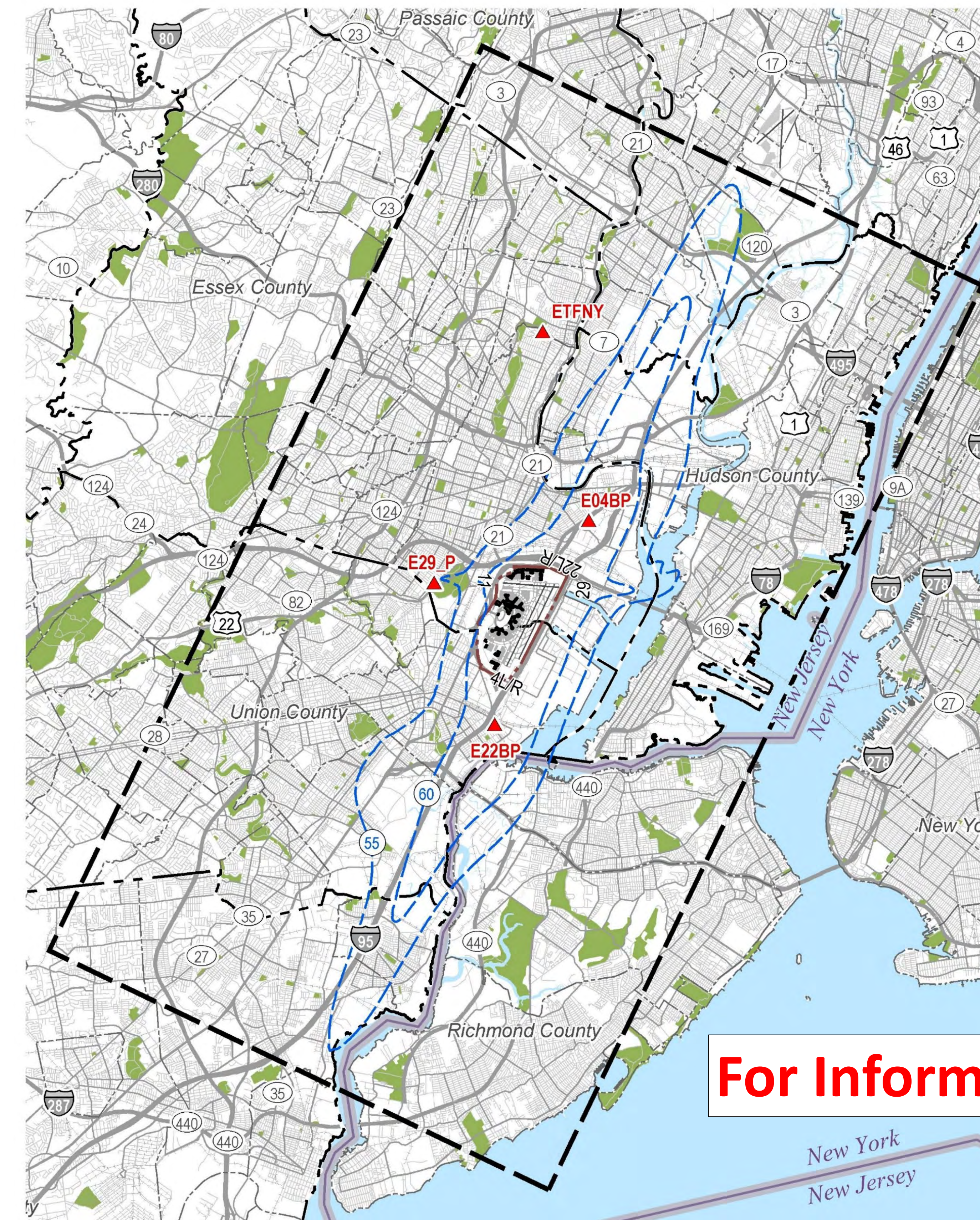
Figure: 2-4
2016 55-60 DNL Contours

- 2016 DNL Contours (55-60)
- EWR Airport Boundary (Approximate)
- EWR Study Area
- Runway
- Noise Monitor Locations
- State Boundary
- County Boundary
- Municipal Boundary
- Park / Open Space
- Water
- Highway
- Major Roads
- Minor Roads
- Railroad

For Informational Purposes Only



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

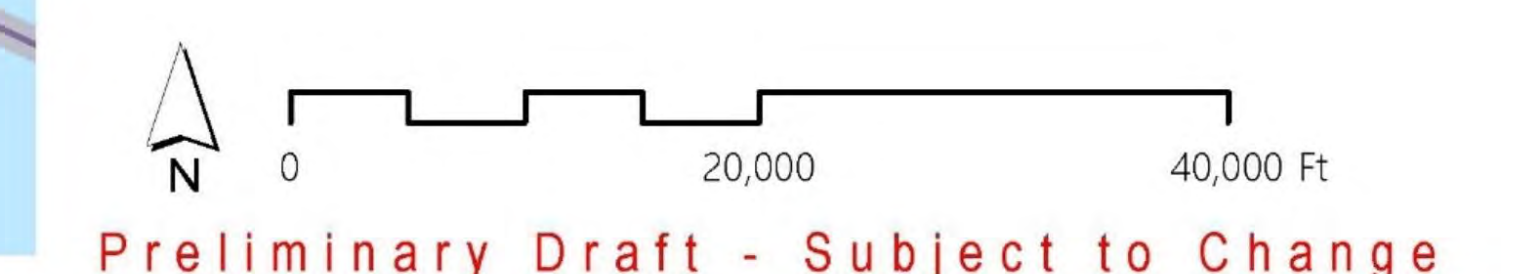


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Airport Noise Compatibility
Part 150 Study
2016 and 2021 Noise Exposure Maps

Figure: E-2
2021 55-60 DNL Contours

- 2021 DNL Contours (55-60)
- EWR Airport Boundary (Approximate)
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Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



Part 150 Study Timeline

Part 150 Milestone	Anticipated Date
Project initiation	February 2015 ✓
Project kickoff meeting with FAA	March 2015 ✓
Public Information Workshop – Introduce Project	October 2015 ✓
Public Information Workshop – Present Noise Exposure Map	Fall 2016
Submit Noise Exposure Map to FAA for acceptance	Late 2016
Develop preliminary noise compatibility program measures	Spring 2017
Evaluate noise compatibility program measures	Summer/Fall 2017
Finalize recommended Noise Compatibility Program	Winter 2017/2018
Public Hearing – Present Noise Compatibility Program	Spring 2018
Submit Noise Compatibility Program to FAA for approval of measures	Fall 2018



Stay Connected

For more information or to submit comments and feedback, the PANYNJ has several ways you can participate and stay informed:

- The project website is updated regularly with project documents, meeting announcements, and other general information about the study. Register here to join the mailing list and receive project updates.
http://panynjpart150.com/EWR_homepage.asp
- To make comments, give feedback, or ask questions, please email us at NJPart150@panynj.gov or call us at (212) 435-3777
- To file an aircraft noise complaint, please call the noise complaint hotline at 1-800-225-1071.
- The Port Authority noise information website provides broader information.
www.panynj.gov/airports/aircraft-noise-information.html

Newark Liberty
INTERNATIONAL AIRPORT

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

HomeScheduleMeetingsDocumentsLinksFAQsContactAirport Selection

Announcements

EWR TAC Meeting No. 7
Announcement - Sept 21, 2016

EWR Part 150 Study Public
Workshop Announcement - October
21, 2016 PDF

EWR Part 150 Study Public
Workshop Announcement - October
21, 2016 PDF

Welcome to the Part 150 Noise Compatibility
Planning Study website for Newark Liberty
International Airport (EWR)




The Port Authority of New York and New Jersey has contracted expert consultants to conduct these studies in accordance with FAA rules and regulations. **Barclay Miller, Miller & Johnson, Inc. (JMWMI)** is leading the Part 150 Study for EWR, having extensive experience in conducting Part 150 Studies nationwide.

The Port Authority welcomes public input during the study process and encourages all interested parties to bookmark this site and refer back here for updates and information while the study progresses. The navigation tabs on this site are consistent across all of the Part 150 Study websites. Please familiarize yourself with them for ease of use:

- **Schedule:** Dates for deliberable items, review periods, and implementation periods.
- **Meetings:** Consists of information for public meetings, hearings, and the associated supporting documents.
- **Documents:** Noise Exposure Maps (NEMs), Noise Compatibility Program (NCP), and supported files, including handouts from public meetings, presentations, and other supporting documents.
- **Links:** Relevant further reading information and supporting content, including the FAA website, Port Authority WebTrak flight tracking site, and information on the consultants.
- **FAQs:** Please refer to the FAQ section for detailed information on the Part 150 process and the associated terminology, what it is, how it works, etc. Familiarization with FAQ items is essential for a productive study.

Thank you for having an interest in this Part 150 Study. For specific information on the airport, please follow the main EWR airport webpage
<http://www.panynj.gov/airports/newark-liberty.html>

Click here to join EWR Part 150 mailing list to receive project updates and announcements.



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Web Site Disclaimer

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


Newark Liberty International Airport Public Workshops

You are invited to attend

As part of an on-going **Part 150 Airport Noise Compatibility Planning Study**, the Port Authority of New York and New Jersey (PANYNJ) is hosting two **public workshops** to gather input on potential approaches to addressing noise levels created by aircraft operations around Newark Liberty International Airport (EWR).

At the workshops, a Noise Exposure Map (NEM) will be presented that describes the airport layout and related levels of noise exposure in the surrounding area for the current year (2016), and a forecasted future year (2021).

These workshops give you the opportunity to share your concerns and ideas for addressing aircraft noise around EWR. Please join the discussion and tell us what is important to you! Let's work together to address aircraft noise issues at Newark Liberty International Airport.

	TUESDAY OCTOBER 25TH, 2016	THURSDAY OCTOBER 27TH, 2016	Workshop Format
	6:00 pm - 9:00 pm	6:00 pm - 9:00 pm	Open House
	Hilton Newark Penn Station Essex Room 1048 Raymond Blvd, Newark, NJ 07102	Kean University STEM Building, Donald R. Conklin Conference Center, 6th Floor, 1075 Morris Ave, Union, NJ 07083	Please arrive anytime between 6:00 pm - 9:00 pm to view project materials and talk to PANYNJ Staff and members of the Study Team.
	Self-parking in hotel garage: will be validated at the workshop	Free on-campus parking available	Light refreshments will be available.
	NJ Transit #319 #67 #108	NJ Transit #52 #26 #113	
	Newark Penn Station, NJPAC/ Centre Street Light Rail, Penn Station Light Rail, Military Park Light Rail Station	Union Station on Raritan Valley Line (Located directly across the street from Kean's main campus), Elizabeth Station on Northeast Corridor (Located on West Grand Avenue, two miles from campus)	The Part 150 public information workshop is accessible to people who are mobility impaired. Language interpretation services are available upon advance request. To make arrangements for such services please contact the PANYNJ Noise Office at 212-435-3777 or via email at NJPart150@panynj.gov no later than 3 days before the workshop.

Want to find out more information or get involved?
Please visit: http://panynjpart150.com/EWR_homepage.asp
Can't attend the workshop but want to provide input?
Please email: NJPart150@panynj.gov.
Or call: 212-435-3777

Contact the PANYNJ Noise Office
Please email: NJPart150@panynj.gov
Or call: 212-435-3777

THE PORT AUTHORITY OF NY&NJ

Newark Liberty International Airport

Title 14 of the Code of Federal Regulations (14 CFR) Part 150

Airport Noise Compatibility and Planning Study

Summer 2016
Newsletter #3

NOISE EXPOSURE MAP

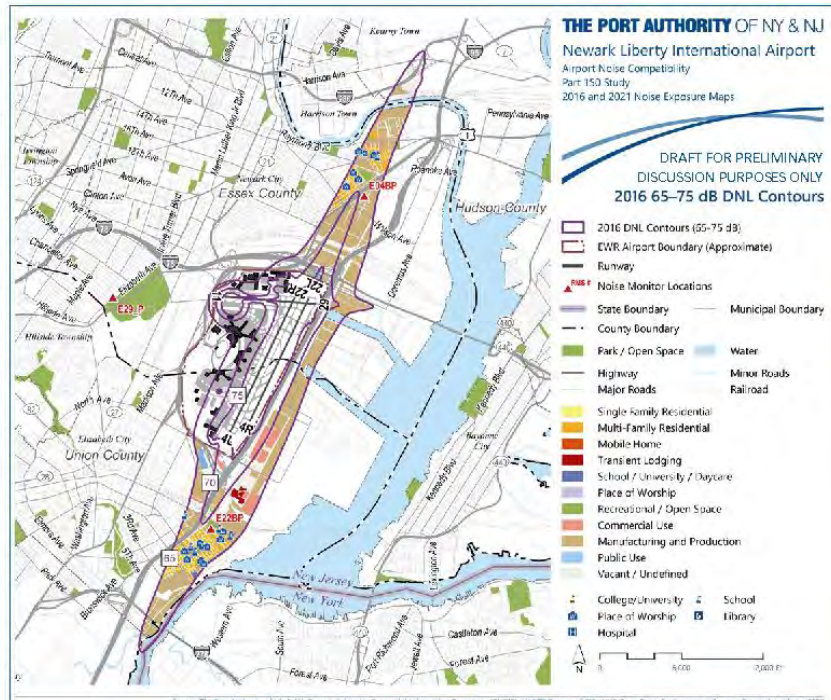
The Newark Liberty International Airport (EWR) Part 150 Noise Study is approaching an important milestone: completion of the draft Noise Exposure Map (NEM) figures and supporting documentation. The NEM describes the airport layout and operation, aircraft-related noise exposure, land uses in the airport environs and the resulting noise/land use compatibility situation, for existing (2016) and five-year forecast conditions (2021) at EWR.

The outdoor noise environment, in relation to airport noise compatibility, is quantified in terms of the yearly Day Night Sound Level (DNL) metric. The DNL represents noise as it occurs over a 24-hour period, with one important note: DNL treats nighttime noise differently from daytime noise. In determining DNL, it is assumed that the sound levels occurring at night (defined as 10 p.m. to 7 a.m.) are 10 dB (decibels) louder than they really are. This 10-dB penalty is applied to account for greater sensitivity to nighttime noise, and the fact that events at night are often perceived to be more intrusive.

FAA has published guidelines that identify what types of land uses are incompatible with certain levels of noise exposure; for example, residences, schools, and outdoor music shells or amphitheaters are incompatible land uses where noise exposure levels are greater than DNL 65 dB. While noise from airport operations may be experienced in areas beyond the DNL 65 dB noise contour, only those areas with noise levels of DNL 65 dB or higher are considered incompatible.

THE PORT AUTHORITY OF NY & NJ
Newark Liberty International Airport
Noise Exposure Map
2016 and 2021 Noise Contours Maps

CHART FOR PRELIMINARY
DISCUSSION, FEBRUARY 2009
2016 65-75 dB DNL Contours



For more information or to submit comments and feedback, the PANYNJ has several ways you can participate and stay informed:

- The project website (http://panynjpart150.com/EWR_homepage.asp) is updated regularly with project documents, meeting announcements, and other general information about the study. Register here to join the mailing list and receive project updates.
- To make comments, give feedback, or ask questions, please call us at (212) 435-3777 or email us at NJPart150@panynj.gov
- To file an aircraft noise complaint, please call the noise complaint hotline at 1-800-225-1071.

THE PORT AUTHORITY OF NY&NJ

http://panynjpart150.com/EWR_homepage.asp

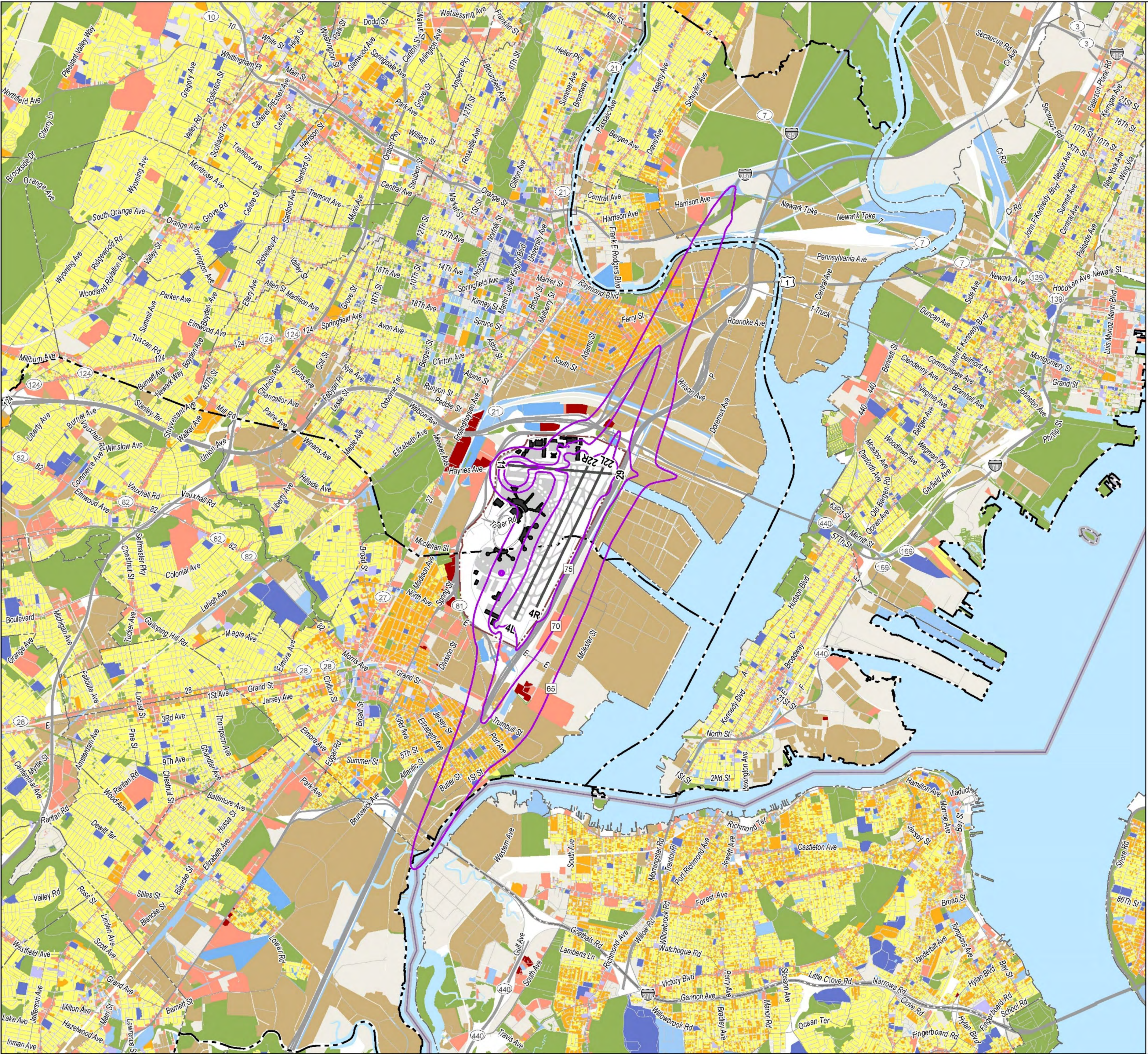
212-435-3777

NJPart150@panynj.gov

EWR Part 150 Study | Public Information Workshop #2

THE PORT AUTHORITY OF NY & NJ

Noise Exposure Map – 2016 NEM Results



THE PORT AUTHORITY OF NY & NJ
Newark Liberty International Airport
Airport Noise Compatibility
Part 150 Study
2016 and 2021 Noise Exposure Maps

Existing Conditions (2016)
Noise Exposure Map

- 2016 DNL Contours (65-75)
 - EWR Airport Boundary (Approximate)
 - Runway
 - State Boundary
 - County Boundary
 - Park / Open Space
 - Highway
 - Major Roads
 - Municipal Boundary
 - Water
 - Minor Roads
- Non-Compatible within DNL 65**
- Single Family Residential
 - Multi-Family Residential
 - Mobile Home
 - Transient Lodging (Hotel, Motel, etc.)
 - School / University / Daycare
 - Place of Worship
- Compatible within DNL 65**
- Recreational / Open Space / Cemetery
 - Commercial Use
 - Manufacturing and Production
 - Public Use
 - Vacant / Undefined

Note: Land uses depicted on this map have not been independently verified outside DNL 65 contours.

Preliminary Draft - Subject to Change

Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Residential Units within 2016 65 DNL Contour Interval

Year	Metric	Dwelling Units within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2016	Single Family	700	5	0	705
	Multi-Family	7,964	42	0	8,006
	Total	8,664	47	0	8,711

Source: 2010 US Census Block Data, RS&H, HMMH, 2016

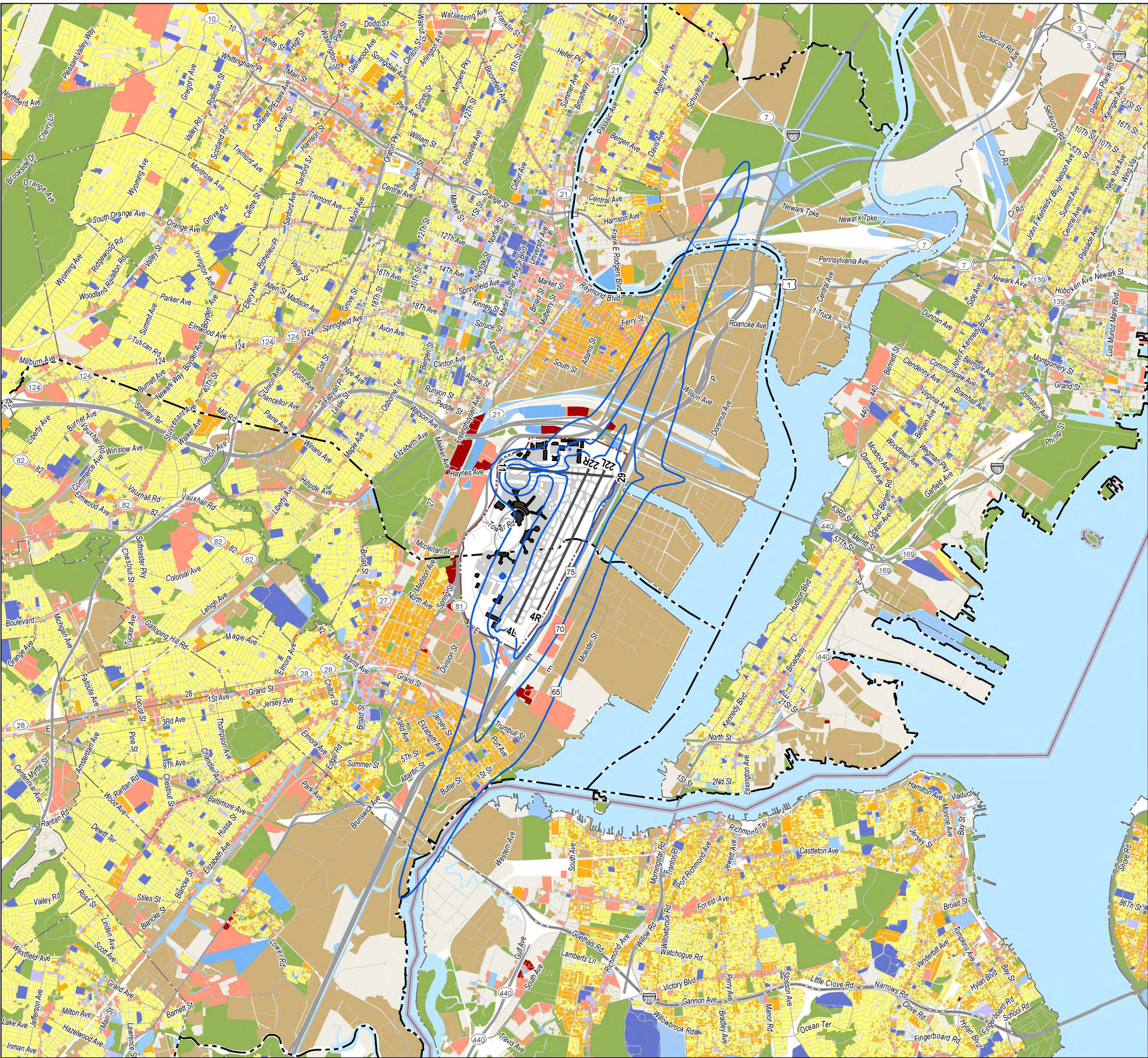
Population within 2016 65 DNL Contour Interval

Year	Metric	Population within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2016	Single Family	1,988	14	0	2,002
	Multi-Family	22,618	119	0	22,737
	Total	24,606	133	0	24,739

Source: 2010 US Census Block Data, RS&H, HMMH, 2016



Noise Exposure Map – 2021 NEM Results



THE PORT AUTHORITY OF NY & NJ
Newark Liberty International Airport
Airport Noise Compatibility
Part 150 Study
2016 and 2021 Noise Exposure Maps

Forecast Conditions (2021) Noise Exposure Map

- 2021 DNL Contours (65-75)
 - EWR Airport Boundary (Approximate)
 - Runway
 - State Boundary
 - County Boundary
 - Park / Open Space
 - Highway
 - Major Roads
 - Municipal Boundary
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- Non-Compatible within DNL 65**
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Note: Land uses depicted on this map have not been independently verified outside DNL 65 contours.

0 6,000 12,000 Feet

Preliminary Draft - Subject to Change

Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Residential Units within 2021 65 DNL Contour Interval

Year	Metric	Dwelling Units within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2021	Single Family	773	30	0	803
	Multi-Family	8,466	344	0	8,810
	Total	9,239	374	0	9,613

Source: 2010 US Census Block Data, RS&H, HMMH, 2016

Population within 2021 65 DNL Contour Interval

Year	Metric	Population within DNL Contour Interval			
		65-70	70-75	>75	Total >65
2021	Single Family	2,195	85	0	2,280
	Multi-Family	24,043	977	0	25,020
	Total	26,239	1,062	0	27,300

Source: 2010 US Census Block Data, RS&H, HMMH, 2016



School Soundproofing Program

- The Port Authority has long taken an active role in the communities it serves. In 1983, the Port Authority first made a commitment to ensure that students in schools close to its airports always have a quiet learning environment. That commitment continues today with the soundproofing work the Port Authority has done in 77 schools around its airports. This includes 26 schools that are in the area of Newark and soundproofing was completed in 2013.
- A total of over \$95 million USD has been invested in soundproofing these schools which serve over 15,000 students in the area surrounding EWR.

The scope of the soundproofing program includes the following:

- Acoustic windows, insulation, ventilation and air conditioning
- Specifications that meet federal procurement guidelines
- Sponsorship and administration of federal requirements by the Port Authority
- Reimbursement of schools by the Port Authority for consultants and contractors
- Opportunities for local contractors
- Support of DBE goals approved annually by the FAA

The project is contingent upon federal funding.





Welcome!

Newark Liberty International Airport
14 CFR Part 150 Noise Compatibility Planning Study
Public Information Workshop #3
September 2018



Part 150 Overview

- FAA created in response to federal Aviation Safety and Noise Abatement Act of 1979 (“ASNA”)
- Codified under Title 14 of the Code of Federal Regulations (CFR) Part 150
 - Formal *citation* is “14 CFR Part 150,” informal is “Part 150”
 - Formal *title* is “Airport Noise Compatibility Planning”
- *Voluntary* FAA-defined process for airport noise studies
 - 250+ airports have participated
- *Why do airports participate?* Primary reasons include:
 - Provides access to FAA funding of some approved measures
 - Well-established, understood, accepted, and comprehensive process



Part 150 Study Process

The presentation of the draft NEM documentation is the primary purpose of this workshop.

Develop Study Protocol

- Finalize methodology
- Establish TAC
- Develop project schedule and milestones

Verification

- Existing Noise Exposure Maps & EA's
- Noise complaint data
- GIS and land use data
- Flight track and noise data from ANOMS
- FAA activity forecasts

Develop NEMs

- Develop noise contours for existing and 5-year forecast conditions
- Collect land use data and policies
- Noise impact evaluation for DNL 65-75 dB
- Prepare maps in accordance with 14 CFR Part 150

Develop NCPs

- Identify land use strategies
- Evaluate noise abatement measures
- Develop Noise Compatibility Plan
- Prepare documentation

These two study elements are complete. The results may be reviewed in the draft NEM documentation.

Meetings

- Technical Advisory Committee
- Part 150 Information Sessions

- Public Meetings/Hearings
- Special Presentations



Part 150 Overview: Noise Exposure Map

- FAA “accepts” NEM as compliant with Part 150 standards
- NEM must include detailed description of
 - Airport layout, aircraft operations, and other inputs to noise model
 - Aircraft noise exposure in terms of Day-Night Average Sound Level (DNL)
 - Land uses within DNL 65+ decibel (dB) contours
 - Noise / land use compatibility statistics within DNL 65+ dB contours
- NEM must address two calendar years
 - Year of submission
 - Forecast (at least five years from year of submission)
 - FAA reviews forecasts for consistency with Terminal Area Forecast, TAF



Part 150 Overview: Noise Compatibility Program

Step 1: Identify Incompatible Land Uses

Existing conditions Noise Exposure Map
Forecast conditions Noise Exposure Map

Step 2: Consider Noise Abatement Strategies

Reduce exposure over incompatible uses
Limit growth in exposure over incompatible uses

Step 3: Consider Land Use Strategies

Mitigate residual incompatible uses
Prevent introduction of new incompatible uses

Step 4: Consider Programmatic Strategies

Implement and promote measures
Monitor and report on effectiveness
Update NEMs and revise NCP as appropriate

Analysis and Selection Process Applied in Steps 2 - 4

- Evaluate effectiveness of each measure in addressing objectives
- Evaluate feasibility (operational, safety, economic, etc.)
- Select preferred “package” of measures
- Identify implementation schedule, responsibilities, budget, funding sources, etc.
- If not recommended, document reasons



Part 150 Study Timeline

Part 150 NEM Milestone	Date
Project initiation	February 2015
Project kickoff meeting with FAA	March 2015
Public Information Workshop #1 – Introduce Project	October 2015
Public Information Workshop #2 – Present 2016 Noise Exposure Map	October 2016
Public Information Workshop #3 – Present 2019 Noise Exposure Map	September 2018
Submit 2019 Noise Exposure Map to FAA for acceptance	January 2019
Part 150 NCP Milestone	Date
Develop preliminary noise compatibility program measures	Q4 2017-Q1 2018
Evaluate noise compatibility program measures	Q2-Q4 2018
Finalize recommended Noise Compatibility Program	Q1-Q3 2019
Public Hearing – Present Noise Compatibility Program	Q4 2019
Submit Noise Compatibility Program to FAA for approval of measures	Q4 2019/Q1 2020



Roles and Responsibilities: Part 150 Overall

- **The Port Authority**
 - Directs study - it is the Port Authority's project
 - Submits NEM and NCP documentation to FAA
- **FAA**
 - Provides input to, reviews and assists with analysis of noise abatement flight procedures
 - "Accepts" documentation and "approves" NCP measures
 - Responsible for implementation of noise abatement flight procedures
 - Assists in funding eligible measures in all three categories
- **Local governments**
 - Provide input to recommended land use measures
 - Implement and enforce land use measures to maintain and improve noise compatibility
- **All stakeholders, including aviation interests, residents, and other interested parties**
 - Monitor study process, provide input, assist with implementation



Roles and Responsibilities: Newark TAC

- The Technical Advisory Committee (TAC) is advisory to the Port Authority solely for purposes of the EWR Part 150 Study, including
 - Review of study inputs, assumptions, analyses, documentation, etc.
 - Input, advice, and guidance related to NEM and NCP development
- TAC members are expected to provide two-way communication between the TAC and their organizations / constituents
- The Port Authority shall respect and consider TAC input, but must retain overall responsibility for the Part 150 Study and NCP recommendations
- The TAC and Port Authority recognize FAA is responsible for accepting NEM and NCP submissions and for approving NCP proposals



Roles and Responsibilities: EWR TAC Makeup

- TAC composed of stakeholders representing all significant interests
- Members serve on a voluntary basis without compensation

Name	Affiliation	Name	Affiliation	Name	Affiliation
Philip Santos	FedEx (Cargo)	Joe Lepis	Newark Airport Community Roundtable	James Shipp	Staten Island
George Hodgson	Southwest Airlines	Chip Hallock	Newark Regional Business Partnership (NRBP)	Bruce Bergen	Union County
Rich Teilborg	Southwest Airlines	Barbara Kauffman	Newark Regional Business Partnership (NRBP)	Al Faella	Union County
Harel Margaritz	United Airlines	Robert Belzer	New Jersey Citizens Against Aircraft Noise (NJCAAN)	Barry Geller	Union County
Glenn Morse	United Airlines	Michael Kroposki	NJCAAN	Kamal Selah	Union County
Andrew Brooks	FAA, Eastern Region	Norman Dotti	New Jersey State Noise Control Council	Phyllis Reich	City of Elizabeth
Lindsay Butler	FAA, Great Lakes ADO	Fred Dressel	Teterboro Aircraft Noise Abatement Advisory Committee	Eduardo Rodriguez	City of Elizabeth
Zack DeLaune	FAA, NY-ADO	Steve Brown	National Business Aviation Association (NBAA)	William Holzapfel	City of Elizabeth
Suki Gill	FAA, NY-ADO	Eric Richardson	Fixed Base Operator (Signature Flight Support)	McKinley Mertz	Town of Harrison
Steven Kapsalis	FAA, Air Traffic Organization	Jerome Feder	Union County Air Traffic Noise Advisory Board	Kevin Force	Hudson County
Kimberly Clarke	FAA TRACON	Bill Huisman	Aviation Development Council (ADC)	Paul Ricci	City of Linden
Jim Hayden	FAA TRACON	Gabriel Andino	AvPORTS/TEB Staff	Arie Hoogendorn	City of Newark
Steve McClain	FAA TRACON	Dave Swanson	FAA, Flight Standards District Office (FSDO)	Alturrick Kenney	City of Newark
Robert Gibney	FAA, Airport Traffic Control Tower	Tom Malone	FAA, Flight Standards District Office (FSDO)	David Antonio	Essex County
Yasmin Fisher	Greater Elizabeth Chamber of Commerce	Igor Gorodetski	Staten Island	Robert Smith	Town of Kearny



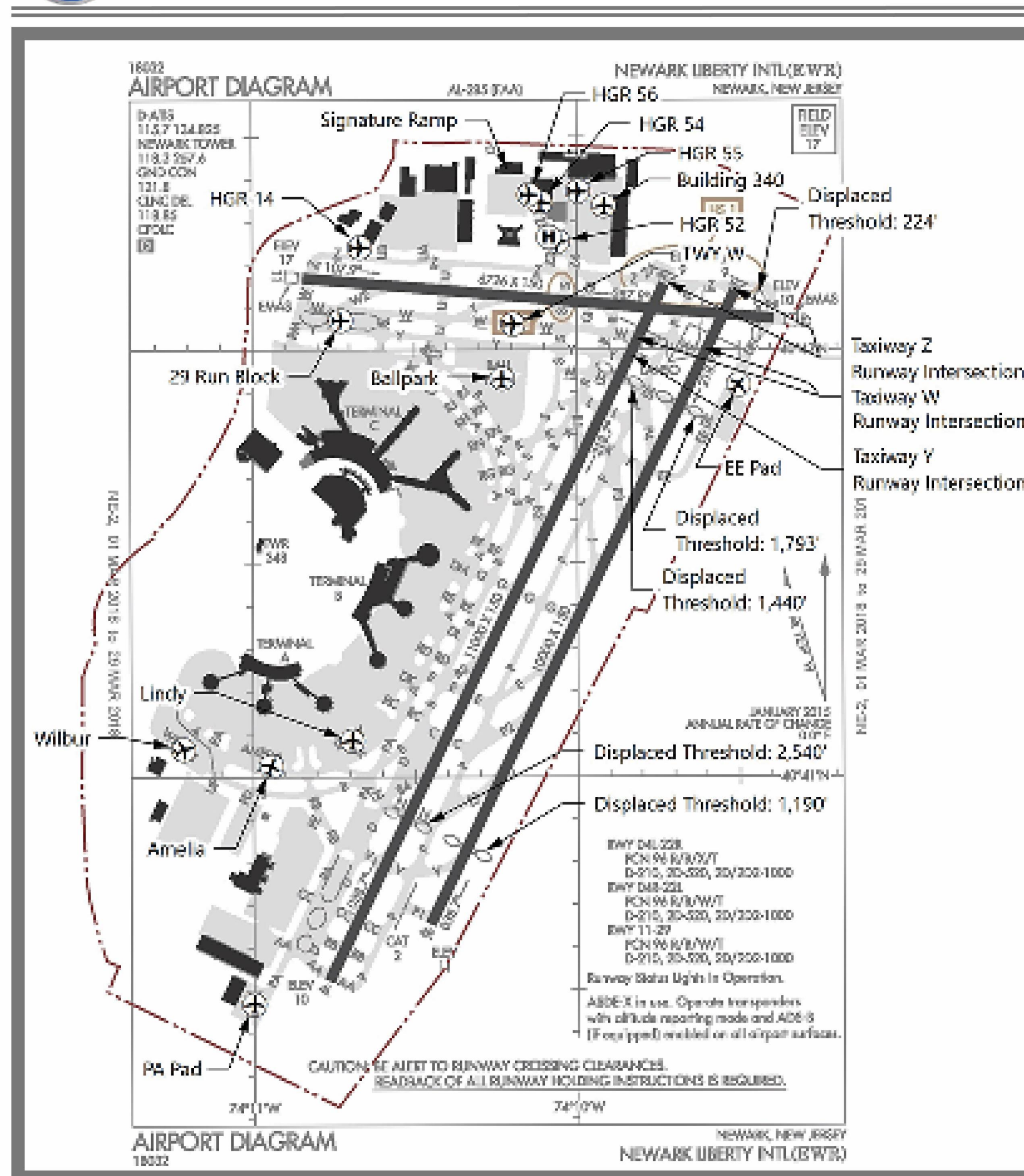
Airport Overview

NEWARK LIBERTY INTERNATIONAL AIRPORT

\$5.3 billion invested at EWR by the Port Authority since 1948 | 2,027 acres of land | 425 acre Central Terminal Area



AIRPORT DIAGRAM



AIRFIELD & LANDSIDE FACILITIES

TERMINAL GATES: A - 28 GATES | B - 15 INTERNATIONAL ARRIVAL GATES | C - 57 GATES

- The CTA consists of three central terminals and a 585-room hotel
- In 1996, AirTran Newark, the airport's automated monorail, opened for service between terminals and parking lots
- EWR is the overnight express package center for the NY/NJ region



ECONOMY

188,000 TOTAL JOBS GENERATED | \$10 BILLION IN ANNUAL WAGES

- 21,000 people employed at EWR
- 27.2 billion in economic activity in the New York-New Jersey metro region



RUNWAY LAYOUT

THREE RUNWAYS: TWO PARALLEL (4R-22L, 4L-22R) | ONE INTERSECTING (11-29)

- Runway 4R-22L: 10,000 ft long, 150 ft wide
- Runway 4L-22R: 11,000 ft long, 150 ft wide
- Runway 11-29: Primarily used for commuter aircraft traffic
- Approximately 12 miles of taxiways
- 325-foot air traffic control tower built in 2003



TERMINAL A REDEVELOPMENT

TERMINAL A WILL BECOME TERMINAL ONE IN 2022

- Construction began in 2017 & Terminal One will be fully operating in 2022
- \$2.7 billion program to redevelop Terminal A
- Associated roadway & airside improvements and new parking garage



REGIONAL CONTEXT



School Soundproofing Program

- The Port Authority has long taken an active role in the communities it serves. In 1983, the Port Authority first made a commitment to ensure that students in schools close to its airports always have a quiet learning environment. That commitment continues today with the soundproofing work the Port Authority has done in 77 schools around its airports. This includes 26 schools that are in the area of Newark and soundproofing was completed in 2013.
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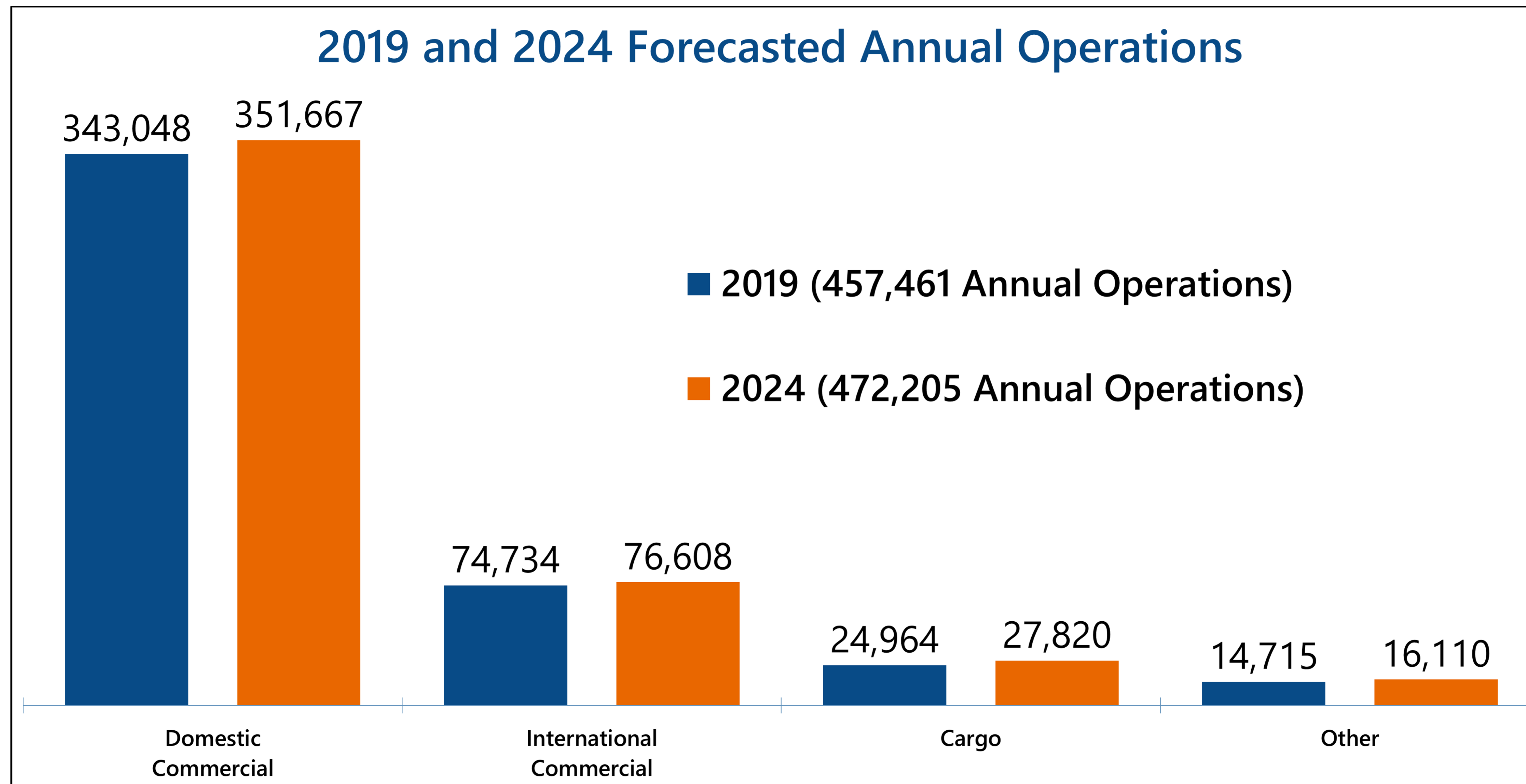
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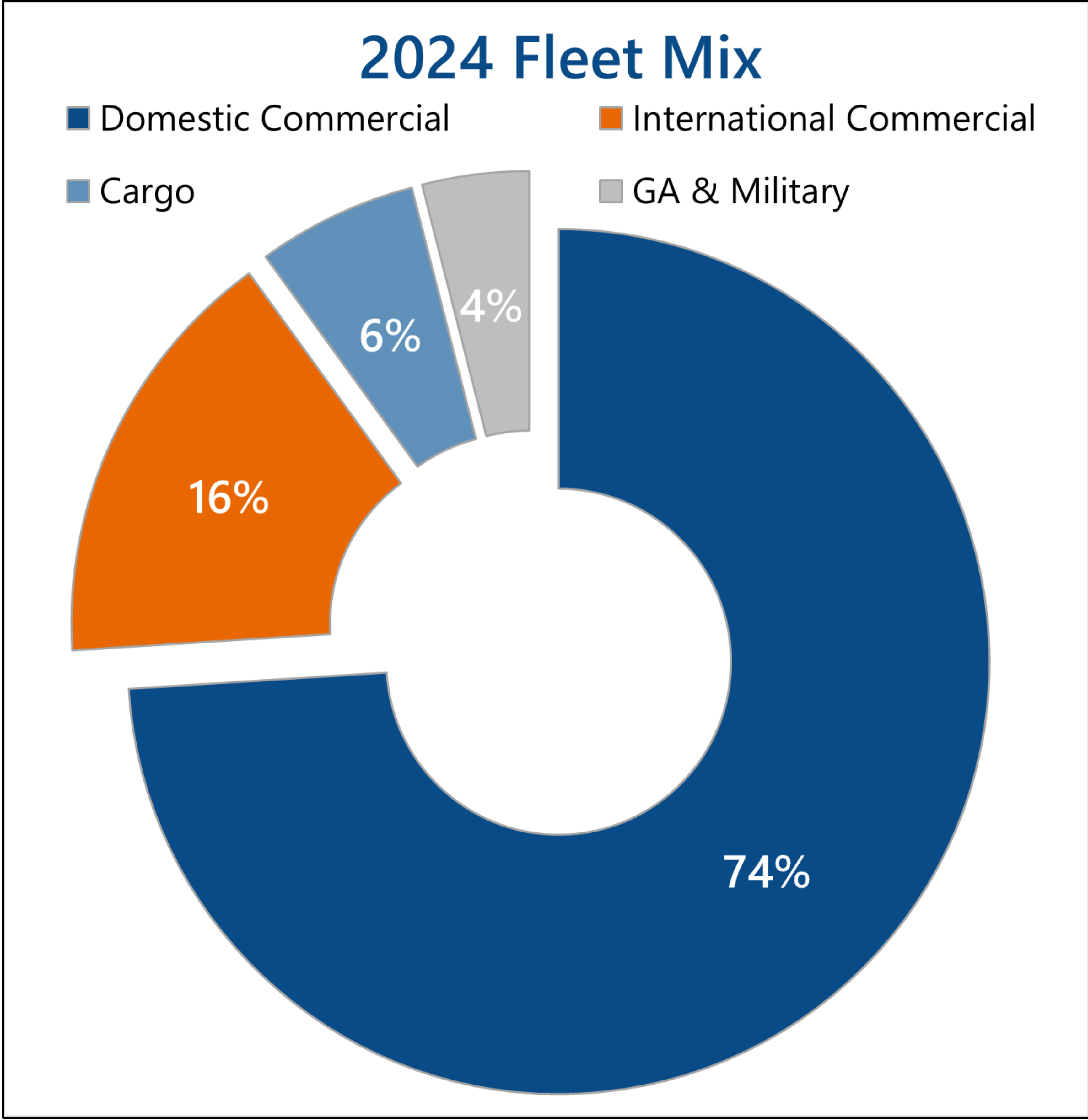
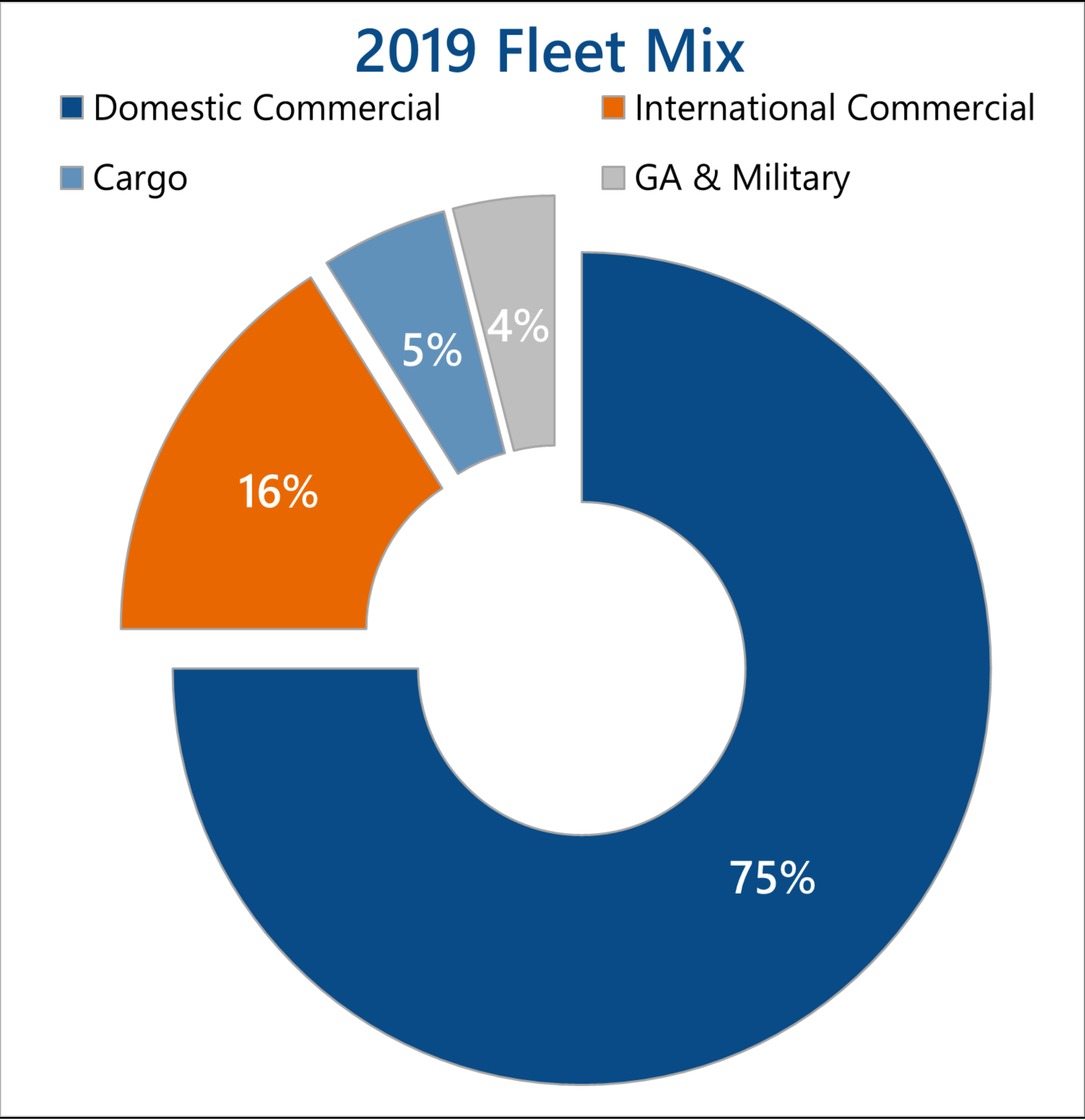


Aircraft Operations Forecast

- The Port Authority developed the detailed forecast
- FAA approved forecast as consistent with its Terminal Area Forecast (TAF)

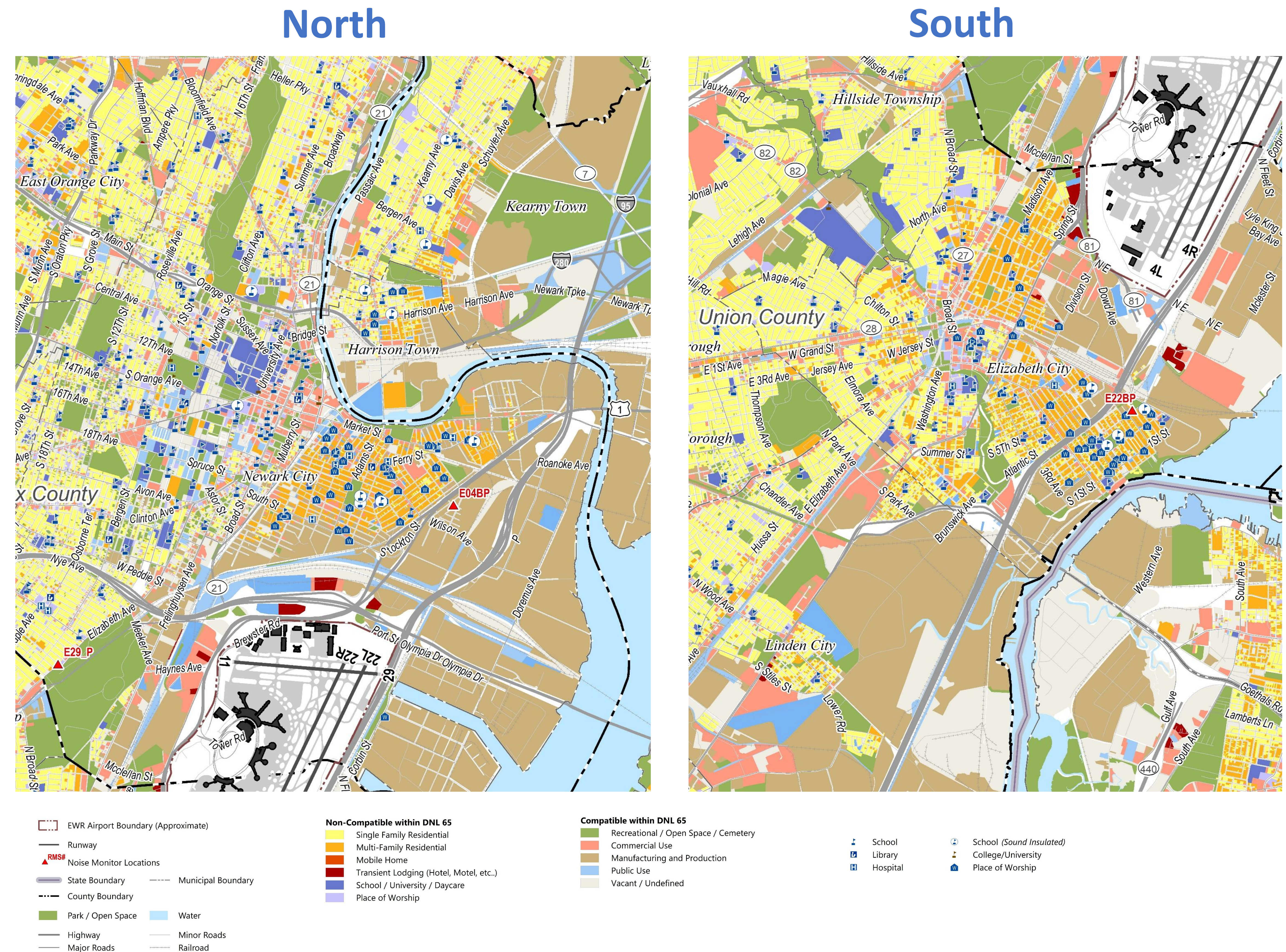


Aircraft Operations Forecast



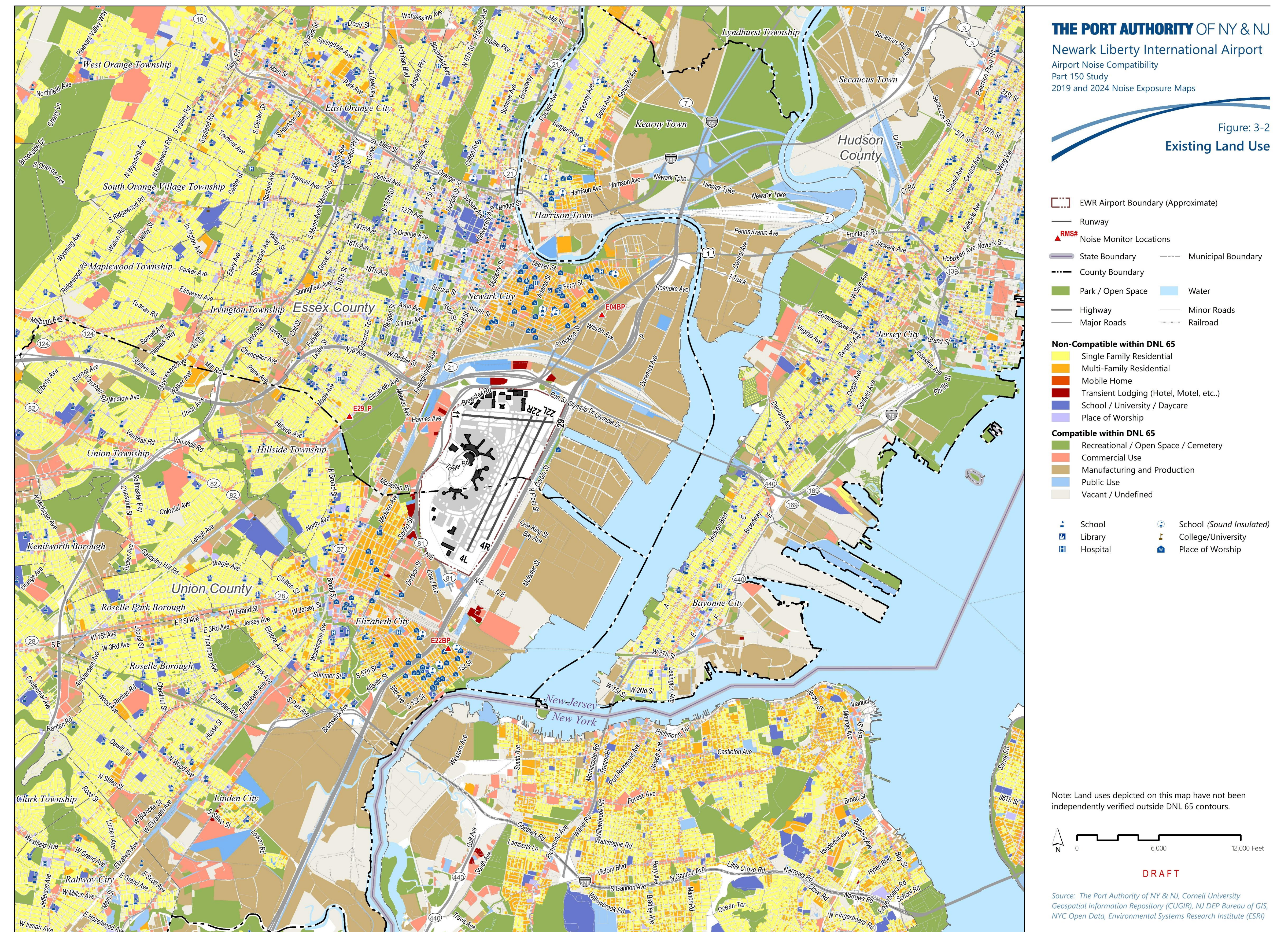
Land Use – Process and Jurisdiction

- Primary data collection steps include:
 - Assemble and review land use, zoning, and population data
 - Identify local land use policies that address airport operations
 - Create existing land use maps
 - Conduct land use reconnaissance surveys
 - Assess and address any deficiencies of land use data
- Primary jurisdiction consultation steps:
 - Conduct initial outreach for data collection purposes
 - Interview land use planners and municipal officials
 - Identify and discuss existing land use policies and strategies



Land Use Map

- Generalized land uses over full area covered in NEM figures
- Part 150 only requires analysis of land use within 65 DNL
- Verified land uses within 65 DNL contour area



Land Use – Part 150 Land Use Compatibility Guidelines

Land Use	Yearly Day-Night Average Sound Level, DNL, in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	Y(2)	Y(3)	Y(4)	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key

SLCUM: Standard Land Use Coding Manual.

Y(Yes): Land use and related structures compatible without restrictions.

N(No): Land use and related structures are not compatible and should be prohibited.

NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dBA must be incorporated into design and construction of structure.

Notes

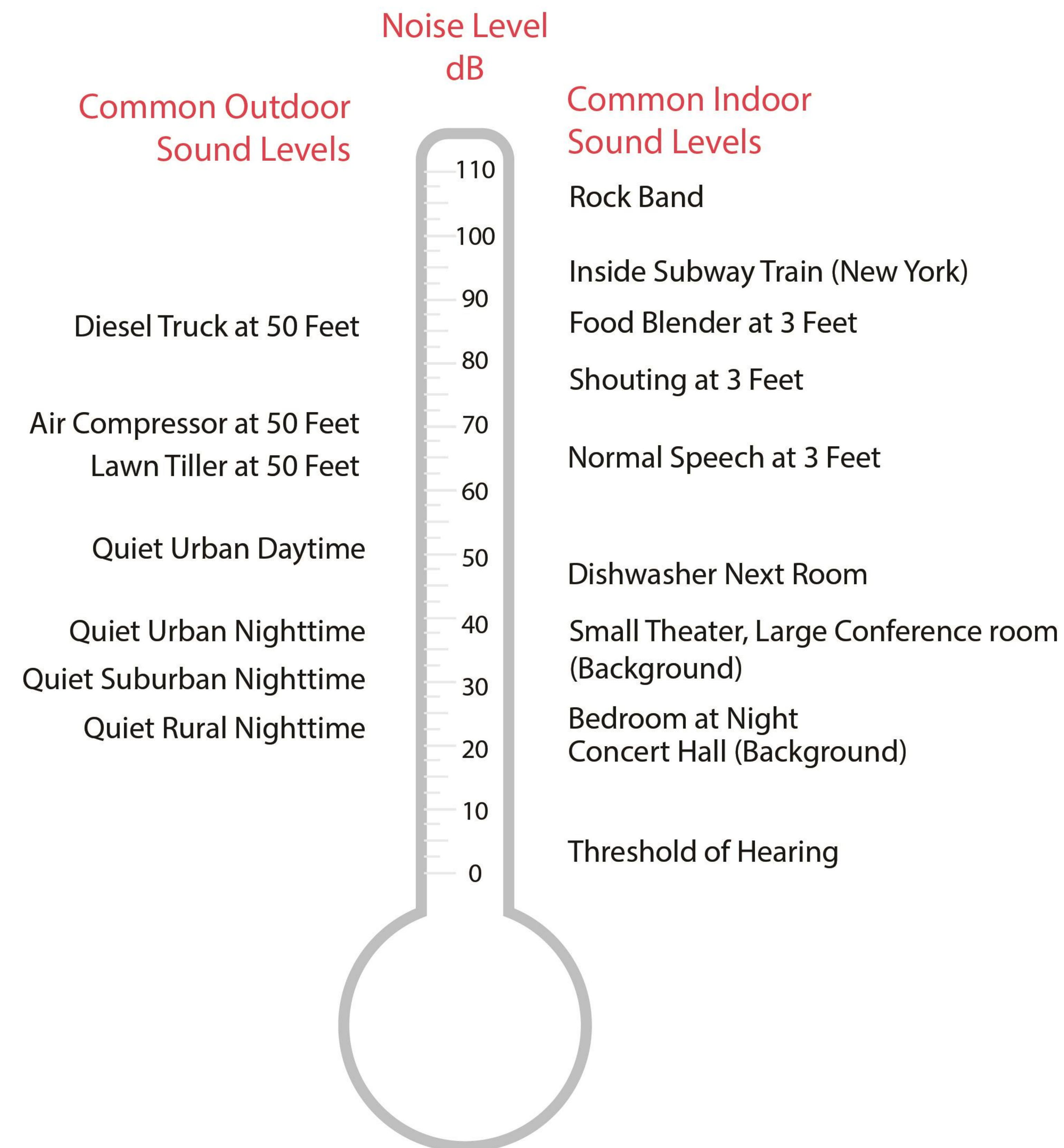
The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA and 30 dBA should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dBA, thus, the reduction requirements are often started as 5, 10, or 15 dBA over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR of 25 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- (3) Measures to achieve NLR of 30 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (4) Measures to achieve NLR of 35 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30
- (8) Residential buildings not permitted.



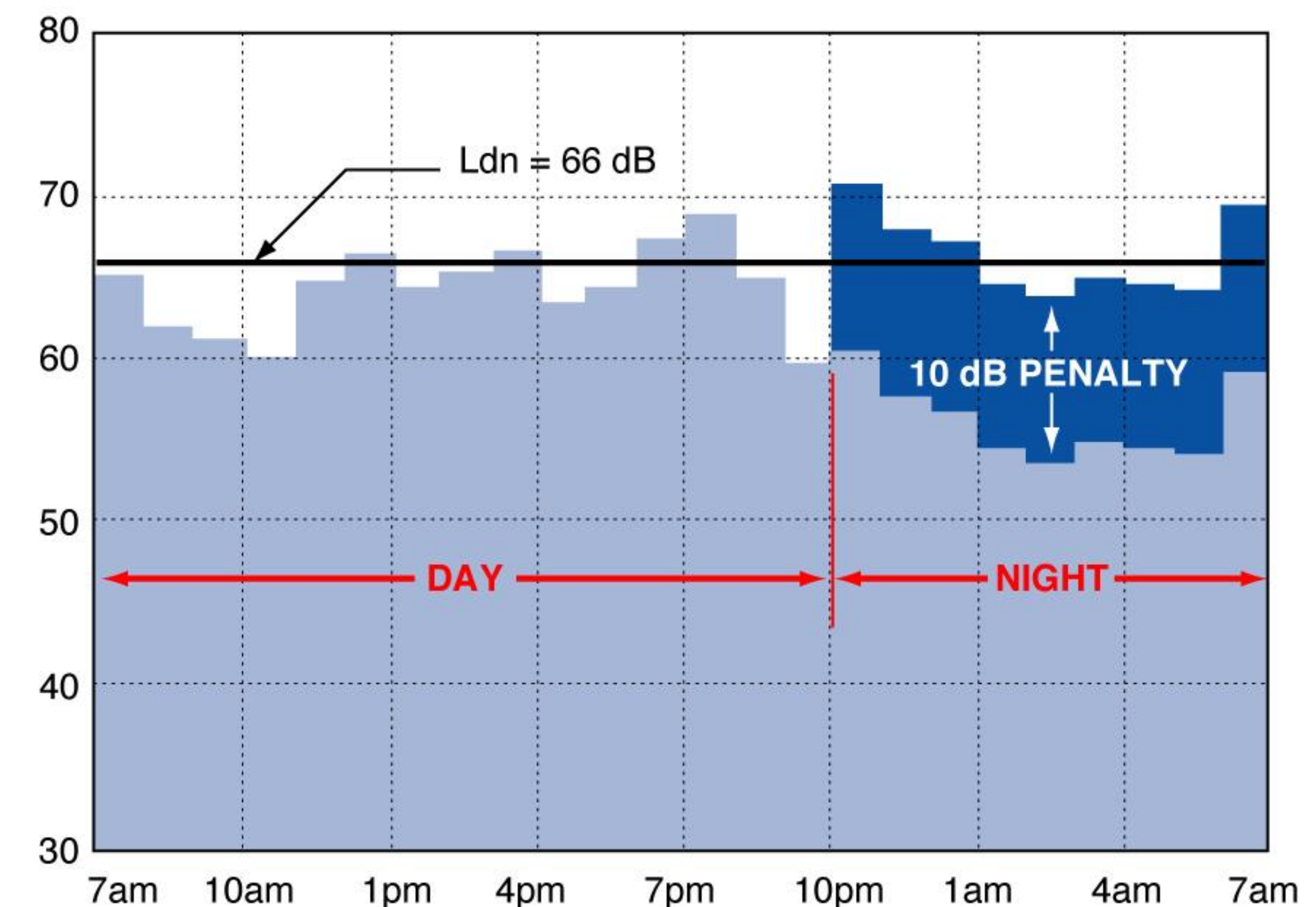
Noise Terminology

Common Sound Levels



Day-Night Average Sound Level (DNL)

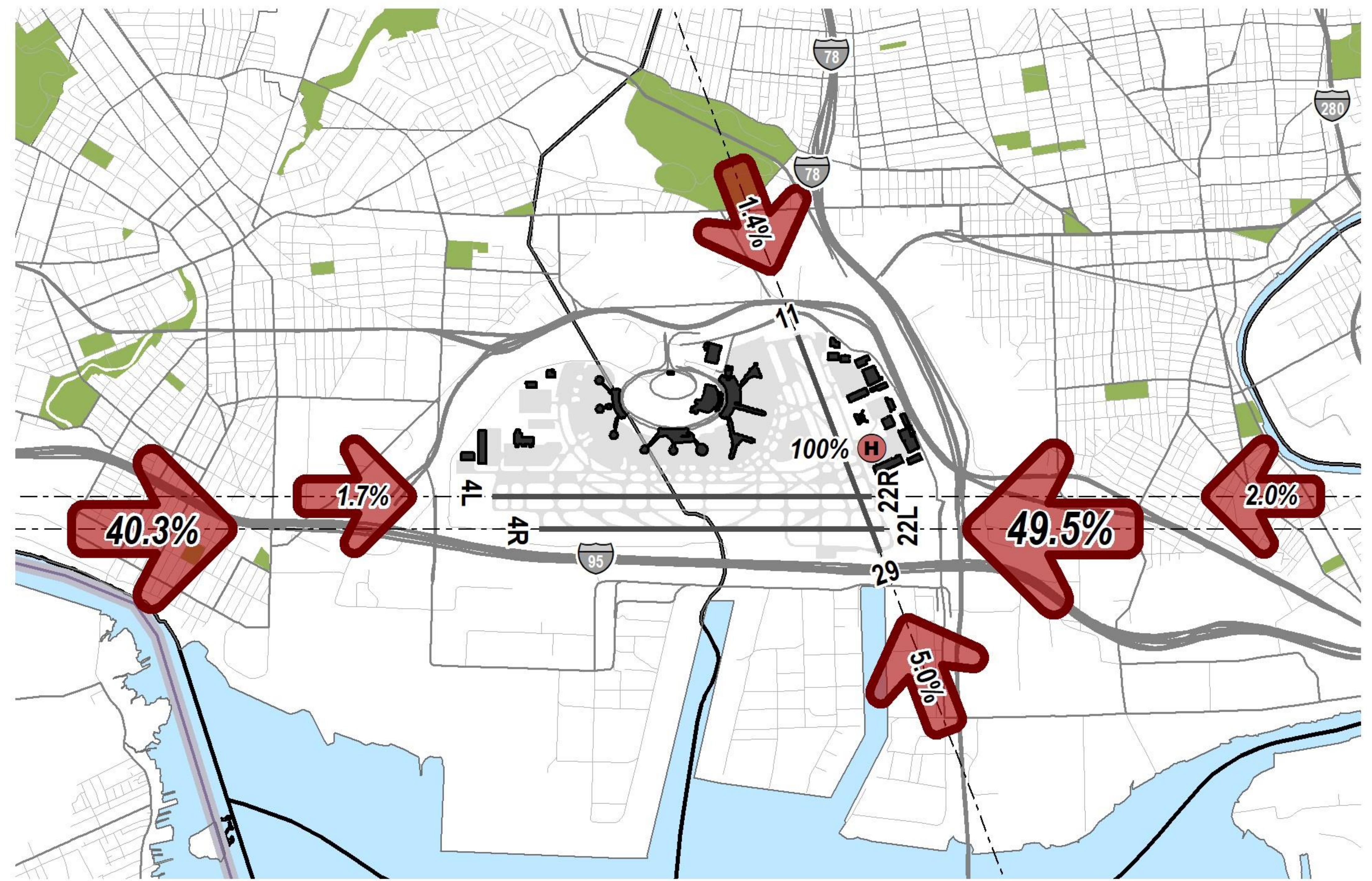
- DNL is the only metric Part 150 requires us to consider
- Computed in the FAA's Integrated Noise Model (INM)
- DNL is an average 24-hour exposure over the course of a year
- Noise from 10 pm to 7 am is factored up by 10 dB
 - "Penalty" is equal to counting each night operation 10 times



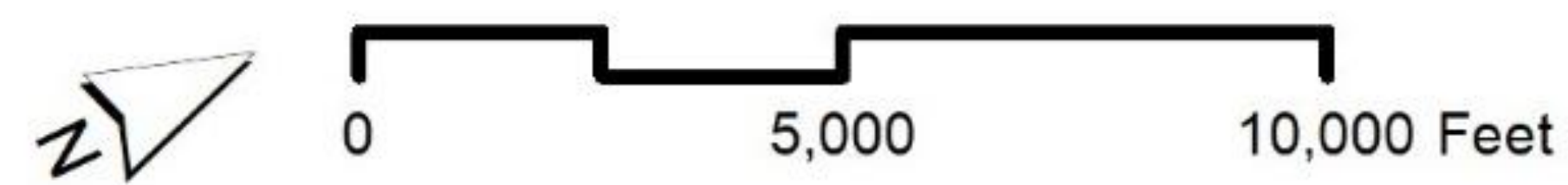
Noise Model Inputs – Runway Utilization



Runway Use - Departures
(215,165 Total Operations)



Runway Use - Arrivals
(214,297 Total Operations)



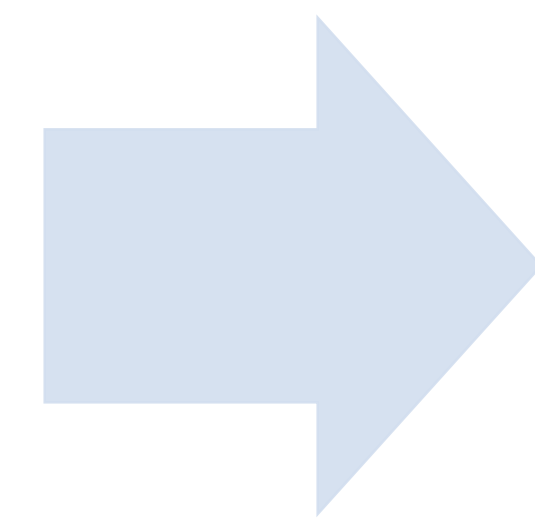
October 1, 2016 - September 30, 2017



Noise Model Inputs — Flight Track Creation Process

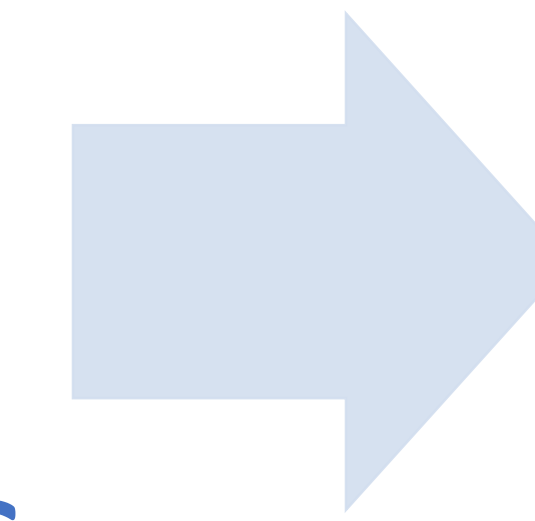
Step 1:

- Select a group of tracks
- Example: Domestic Jet departures on Runway 22R to the south



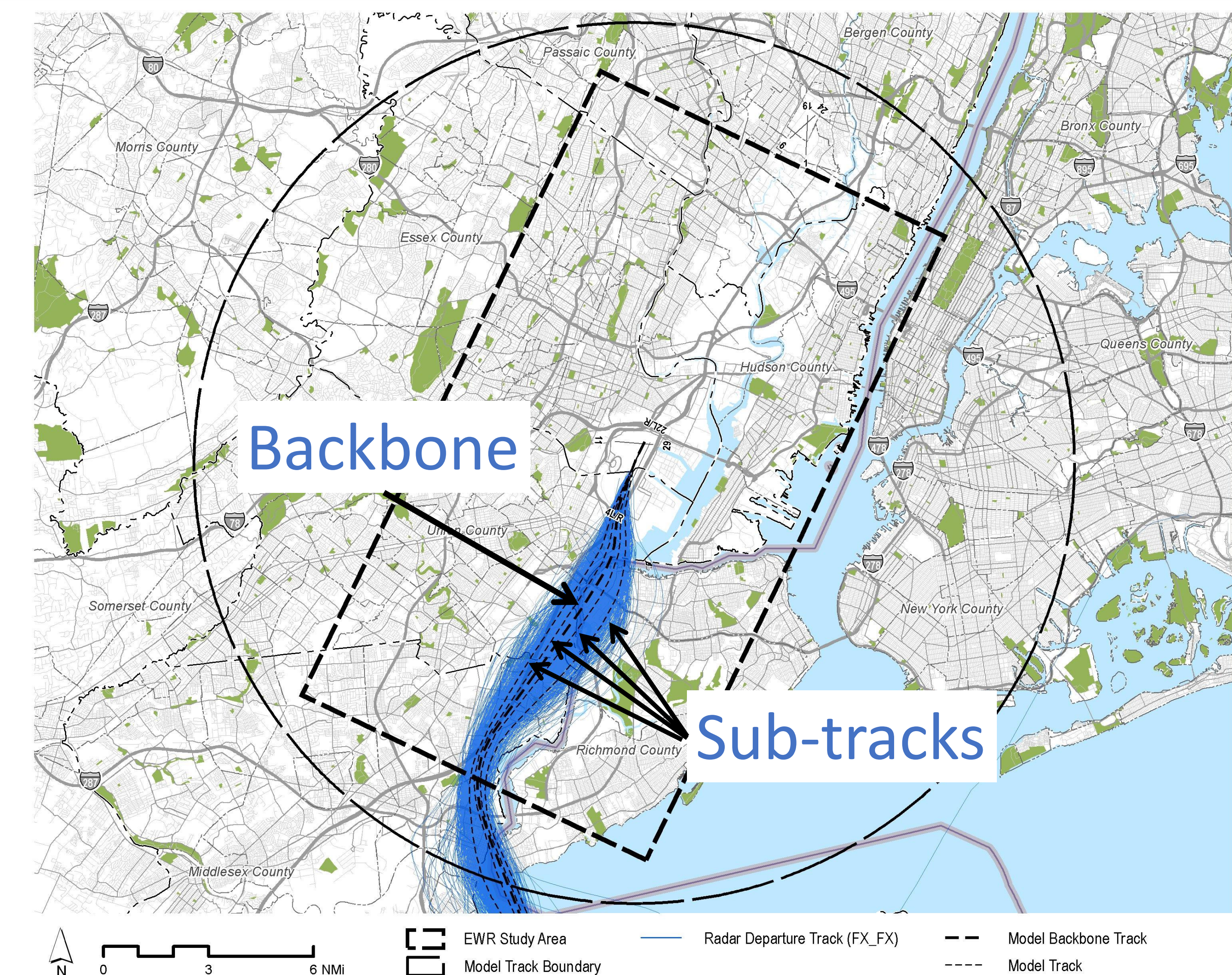
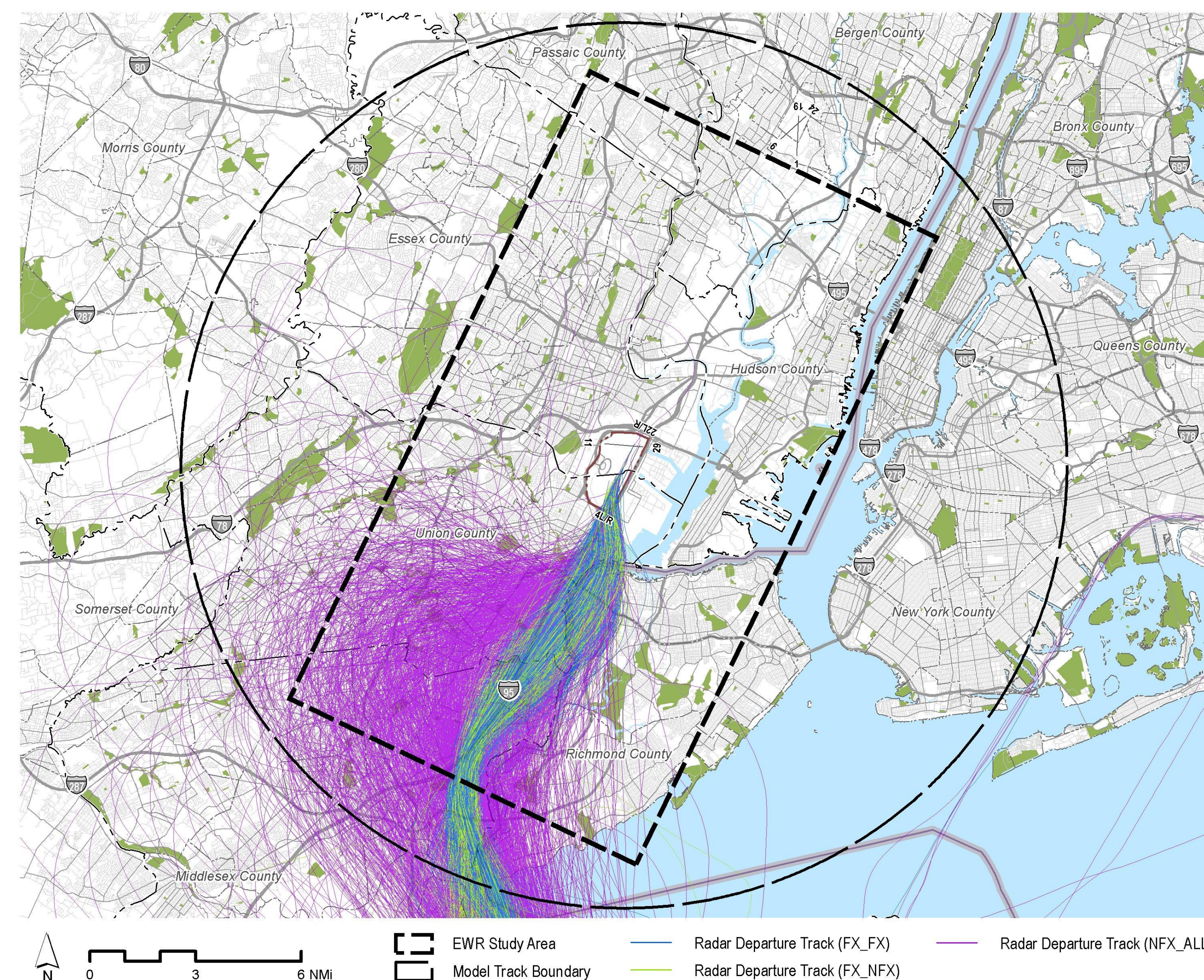
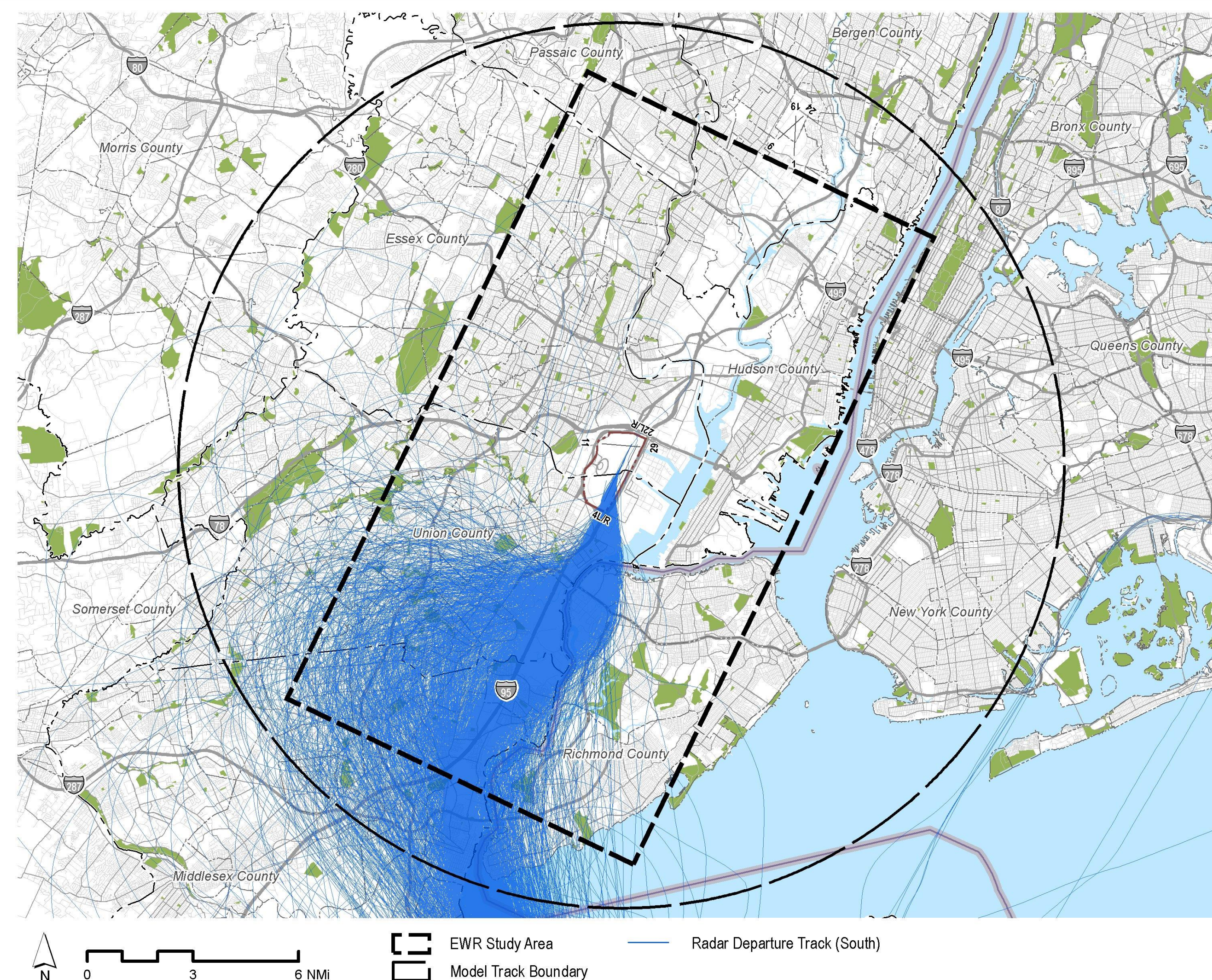
Step 2:

- Separate into bundles
- Example: Three bundles

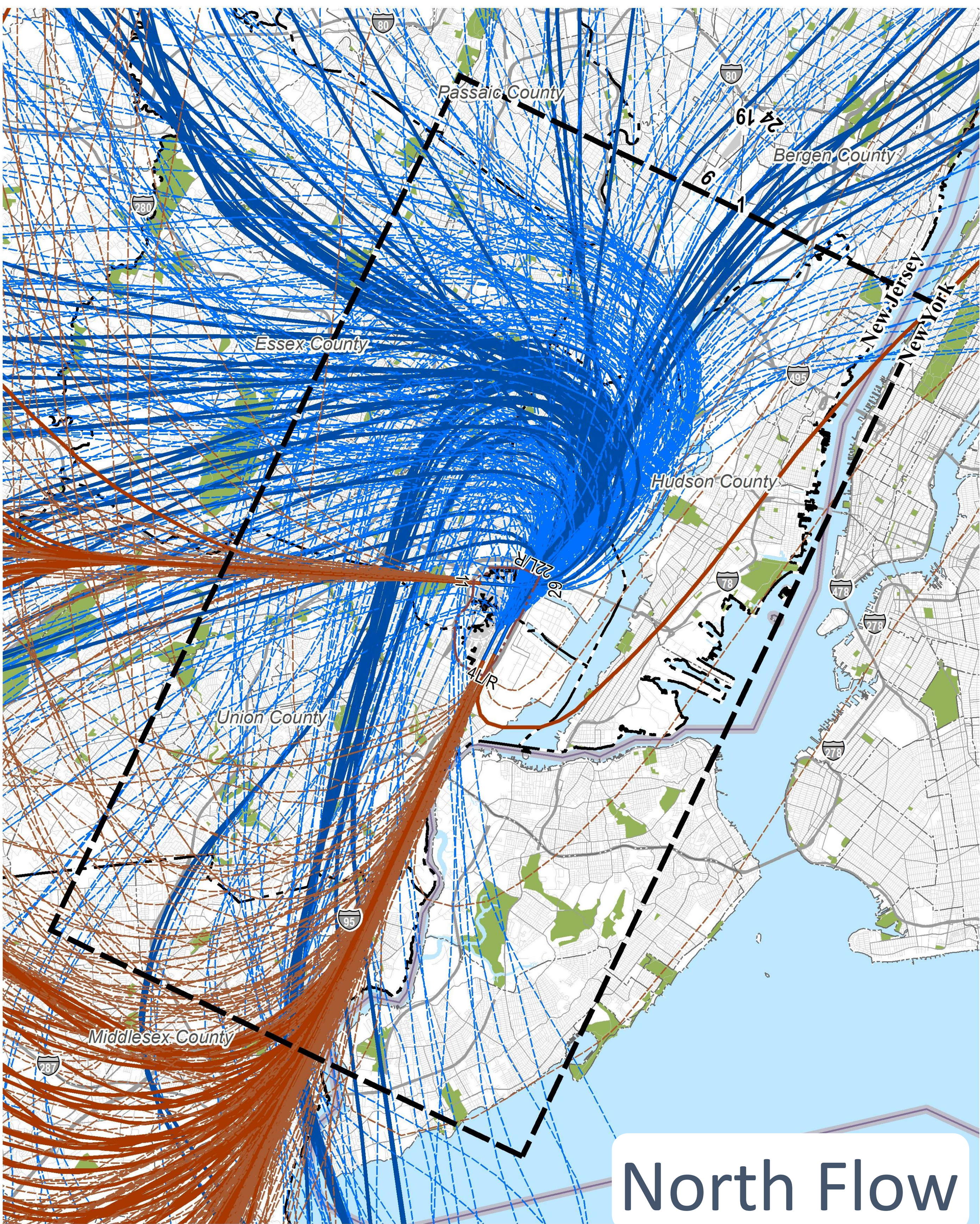


Step 3:

- Create model tracks for each bundle
- Example:



Noise Model Inputs — Modeled Fixed-Wing Flight Tracks



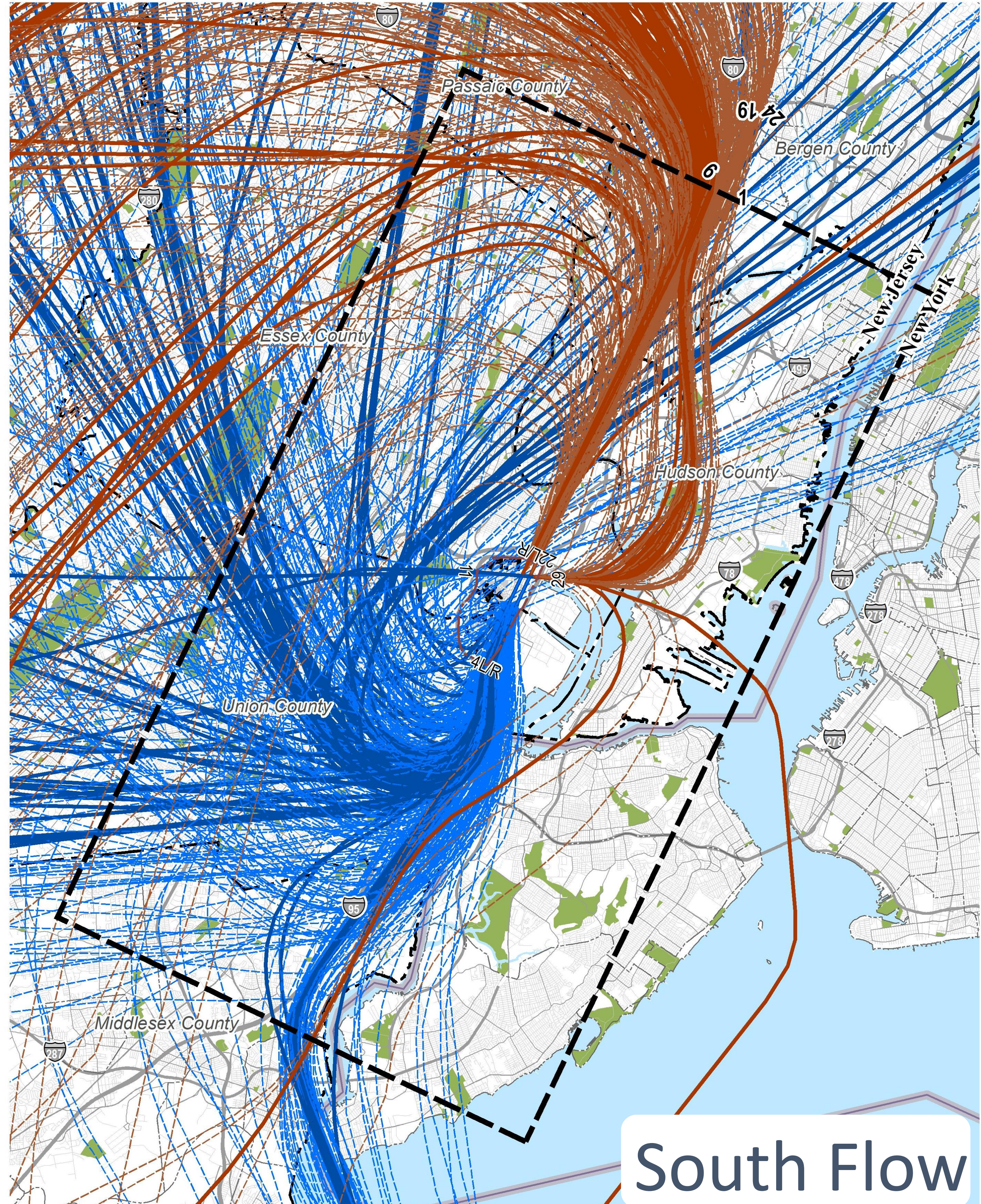
THE PORT AUTHORITY OF NY & NJ
Newark Liberty International Airport
Airport Noise Compatibility
Part 150 Study
2019 and 2024 Noise Exposure Maps

Noise Modeling Flight Tracks North Flow

- Model Backbone Track (Arrival)
- Model Track (Arrival)
- Model Backbone Track (Departure)
- Model Track (Departure)
- EWB Airport Boundary (Approximate)
- EWB Study Area
- Model Track Boundary
- Runway
- State Boundary
- County Boundary
- Park / Open Space
- Highway
- Major Roads
- Municipal Boundary
- Water
- Minor Roads

0 4 8 Nautical Miles
Preliminary Draft - Subject to Change

Source: ; The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



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Noise Modeling Flight Tracks South Flow

- Model Backbone Track (Arrival)
- Model Track (Arrival)
- Model Backbone Track (Departure)
- Model Track (Departure)
- EWB Airport Boundary (Approximate)
- EWB Study Area
- Model Track Boundary
- Runway
- State Boundary
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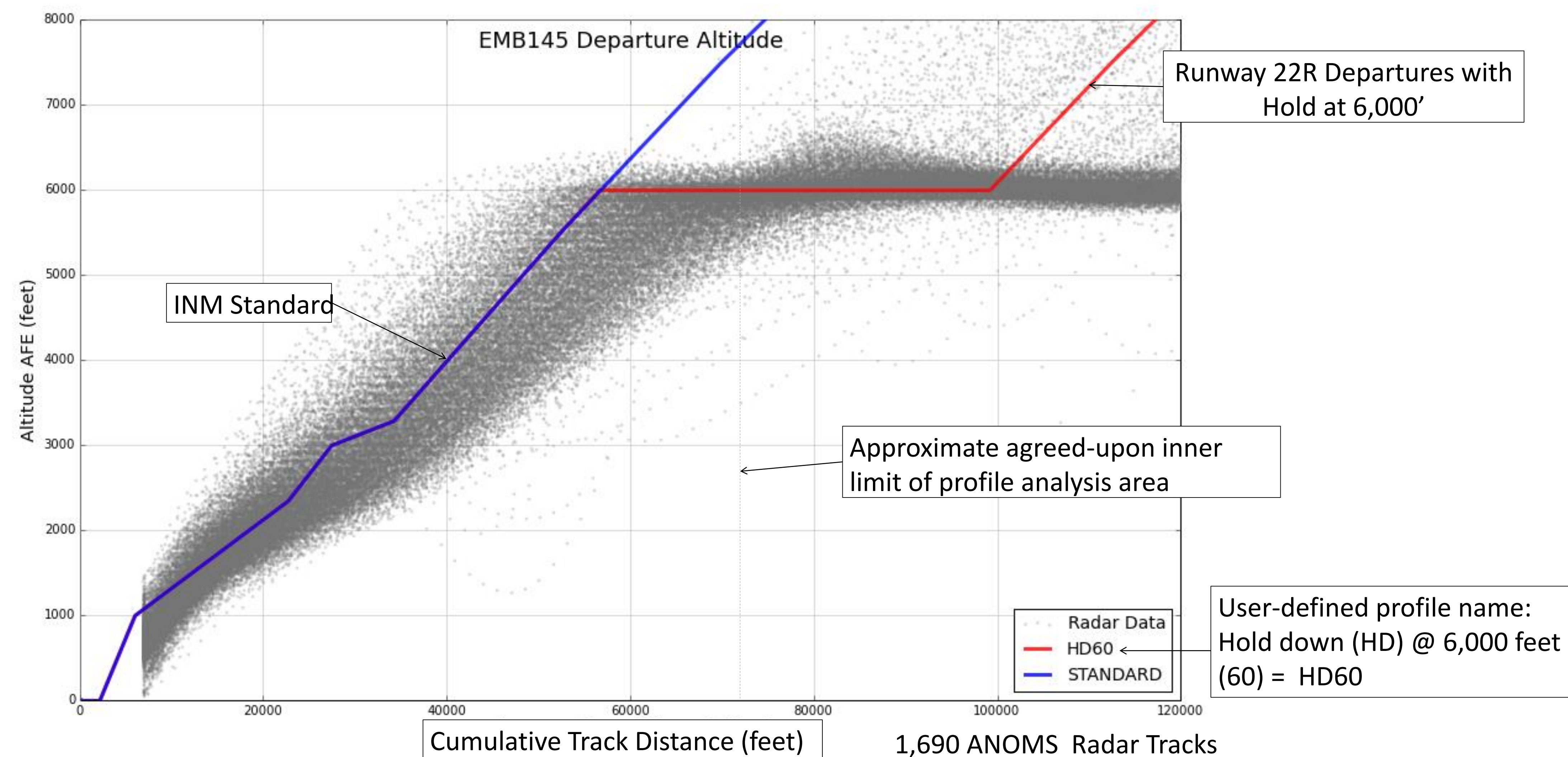


Noise Model Inputs — User-Defined Flight Profiles

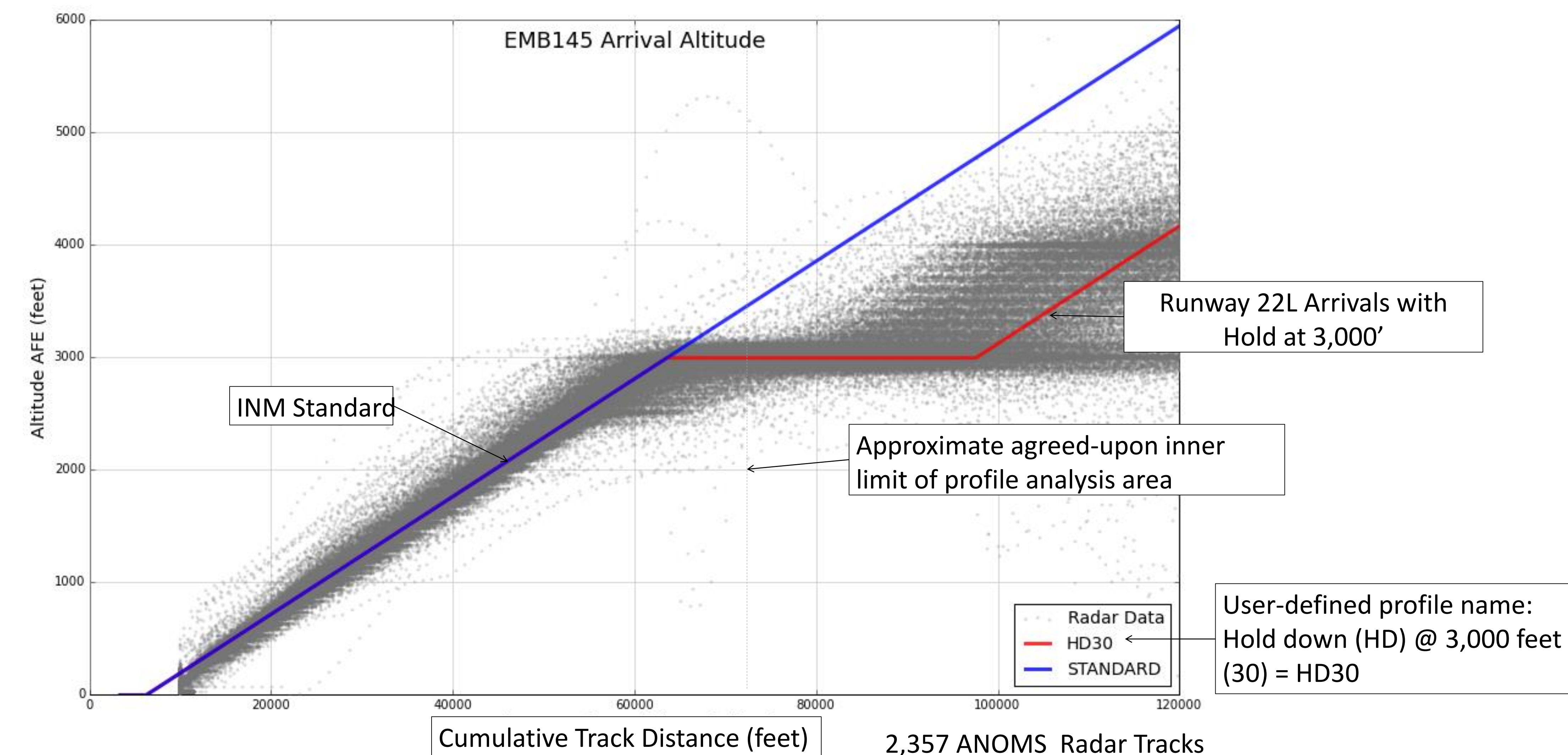
- Purpose is to reflect airspace-related altitude holds
- EMB145 departure and arrival examples presented below
- FAA has reviewed and approved



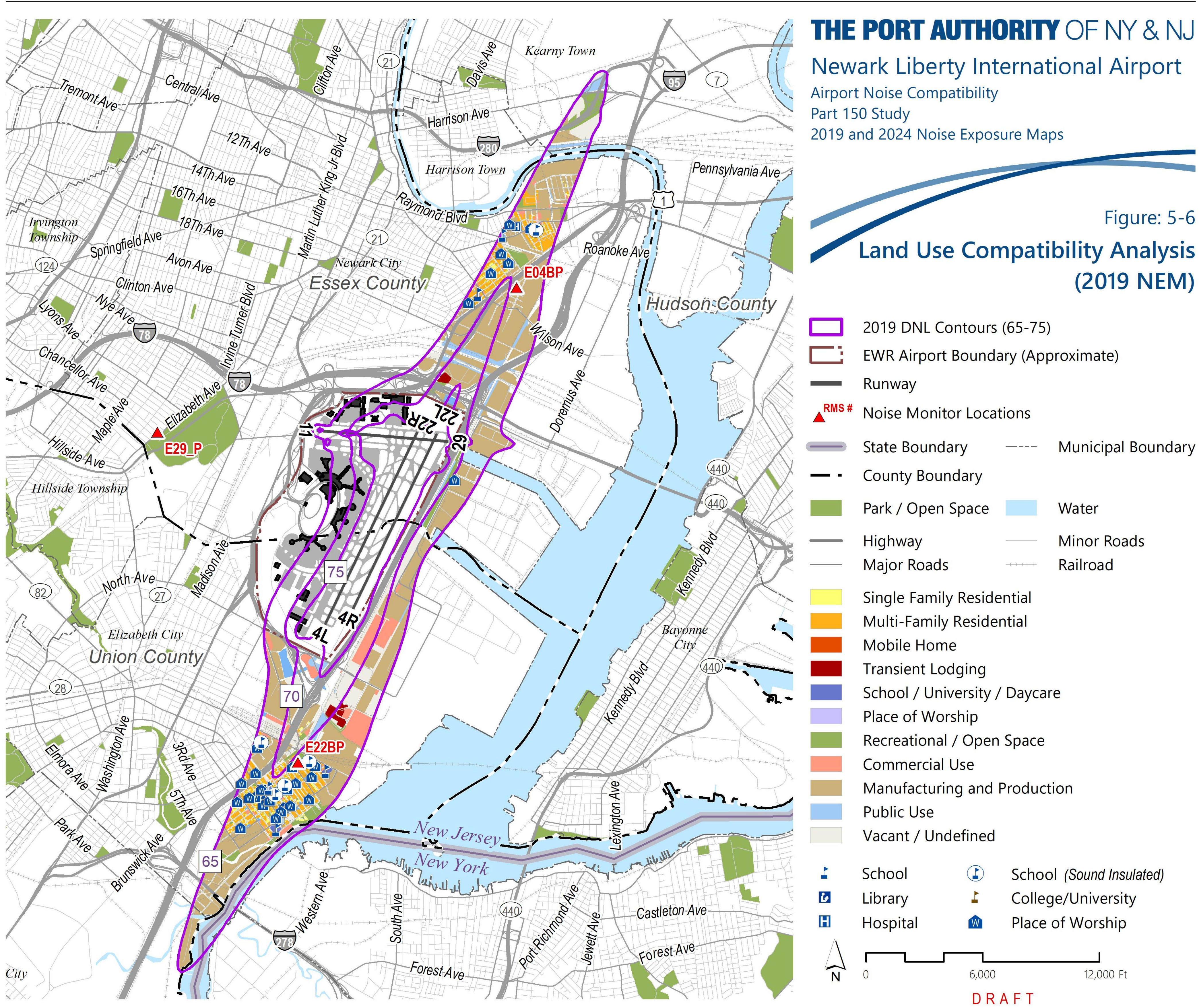
Departures



Arrivals



Noise Exposure Map – 2019 NEM Results



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Year	Estimated Residential Units within DNL Contour Interval			
	65-70	70-75	>75	Total
2019	9,040	291	0	9,331

Source: 2010 US Census Block Data, RS&H, HMMH, 2018

Year	Estimated Population within DNL Contour Interval			
	65-70	70-75	>75	Total
2019	25,017	804	0	25,821

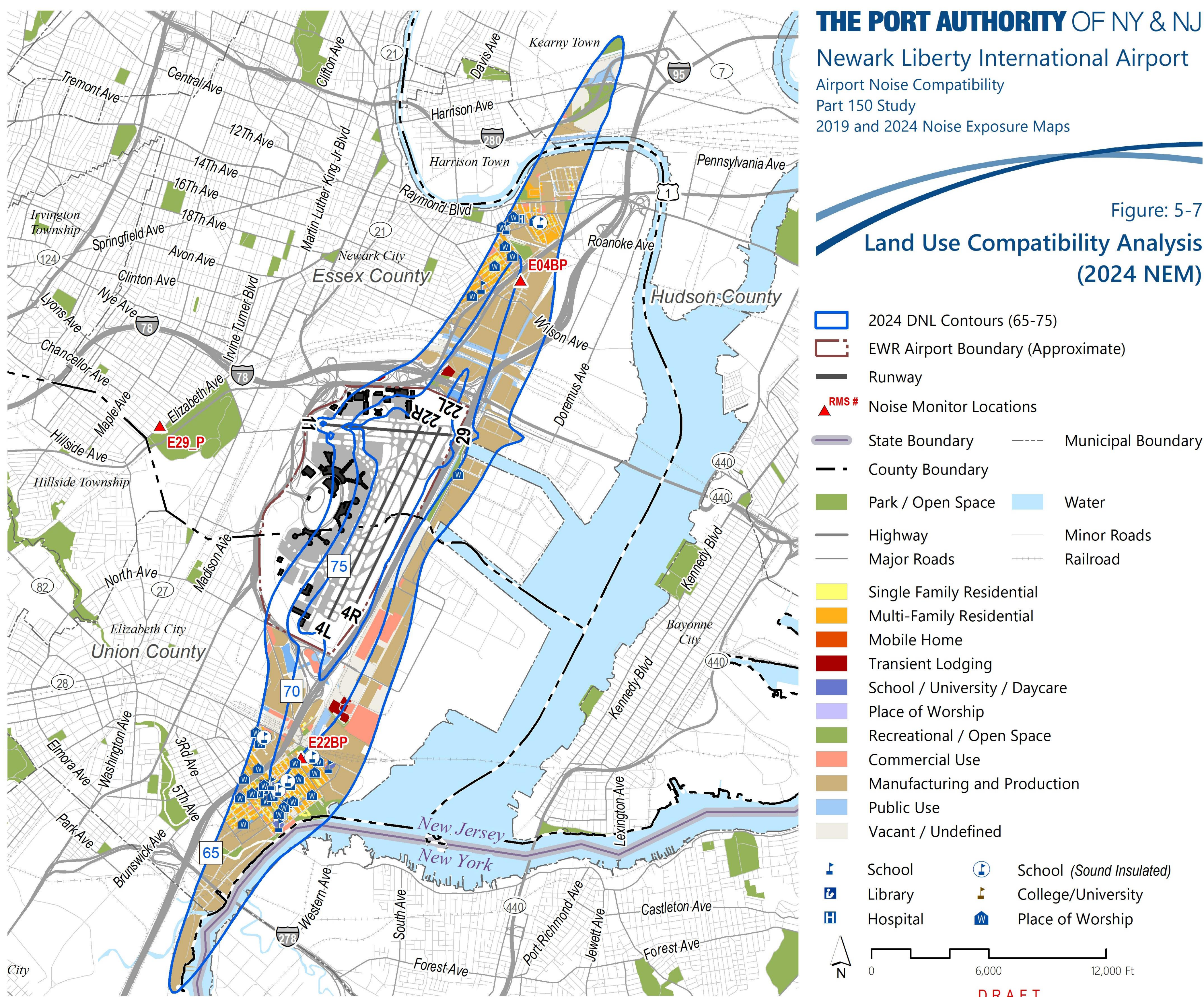
Source: 2010 US Census Block Data, RS&H, HMMH, 2018

Year	Noise Sensitive Sites within DNL >65				
	Transient Lodging	School	Place of Worship	Medical	Library
2019	7	10	30	1	1

Source: 2010 US Census Block Data, RS&H, HMMH, 2018



Noise Exposure Map – 2024 NEM Results



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Year	Estimated Residential Units within DNL Contour Interval			
	65-70	70-75	>75	Total
2024	9,399	667	0	10,066

Source: 2010 US Census Block Data, RS&H, HMMH, 2018

Year	Estimated Population within DNL Contour Interval			
	65-70	70-75	>75	Total
2024	25,912	1,883	0	27,795

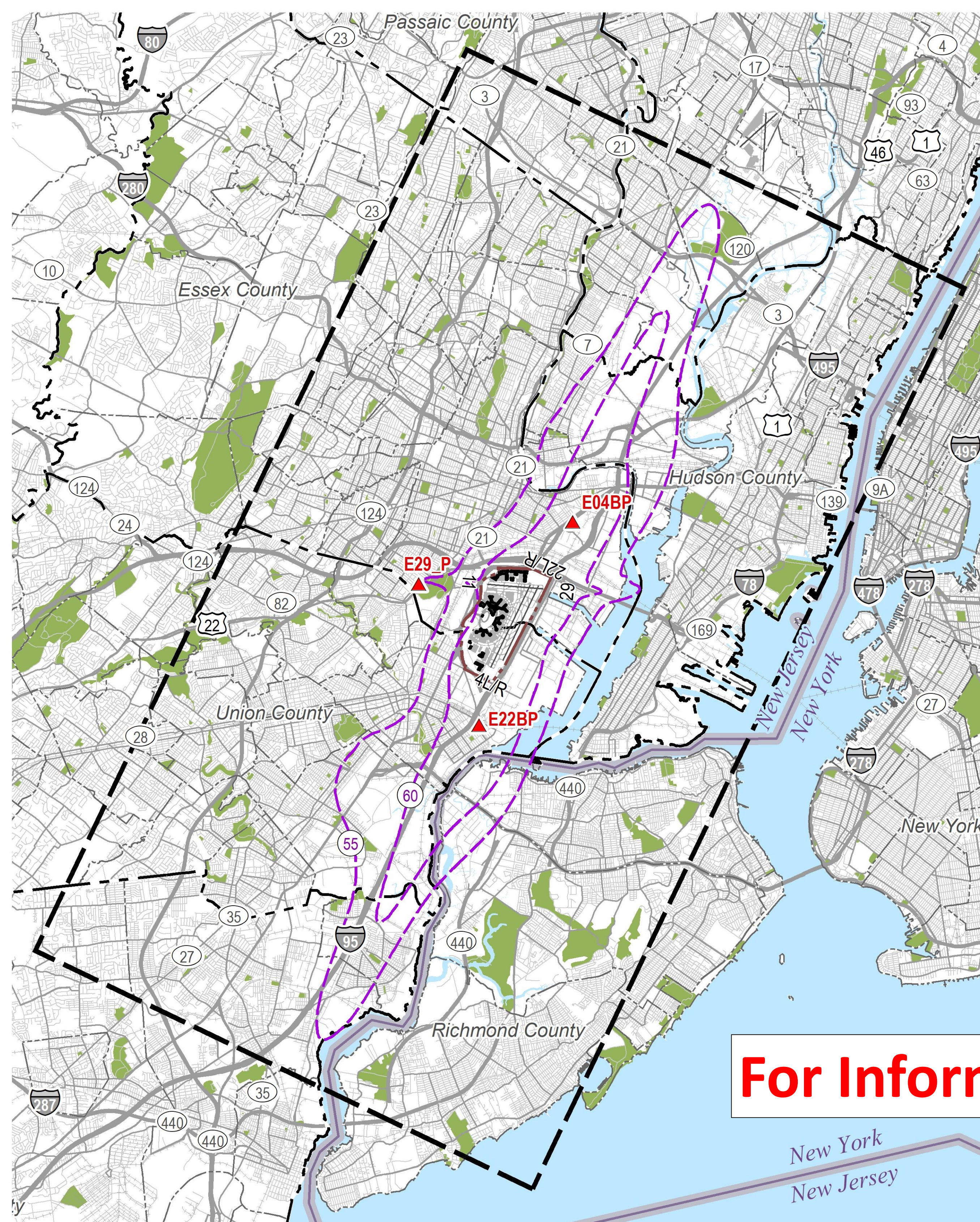
Source: 2010 US Census Block Data, RS&H, HMMH, 2018

Year	Noise Sensitive Sites within DNL >65				
	Transient Lodging	School	Place of Worship	Medical	Library
2024	8	10	32	1	1

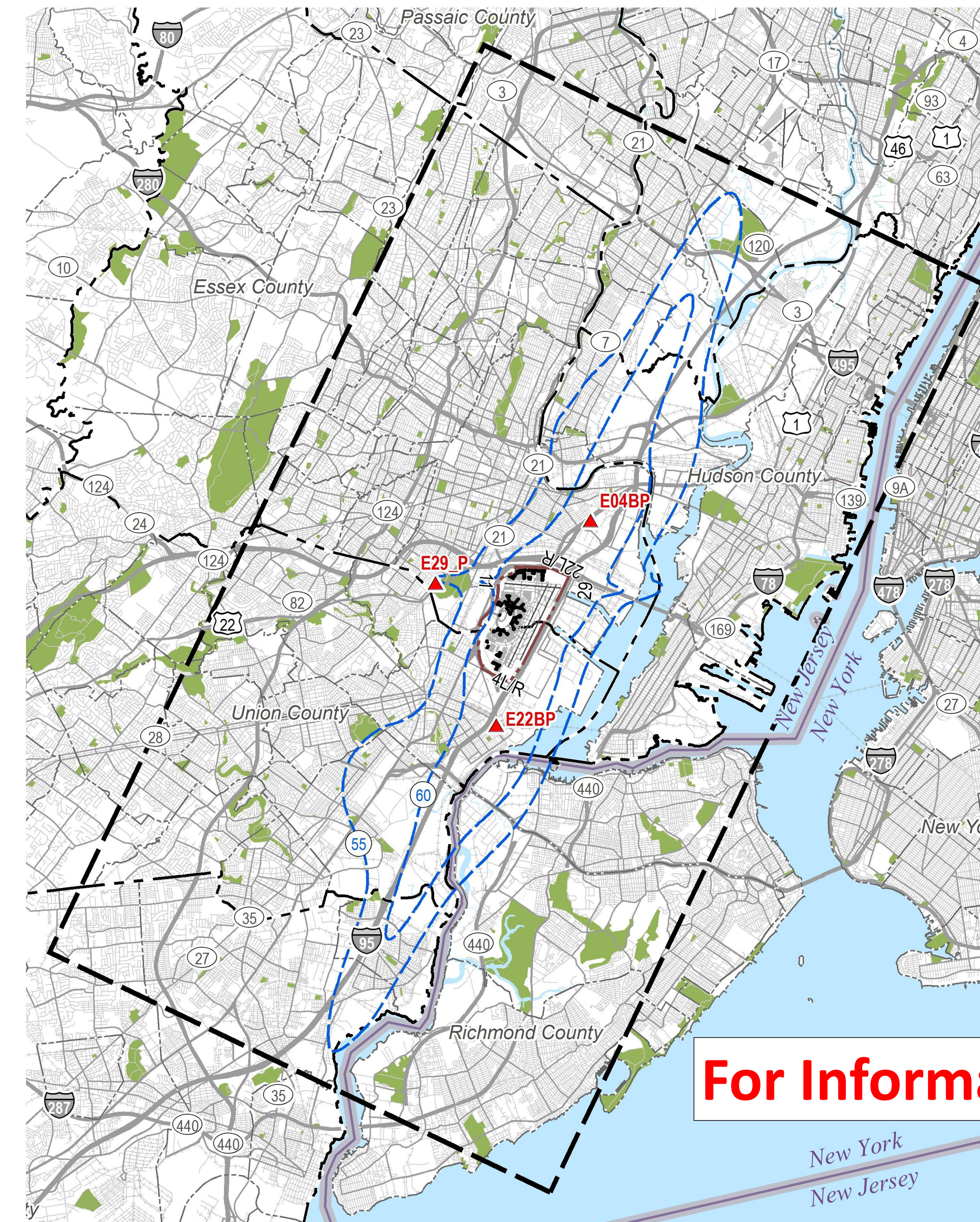
Source: 2010 US Census Block Data, RS&H, HMMH, 2018



DNL 55 and 60 Contours – Outside of Part 150



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)



Stay Connected

For more information or to submit comments and feedback, the PANYNJ has several ways you can participate and stay informed:

- The project website is updated regularly with project documents, meeting announcements, and other general information about the study. Register here to join the mailing list and receive project updates.
http://panynjpart150.com/EWR_homepage.asp
- To make comments, give feedback, or ask questions, please email us at **NJPart150@panynj.gov** or call us at **(212) 435-3777**
- To file an aircraft noise complaint, please call the noise complaint hotline at **1-800-225-1071**.
- The Port Authority noise information website provides broader information.
www.panynj.gov/airports/aircraft-noise-information.html



As part of an on-going **Part 150 Airport Noise Compatibility Planning Study**, the Port Authority of New York and New Jersey (PANYNJ) is hosting a **public workshop** to gather input on potential approaches to addressing noise levels created by aircraft operations around Newark Liberty International Airport (EWR).

At this workshop, a Noise Exposure Map (NEM) will be presented that describes the airport layout and related levels of noise exposure in the surrounding area for the current year (2016), and a forecasted future year (2021).

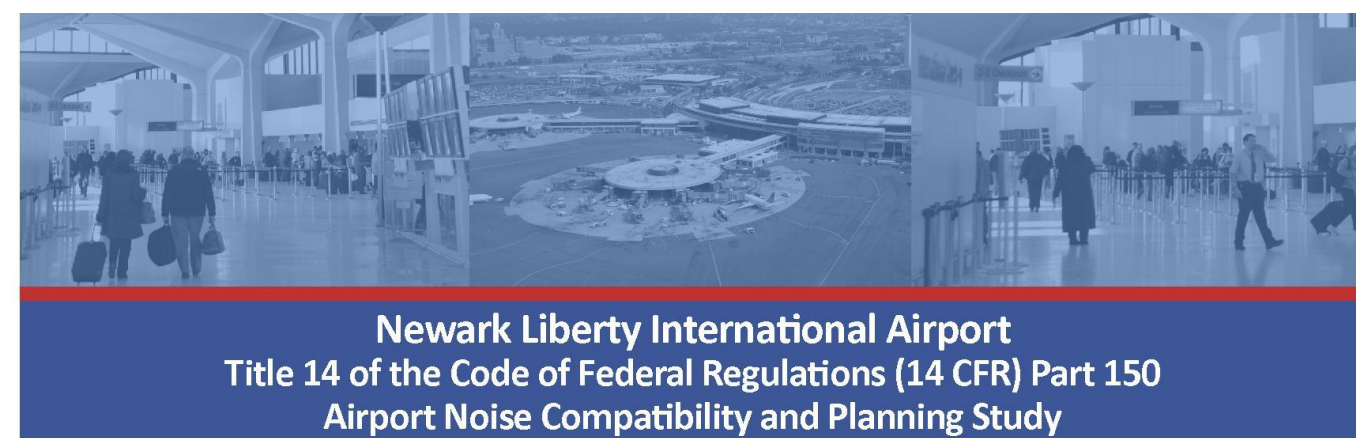
This workshop gives you the opportunity to share your concerns and ideas for addressing aircraft noise around EWR. Please join the discussion and tell us what is important to you! Let's work together to address aircraft noise issues at Newark Liberty International Airport.

Workshop Format		
	Tuesday, October 25th, 2016	Open House Please arrive anytime between 6:00pm - 9:00pm to view project materials and talk to PANYNJ staff and members of the Study Team. <i>Light refreshments will be available.</i>
	6:00 pm - 9:00 pm	
	Hilton Newark Penn Station Eassey Room 1048 Raymond Blvd, Newark, NJ 07102	The Part 150 public information workshop is accessible to people who are mobility impaired. Language interpretation services are available upon advance request. To make arrangements for such services please contact the PANYNJ Noise Office at 212-435-3777 or via email at NJPart150@panynj.gov no later than 3 days before the workshop.
	Self-parking in hotel garage; will be validated at the workshop	
	NJ Transit #319 #67 #108	
	Newark Penn Station, NJPAC / Centre Street Light Rail, Penn Station Light Rail, Military Park Light Rail Station	

Want to find out more information or get involved?
Please visit: http://panynjpart150.com/EWR_homepage.asp

Can't attend the workshop but want to provide input?
Please email: NJPart150@panynj.gov
Or call: 212-435-3777

Questions about the workshop?
Contact the PANYNJ Noise Office.
Please email: NJPart150@panynj.gov
Or call: 212-435-3777



STUDY UPDATE

The Newark Liberty International Airport (EWR) Part 150 Noise Study is well under way. The Technical Advisory Committee (TAC) has been meeting regularly and the Study Team is continuing to make progress on several key milestones. Throughout the summer and fall of 2015, the Study Team, together with the Federal Aviation Administration (FAA) and the Port Authority of New York and New Jersey (PANYNJ), developed a Study Protocol which outlines how the Part 150 Studies will be conducted for both EWR and Teterboro Airport. The Study Protocol also outlines agency roles and responsibilities, methodologies for data collection and analysis, and lists project deliverables and key milestones. The Study Protocol can be viewed and downloaded from the project web site at: http://panynjpart150.com/EWR_SF.asp.

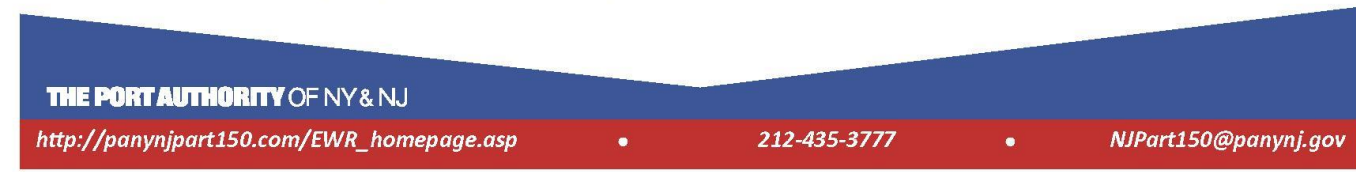
Currently much of the focus of the EWR Part 150 Study is on the collection and verification of data and the development of the Noise Exposure Maps (NEM). Two NEMs will be developed for the Part 150 Study: a 2016 map showing existing conditions, and a 2021 map showing future conditions. Runway use and flight track information is based on the full year 2014 (supplemented with April and May 2013 to account for a Runway closure in 2014) data. The Study Team has been working with the FAA and the PANYNJ to collect and review runway usage data and to develop flight tracks which most accurately represent how aircraft are currently flown at EWR. Per the Part 150 regulations, the Study Team is also developing a five-year forecast for conditions at EWR for the year 2021, which will account for the types and number of aircraft that are expected to be flown at EWR and any changes to the airspace around EWR that would affect where aircraft are flown in the future. All of this information will be used to develop the noise contours for the NEM. The Draft NEM will be sent to FAA for review in the summer of 2016.

STUDY PROCESS			
Develop Study Protocol <ul style="list-style-type: none">✓ Review methodology✓ Develop NEM✓ Develop noise exposure maps and documents Task Status: Complete	Verification <ul style="list-style-type: none">✓ Conduct noise exposure studies and data collection✓ Collect and use data and analysis✓ Review and use data and analysis✓ Review and use data and analysis Task Status: Complete	Develop NEMs <ul style="list-style-type: none">• Develop noise contours for existing and future forecast• Develop noise exposure maps• Collect and use data and analysis• Review and use data and analysis• Review and use data and analysis Task Status: Scheduled to begin Late 2016	Develop NCPs <ul style="list-style-type: none">• Identify and use appropriate noise contours• Develop Noise Compatibility Program• Prepare documentation Task Status: Scheduled to begin Late 2016

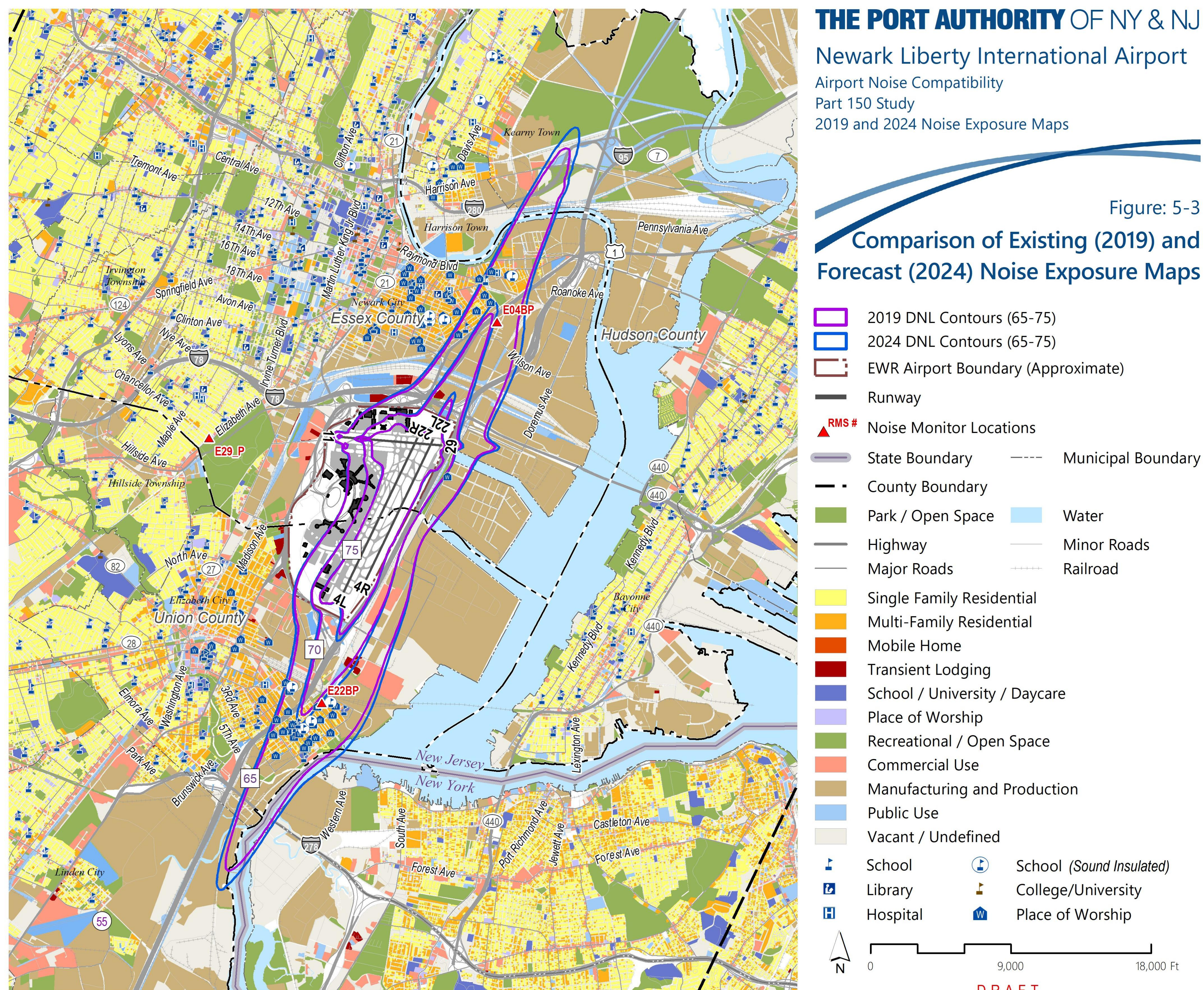
STAY CONNECTED

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- To make comments, give feedback, or ask questions, please call us at (212) 435-3777 or email us at NJPart150@panynj.gov
- To file an aircraft noise complaint, please call the noise complaint hotline at 1-800-225-1071.



Noise Exposure Map – 2019 and 2024 NEMs



Source: The Port Authority of NY & NJ, Cornell University Geospatial Information Repository (CUGIR), NJ DEP Bureau of GIS, NYC Open Data, Environmental Systems Research Institute (ESRI)

Compatible and Non-Compatible Land Area within the 2019 and 2024 65 DNL Contours

Year	Land Use within the 65 DNL	Area Outside Airport Boundary (Square Miles)
2019	Compatible	5.08
	Non-Compatible	0.52
	Total	5.60
2024	Compatible	5.78
	Non-Compatible	0.55
	Total	6.33

Source: HMMH, 2018





Public Information Workshop

Noise Compatibility Planning Study

Title 14 of the Code of Federal Regulations Part 150

Newark Liberty International Airport

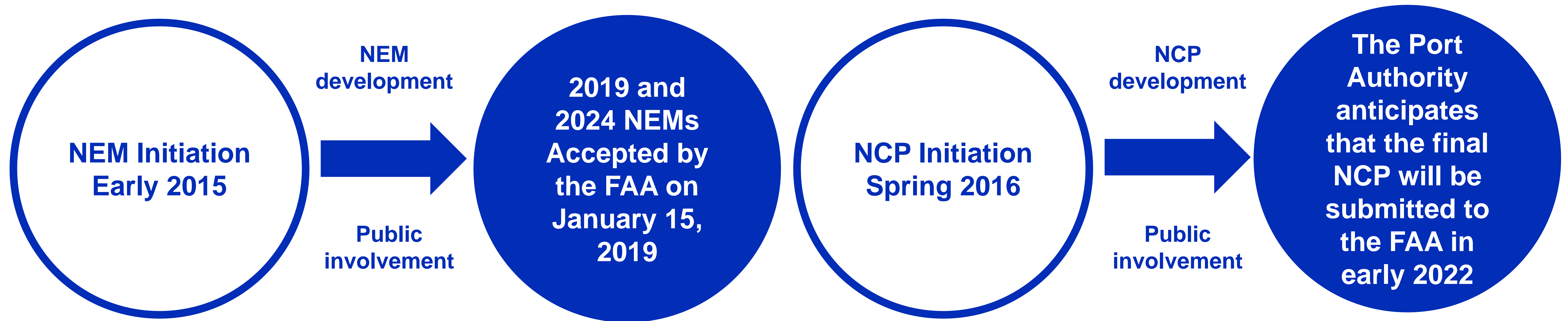
October 7, 2021

Airport Noise Compatibility Planning

Part 150 Overview

- Federal Aviation Administration (FAA) developed the voluntary Part 150 Program in response to the federal Aviation Safety and Noise Abatement Act of 1979 (“ASNA”)
 - Codified under Title 14 of the Code of Federal Regulations (CFR) Part 150
 - Provides airports access to FAA funding for noise compatibility measures
 - Includes a comprehensive public engagement process

Newark Liberty International Airport Part 150 Study Timeline



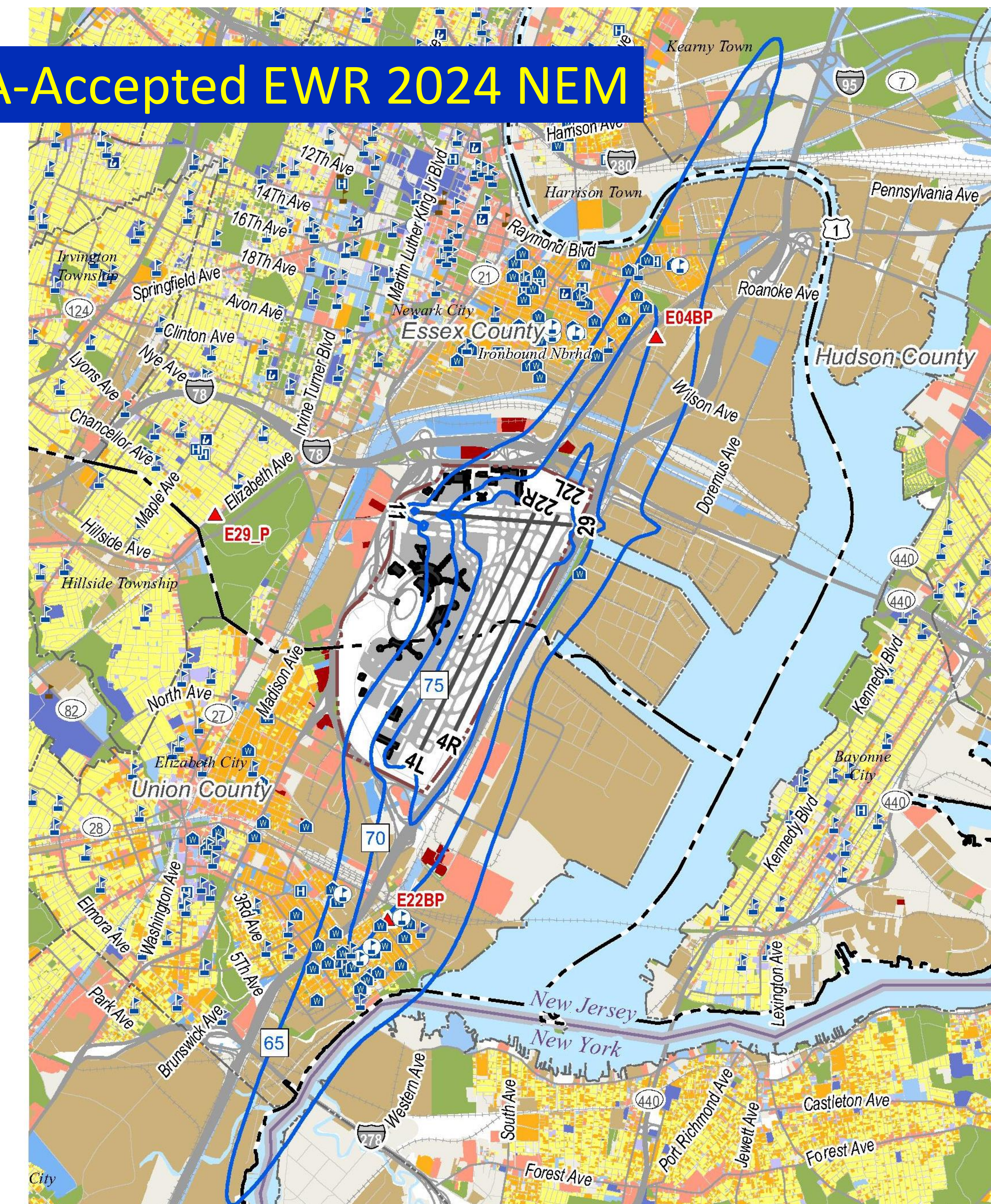
Upon receipt of the FAA's Record of Approval (ROA) for this NCP, the Port Authority may begin implementation of FAA-approved program measures and apply for federal financial assistance to support implementation of eligible FAA-approved NCP measures at EWR.

Airport Noise Compatibility Planning

Part 150 Overview

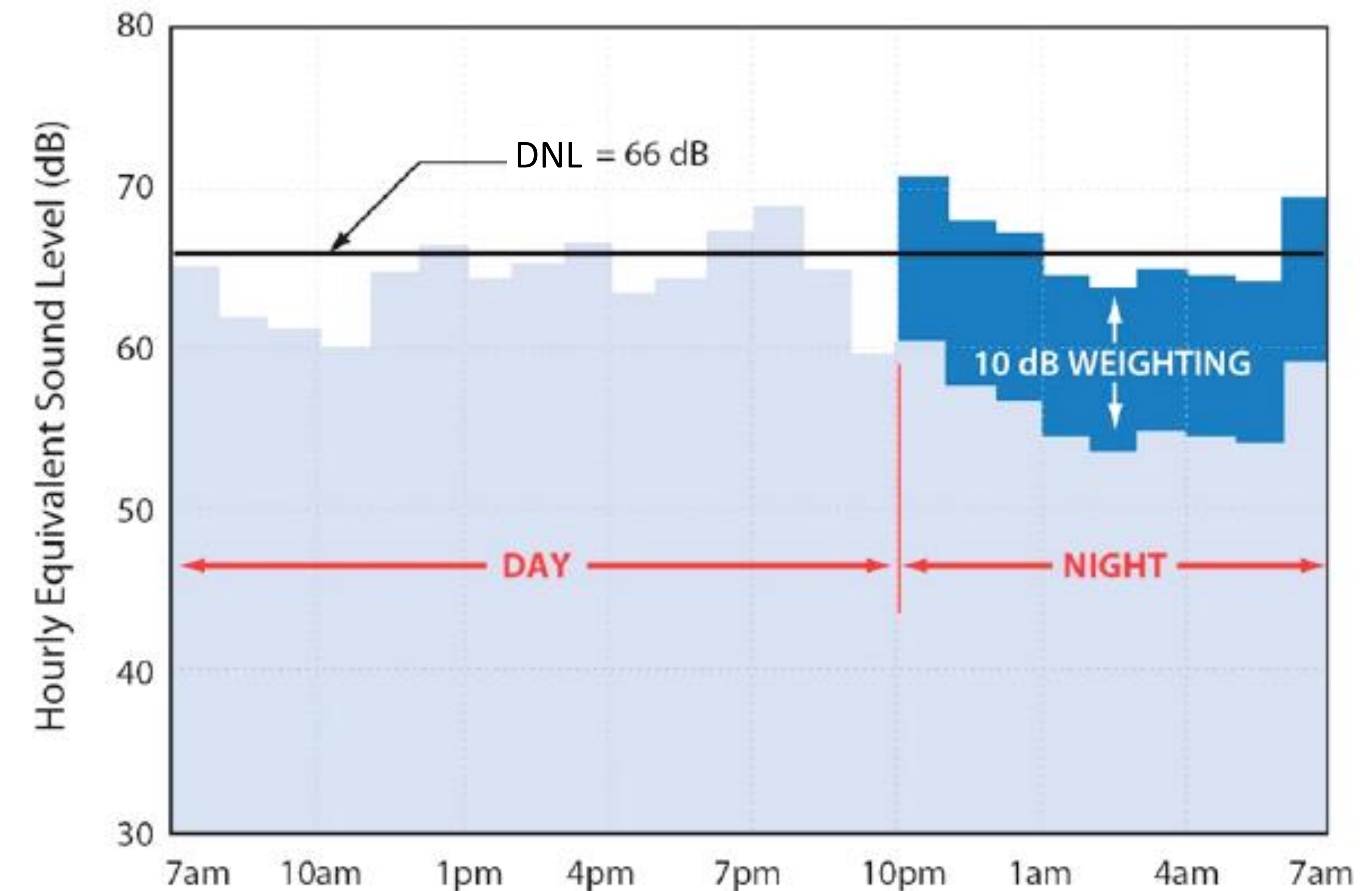
- Two primary elements
 1. Noise Exposure Map (NEM)
 - Aircraft noise exposure
 - Land use compatibility
 2. Noise Compatibility Program (NCP)
 - Measures to improve land use compatibility including:
 - Noise abatement measures
 - Land use (noise mitigation) measures
 - Program management measures

FAA-Accepted EWR 2024 NEM

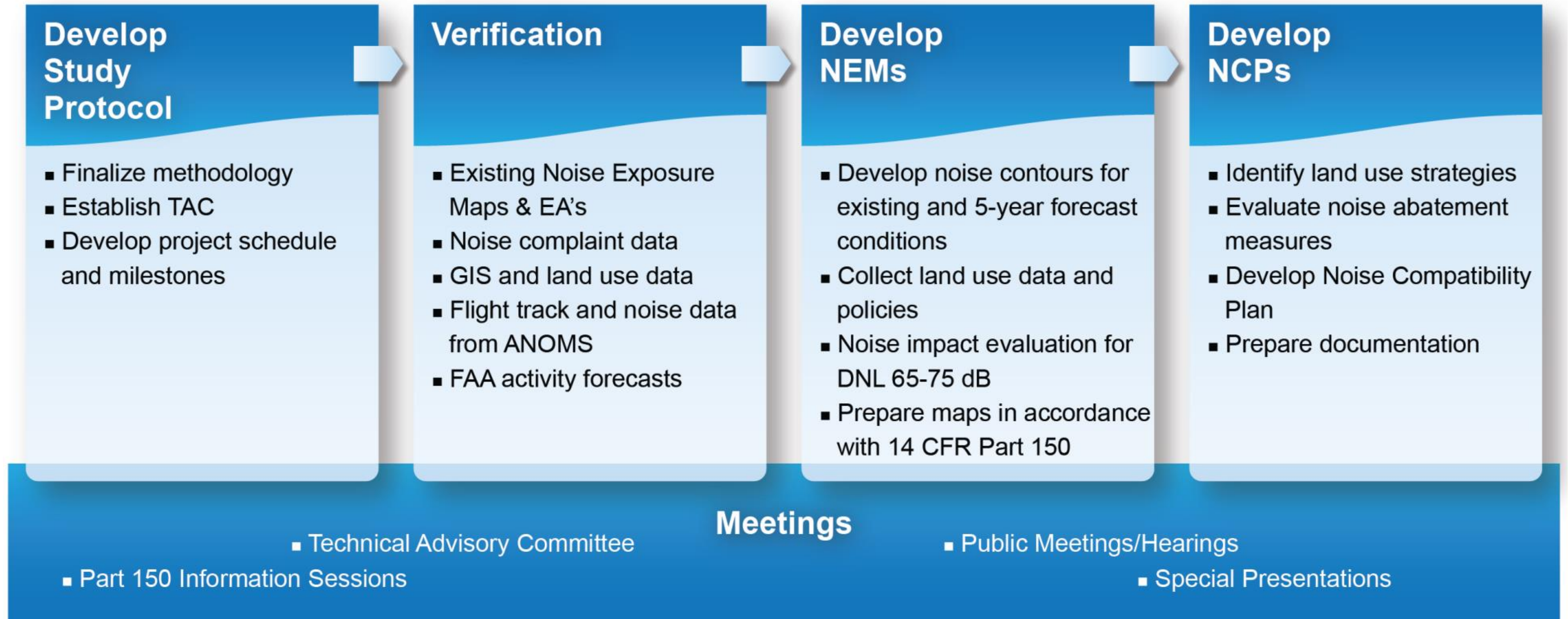


Day-Night Average Sound Level (DNL)

- The Day-Night Average Sound Level (DNL) represents the noise energy present during a 24-hour period
- Weighting is applied to noise events occurring at night (10:00 P.M. to 7:00 A.M), with an additional 10 dB added to the actual nighttime sound level to reflect the greater sensitivity to noise at night
- DNL is drawn on maps in terms of lines connecting points of the same decibel.
- The FAA has set 65 DNL as the threshold of compatible noise exposure for noise sensitive land uses



Airport Noise Compatibility Planning Process



Airport Noise Compatibility Planning

Roles and Responsibilities

- **The Port Authority of New York and New Jersey**
 - Directs study as the project sponsor
 - Submits NEM and NCP documentation to FAA
- **FAA**
 - Provides input to, reviews and assists with analysis of noise abatement flight procedures
 - “Accepts” NEM and NCP documentation and “approves” NCP measures
 - Responsible for implementation of noise abatement flight procedures at the sponsor’s request
 - Assists in funding eligible measures in all three categories
- **Local governments**
 - Provide input to recommended land use measures
 - Implement and enforce land use measures to maintain and improve noise compatibility
- **All stakeholders, including aviation interests, residents, and other interested parties**
 - Monitor study process, provide input, assist with implementation

Airport Noise Compatibility Planning Technical Advisory Committee (TAC)

Advisory role to the Port Authority

TAC Representative Affiliations

Aviation Development Council (ADC)	FBO, Signature Flight Support
Airlines (Cargo), FedEx	Greater Elizabeth Chamber of Commerce (GECC)
Airlines, Southwest Airlines (SWA)	City of Newark
Airlines (Passenger), United	EWR Roundtable
AvPORTS TEB Staff	Newark Airport Community Roundtable
City of Elizabeth	National Business Aviation Association (NBAA)
Essex County	Newark International Carriers (NICC)
Federal Aviation Administration (FAA)	Newark Regional Business Partnership (NRBP)
FAA Airports District Office (ADO)	Staten Island
FAA Flight Standards District Office	Teterboro Aircraft Noise Abatement Advisory Committee (TANAAC)
FAA TRACON	Union County
FAA ATCT	

Noise Compatibility Program Development Process

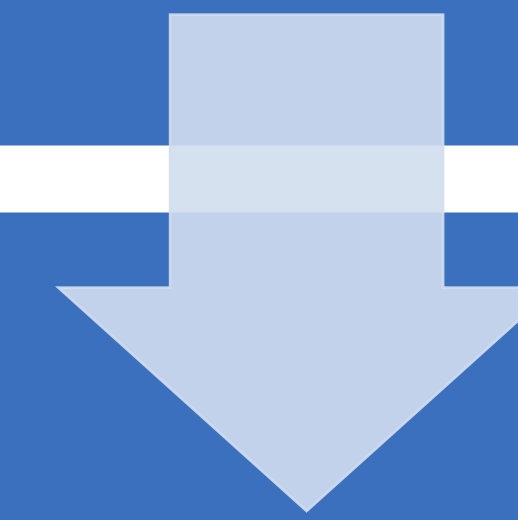
Step 1: Identify Noncompatible Land Uses

Existing conditions Noise Exposure Map
Forecast conditions Noise Exposure Map



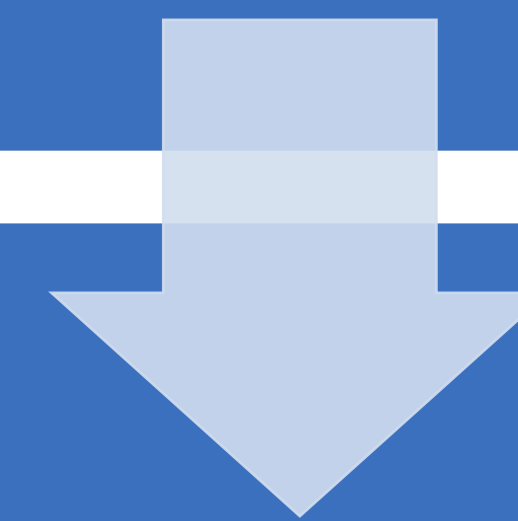
Step 2: Consider Noise Abatement Strategies

Reduce exposure over noncompatible uses
Limit growth in exposure over noncompatible uses



Step 3: Consider Land Use Strategies

Mitigate residual noncompatible uses
Prevent introduction of new noncompatible uses



Step 4: Consider Programmatic Strategies

Implement and promote measures
Monitor and report on effectiveness
Update NEMs and revise NCP as appropriate

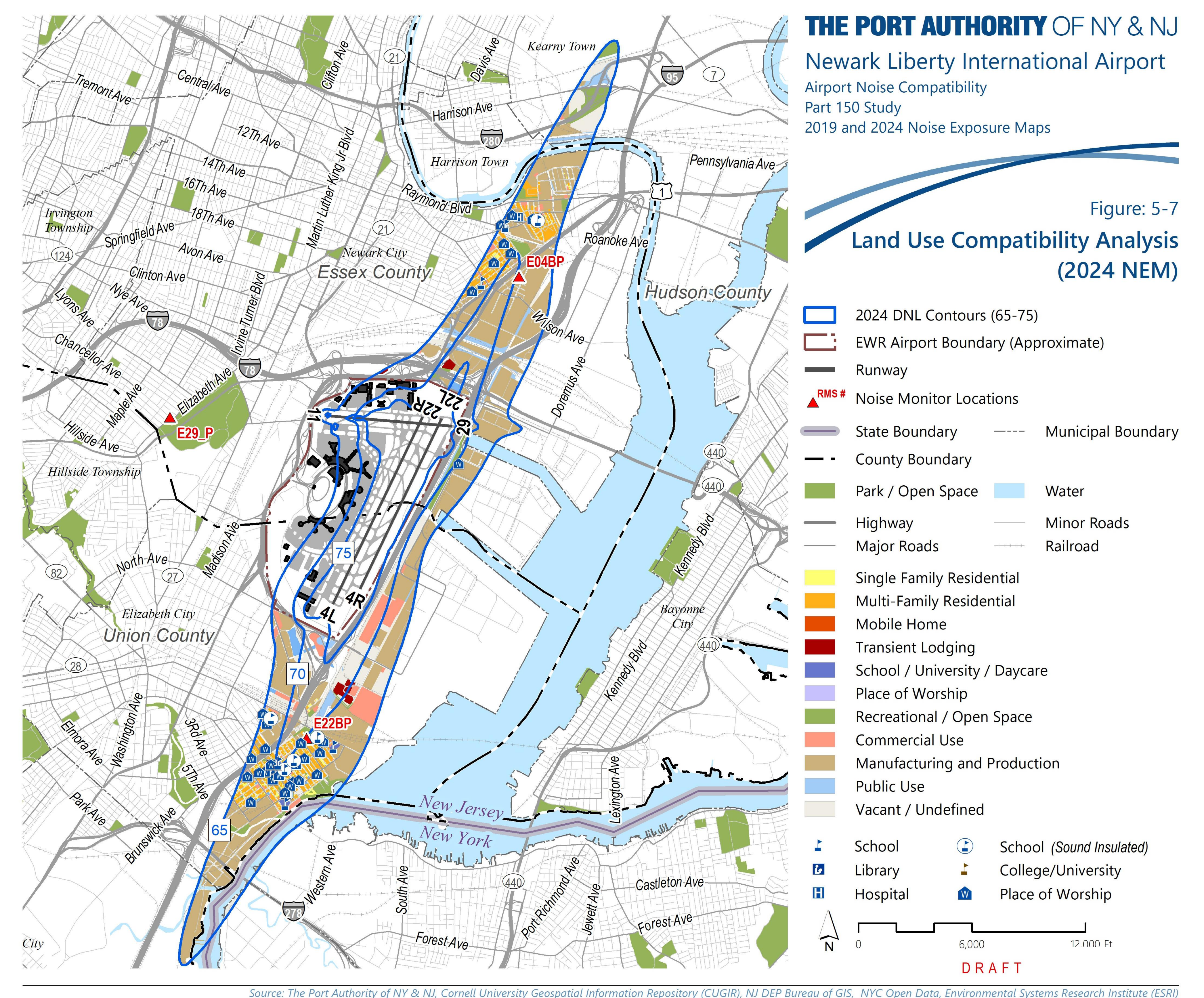
Analysis and Selection Process Applied in Steps 2 - 4

- Evaluate effectiveness of each measure in addressing objectives
- Evaluate feasibility (operational, safety, economic, etc.)
- Select preferred “package” of measures
- Identify implementation schedule, responsibilities, budget, funding sources, etc.
- If not recommended, document reasons

Noise Compatibility Program Development Process – Step 1

- Noncompatible land uses per 2024 Noise Exposure Map
 - Nearly 10,000 residential units
 - Over 25,000 people
 - 10 schools
 - 32 places of worship
 - 1 medical facility
 - 1 library
 - 8 transient lodging (e.g. hotels)

Note: Five (5) schools have been soundproofed as part of the School Soundproofing Program and are compatible

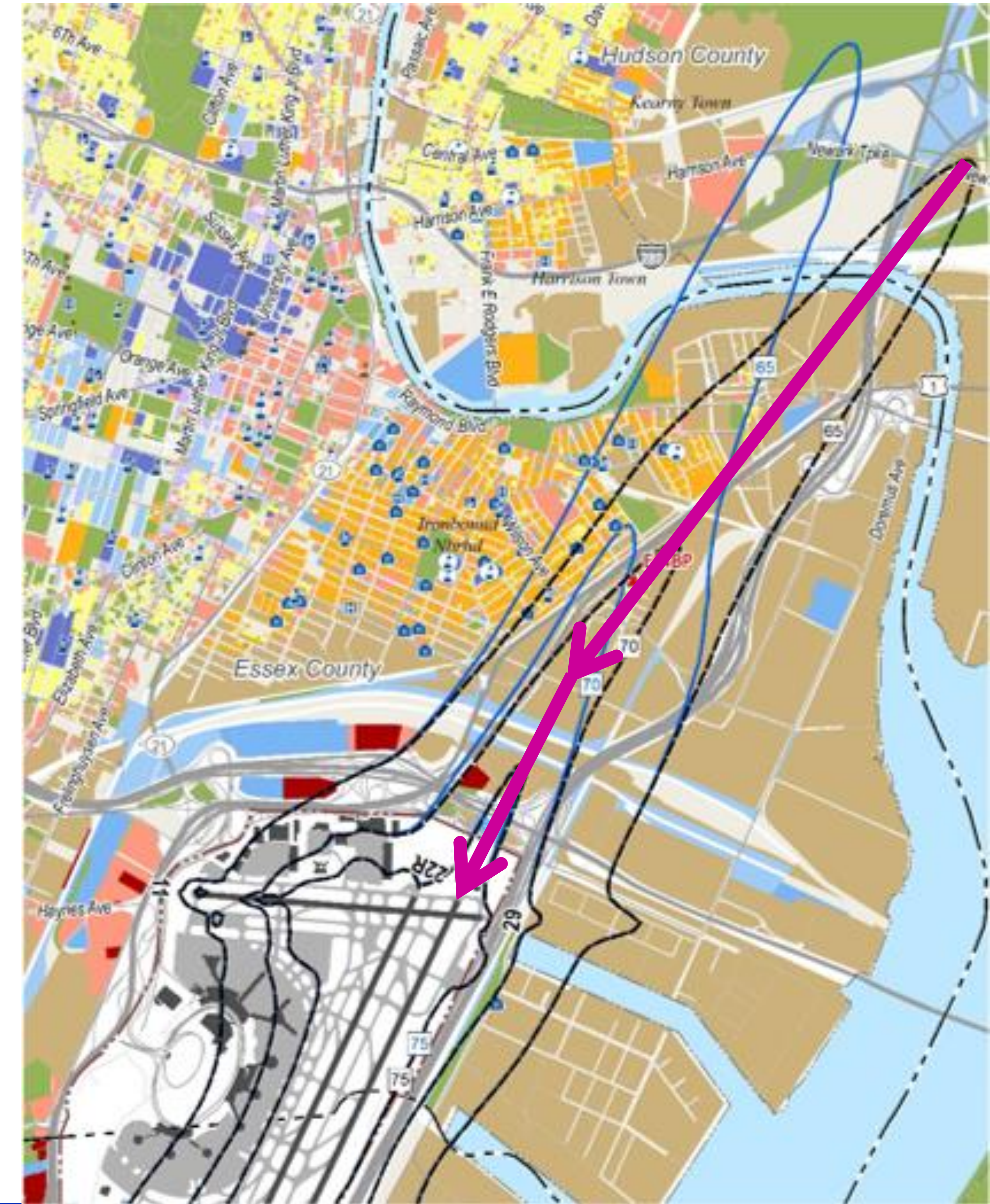


Noise Compatibility Program Development Process – Step 2

- Consider noise abatement strategies
 - Reduce noise at the source or in the path of the noise to the receiver
 - Cockpit procedures, flight paths, runway use, noise barriers, etc.
- Port Authority considered 25 noise abatement strategies
- Port Authority is recommending 13 measures for implementation

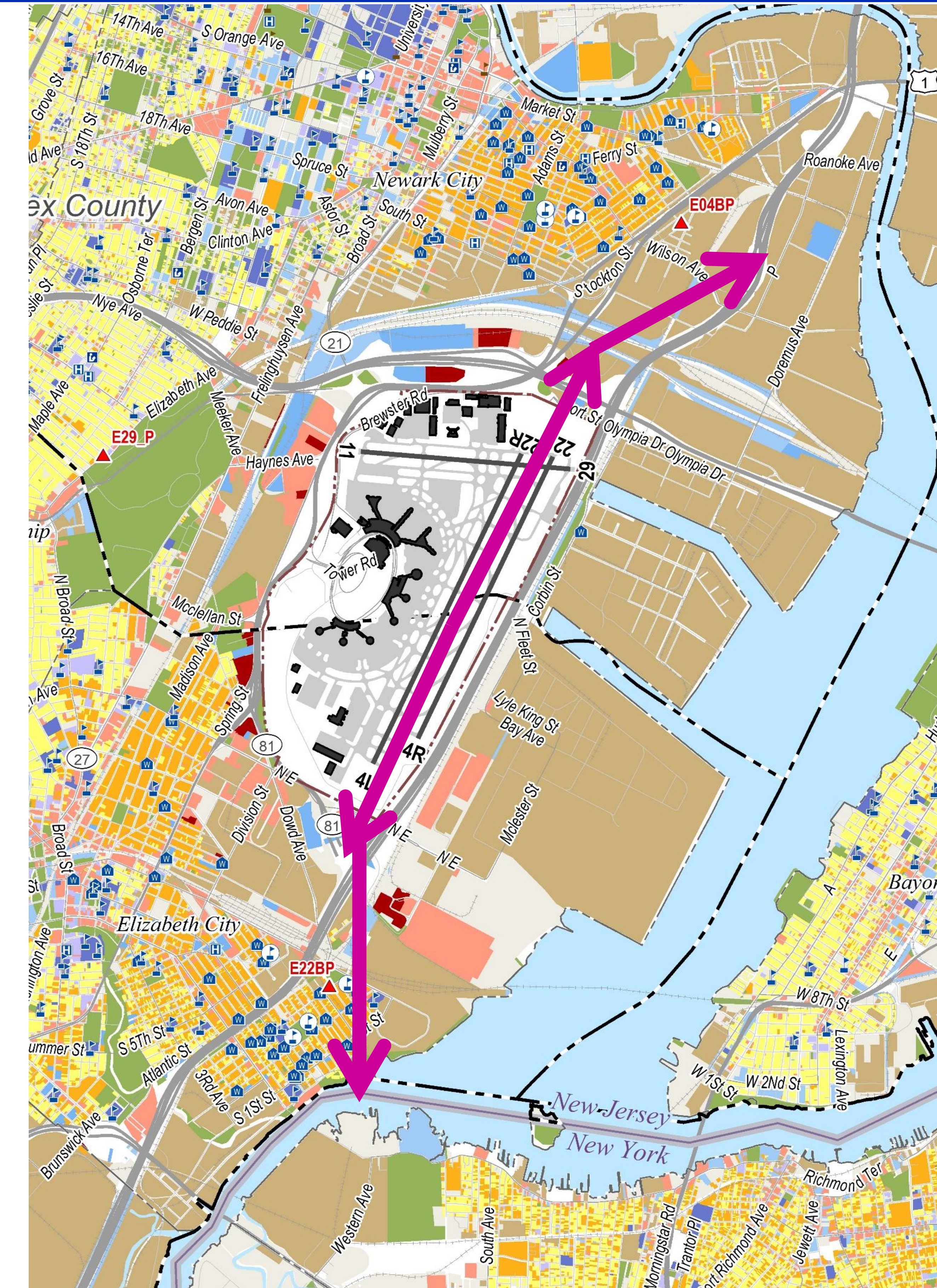
NA-1: Design and Implement an Offset Approach Procedure to Runway 22L

- 12-degree offset approach designed to avoid overflying noise-sensitive parcels in the Ironbound Neighborhood
 - Similar to an existing approach procedure used at La Guardia Airport
- Potential reduction of approximately 5,000 people in nearly 2,000 dwelling units inside the 65 DNL contour



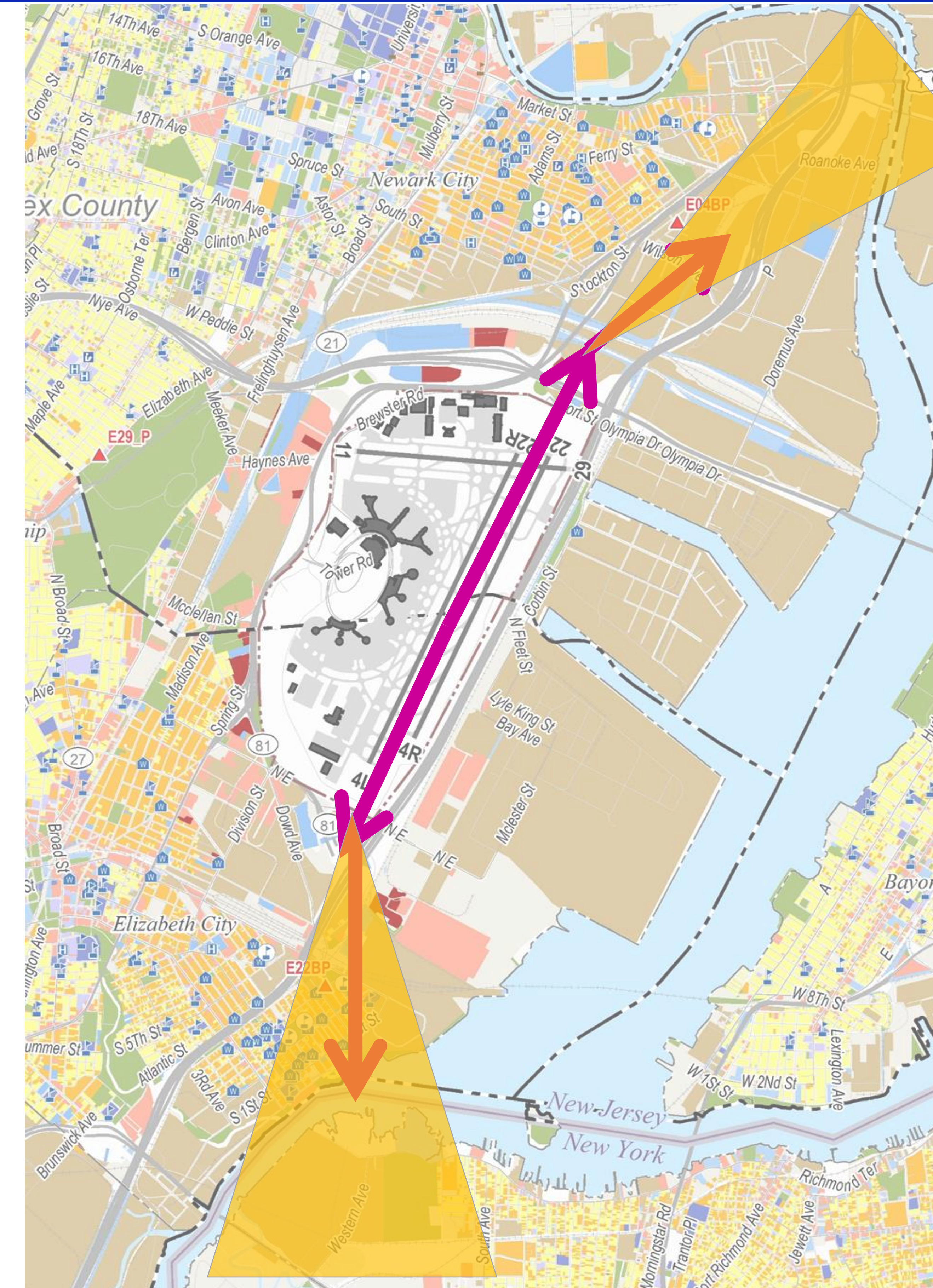
NA-2 & NA-3: Continue Use of Easterly Departure Headings (2 measures)

- Many of the aircraft that depart the Airport turn eastward at around 500 feet above the ground
- As a result of aircraft that depart to the north
 - More than 5,000 people in over 2,000 dwelling units are not exposed to 65 DNL or higher
- As a result of aircraft that depart to the south
 - Approximately 4,000 people in over 1,000 dwelling units are not exposed to 65 DNL or higher



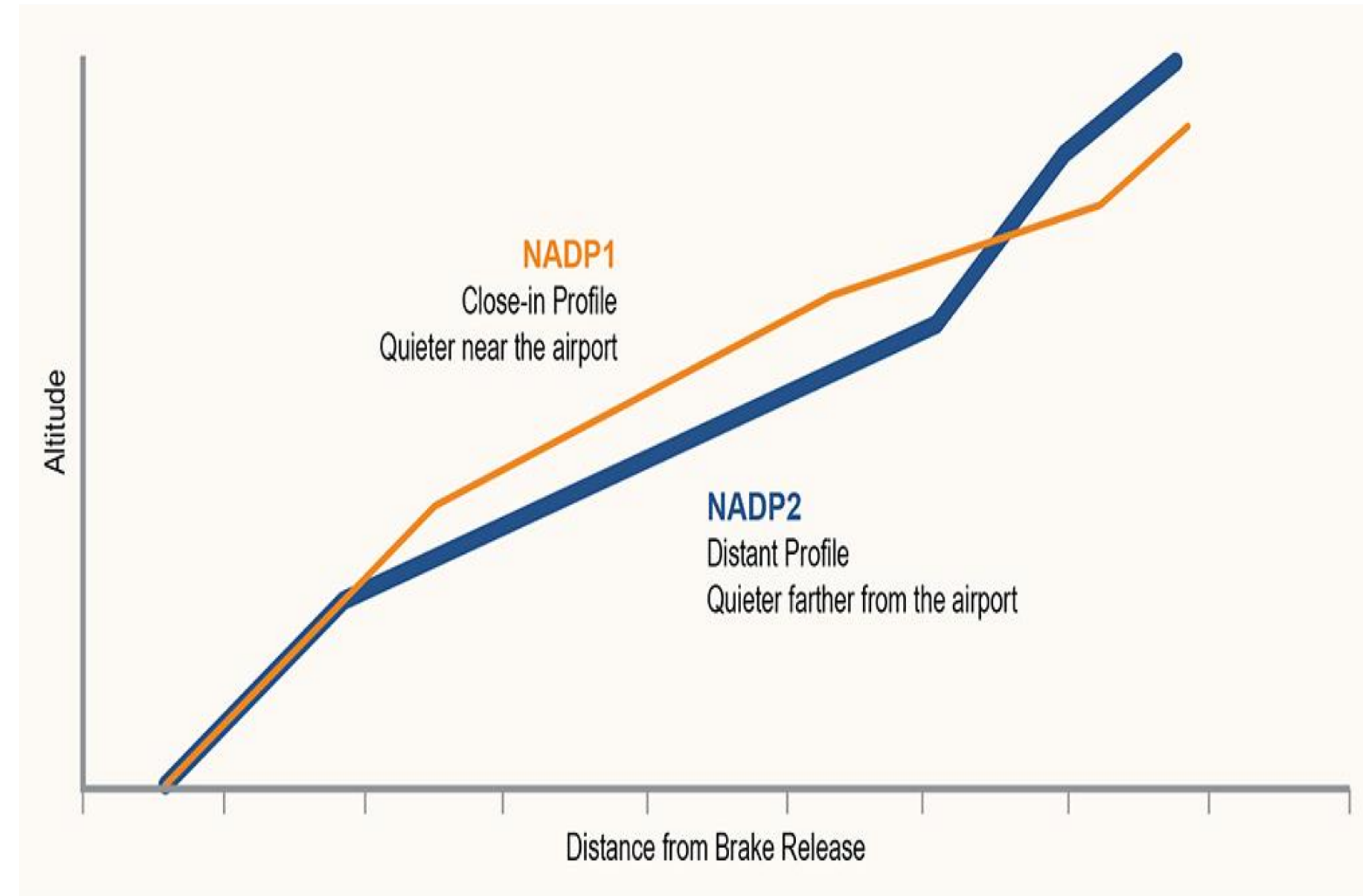
NA-4 & NA-5: Determine and Implement Optimal Departure Headings (2 measures)

- Determine whether a most eastward turn is feasible and how much further east is feasible
 - The further east the turn, the fewer people and noise-sensitive structures exposed to 65 DNL and higher



NA-6: Encourage Use of Noise Abatement Departure Profiles

- Use of the distant, FAA-prescribed NADP-2 reduces approximately 500 people in less than 200 dwelling units exposed to 65 DNL and higher
 - Reduction would occur in both the cities of Newark (Ironbound) and Elizabeth



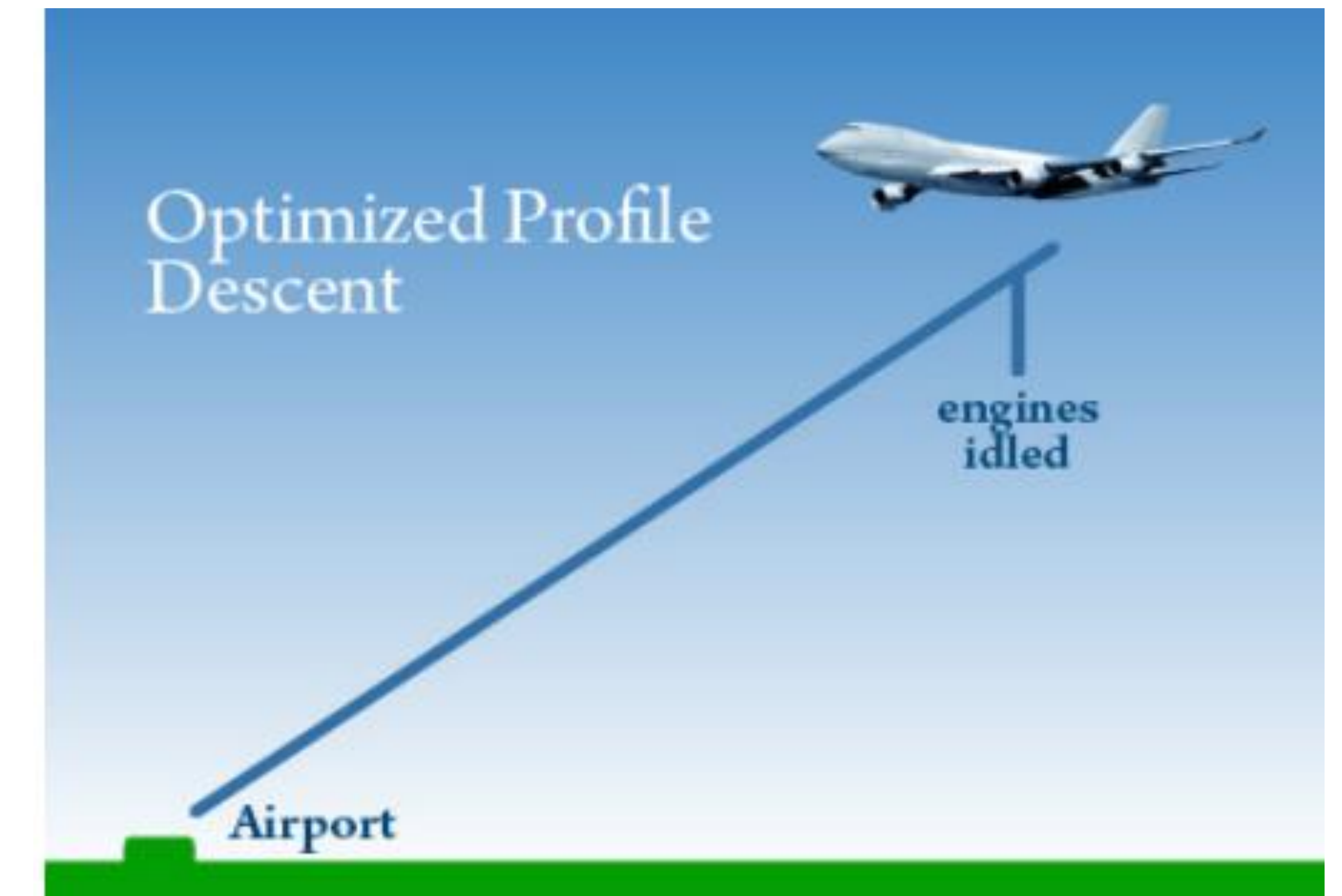
NA-8: Implement a Nighttime Preferential Runway Use Program

- Preferential runway use program include the following:
 - Runway 29 designated at the preferred arrival runway
 - Outboard Runway 4R/22L designated as the preferred departure runway
 - When Runway 29 is not available for arrivals, Runway 22L designated as the preferred arrival runway with aircraft using the offset approach
 - When Runway 29 is not available and the offset approach cannot be used, outboard Runway 4R/22L designated as the preferred arrival runway

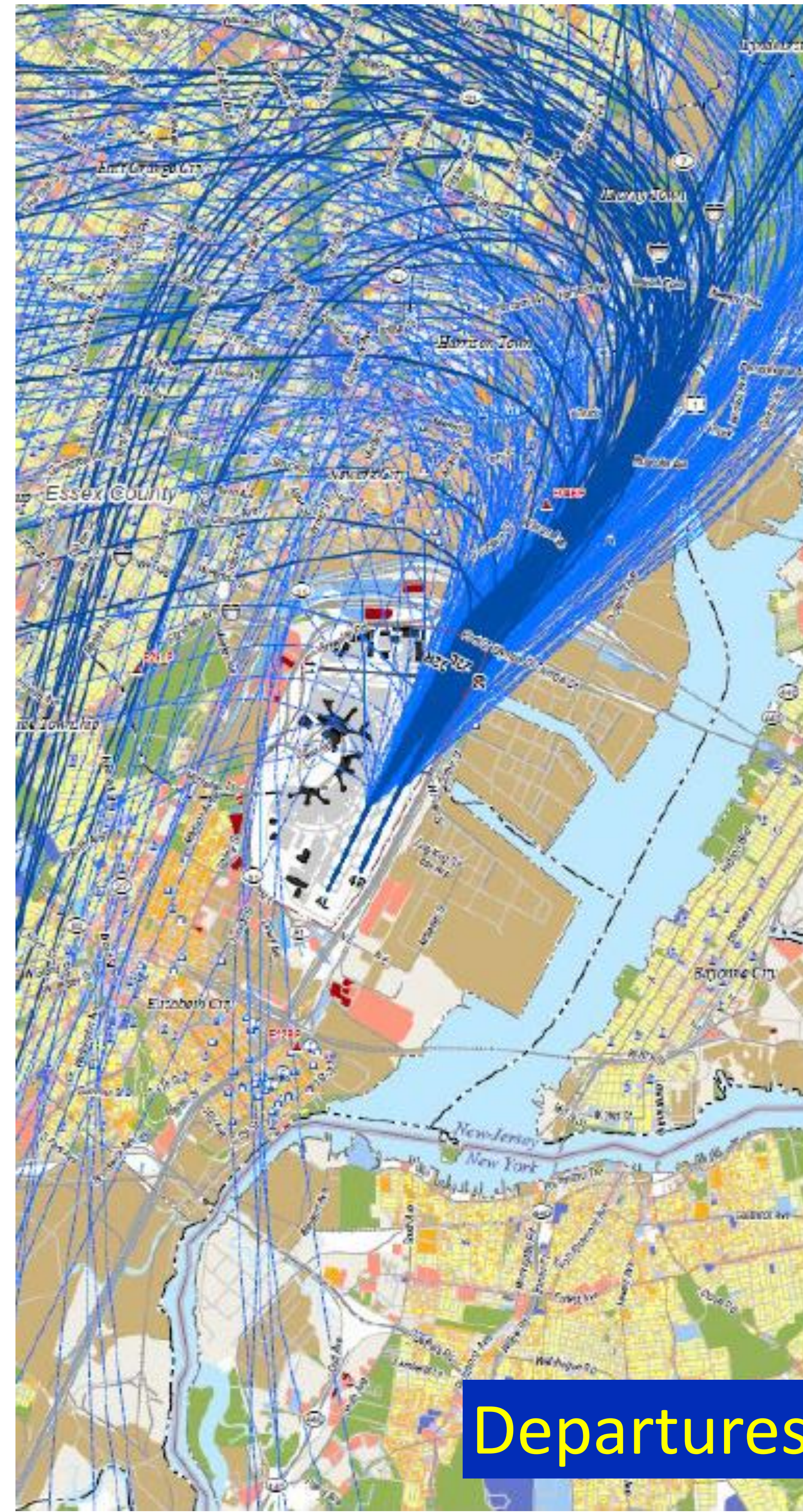


Other Nighttime Noise Abatement Procedures

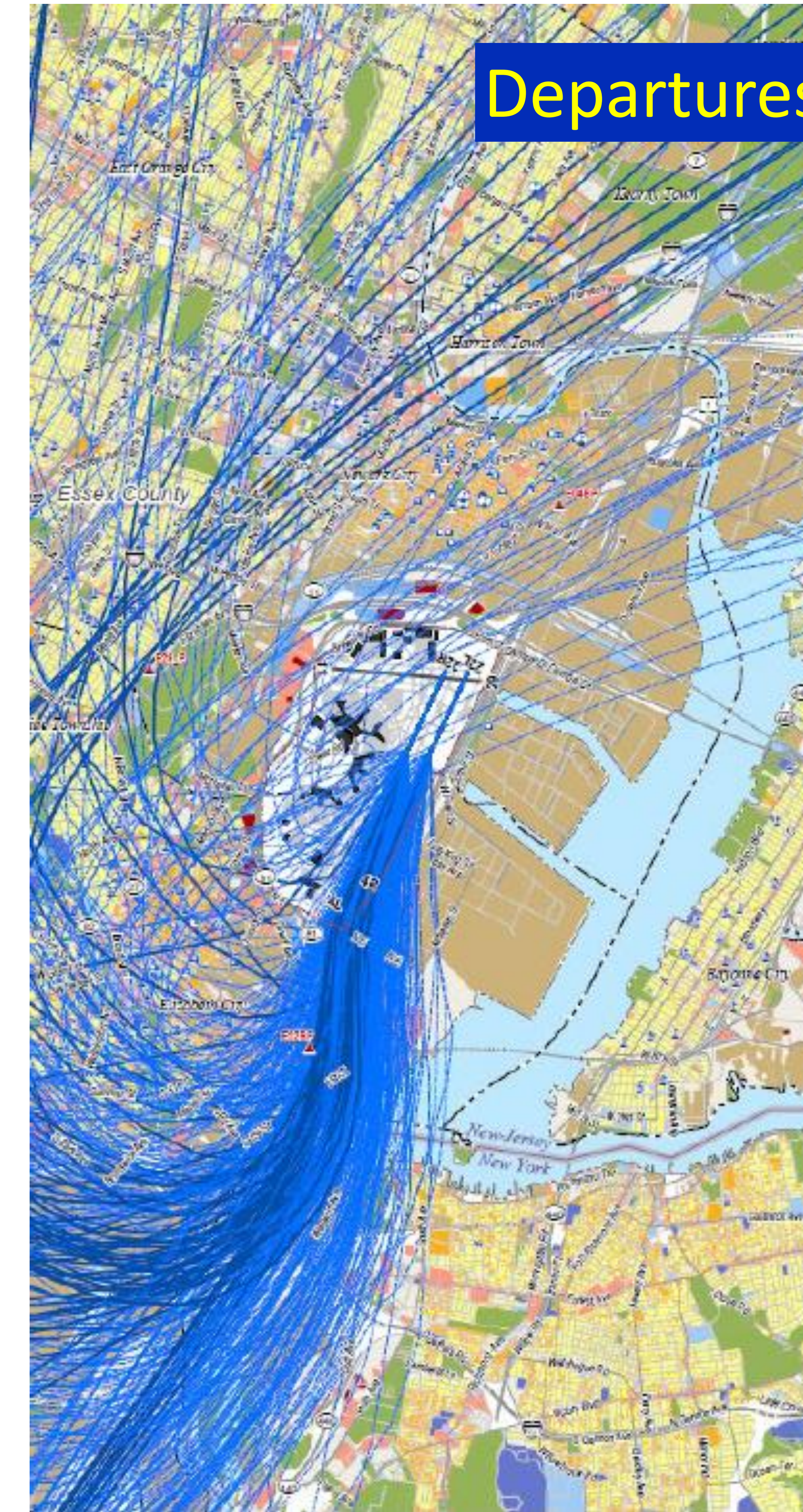
- NA-7: Minimize intersection departures
- NA-9: Optimized profile descent procedures
- NA-10: Unlimited climb procedures
- NA-11 & NA-12: Follow “New Jersey Turnpike” departure procedures (2 measures)



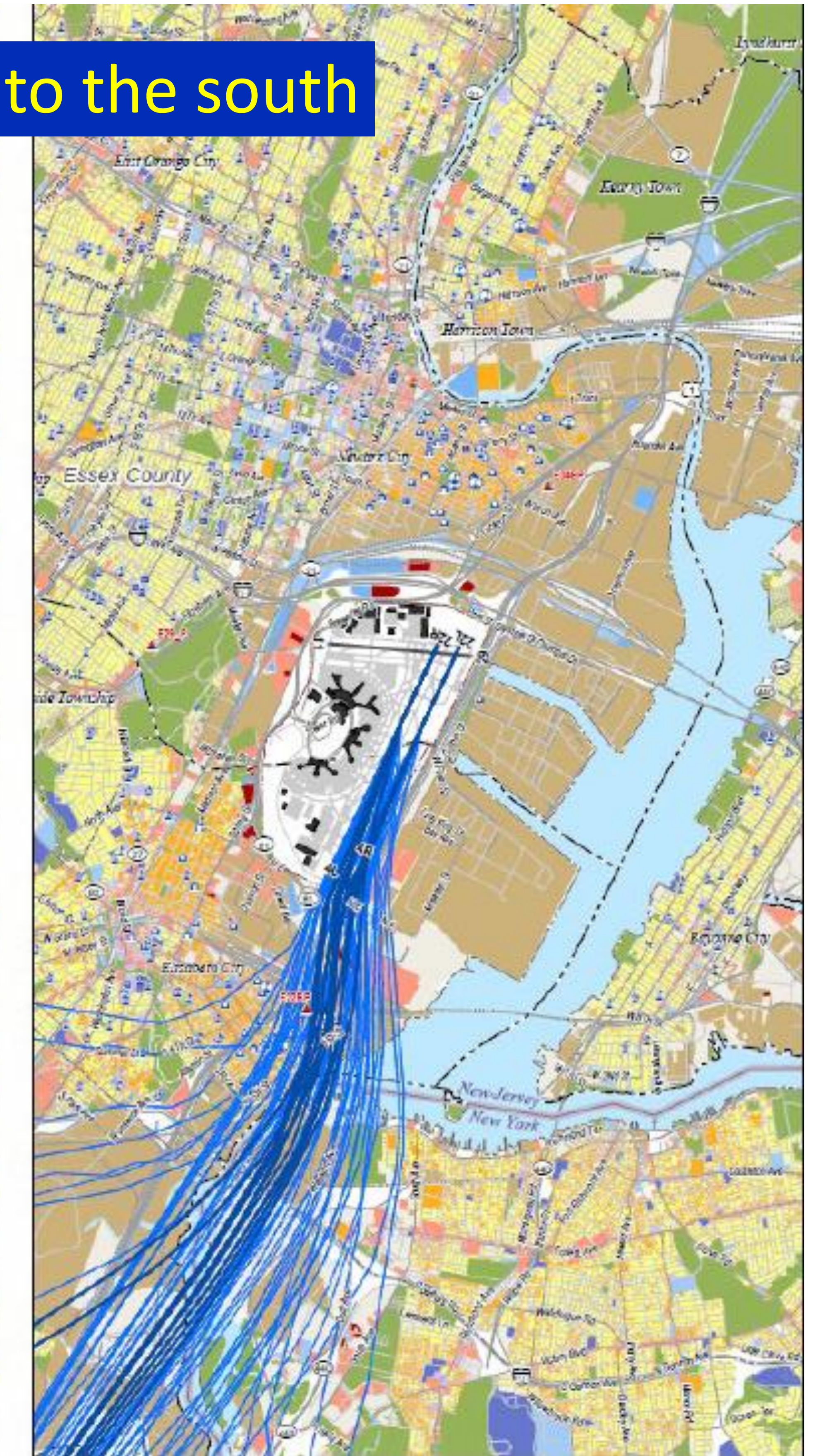
NA-11 & NA-12: Implement Nighttime “Turnpike” Departure Procedures



Departures to the north



Departures to the south



NA-13: Continue Existing Mandatory Departure Noise Limit

- Since 1959 the Port Authority has enforced the mandatory noise limit of 112 EPNdB for aircraft departing the Airport
 - This measure was implemented prior to the passage of the Airport Noise and Capacity Act of 1990 (ANCA)
 - Therefore, it is grandfathered as long as the Port Authority continues to enforce the measure

Noise Abatement Strategies Considered Not Recommended

- Increase arrival glide slope
- Turn north departures over West Hudson Park
- Develop and Implement a rotational runway use program
- Increase displaced distance on landing threshold on parallel runways
- Implement an aircraft arrival sequencing program
- Implement simultaneous arrival/departure procedures
- Add a third parallel runway
- Design, install and use end-around taxiways
- Install noise barriers
- Control the number/types of aircraft and discourage traffic increases
- Remove restricted airspace over the Atlantic Ocean
- Use de-rated thrust departure procedures

Noise Compatibility Program Development Process – Step 3

- Consider land use strategies
 - Mitigate residual noncompatible uses
 - Prevent introduction of new noncompatible uses
- Port Authority considered nine (9) land use strategies
- Port Authority is recommending three (3) measures for implementation:
 - Two (2) corrective mitigation measures
 - One (1) preventive mitigation measures

LU-1 & LU-2: Sound Insulate Eligible Structures (2 measures)

- Provide sound insulation treatment to:
 - Eligible dwelling units
 - Eligible non-residential noise-sensitive structures
- Sound insulation treatments include:
 - Windows
 - Doors
 - Caulking
 - Weather stripping
 - Positive ventilation

Depending on availability of program funding and construction schedules, LU-1 and LU-2 may take many years to complete

An aviation easement (or right of overflight in the airspace above a particular property) will be required

Eligibility for Sound Insulation Treatments

- Parcel within the 65 DNL contour
- Structure constructed prior to January 15, 2019
- Adherence to local building codes



Residential Structures

- Average noise level in habitable rooms at or above 45 DNL

Non-Residential Noise-Sensitive Structures

- Average noise level in habitable rooms at or above 45 dB based on the hours of use

Note: If the average interior noise level is less than 45 dB, the structure may be eligible to receive positive ventilation

LU-3: Assistance with Establishing Airport Noise Overlay Zones

- Airport overlay zones are intended to prevent noncompatible land uses from being developed near the Airport
 - Neither Port Authority nor FAA have control over land uses
- Port Authority could support the local jurisdictions' desire to establish an airport noise overlay zone
- Local land use jurisdictions that expressed interest include:
 - New Jersey Sports and Exposition Authority
 - Union County
 - City of Elizabeth
 - Town of Harrison
 - City of Newark
 - Essex County
 - City of Linden

The Port Authority will respond promptly to any requests by jurisdictions for assistance in evaluating potential preventive land use measures

Land Use Strategies Considered Not Recommended

- Acquire aviation easements
- Implement cooperative land use agreements
- Raise minimum building standards
- Implement rezoning of land uses
- Include airport aircraft noise real estate disclosures
- Acquire noncompatible residential parcels

Noise Compatibility Program Development Process – Step 4

- Consider program management strategies
 - Implement and promote measures
 - Monitor and report on effectiveness
 - Update NEMs and revise NCP as appropriate
- Port Authority considered 12 program management strategies
- Port Authority is recommending all 12 measures for implementation

Program Management Measures Recommended – Existing

- PM-1: Maintain Noise Office
- PM-2: Maintain Noise and Operations Management System (NOMS)
- PM-3: Maintain public flight tracking portal
- PM-4: Maintain noise complaint management system
- PM-5: Maintain Noise Office website
- PM-6: Continue community outreach activities

Program Management Measures Recommended - New

- PM-7: Establish a community planners forum
- PM-8: Establish a Fly Quiet Program
- PM-9: Make aircraft noise contours available in geographic information system (GIS)
- PM-10: Update the Noise Exposure Map
- PM-11: Update the Noise Compatibility Program
- PM-12: Coordinate with the FAA on development and implementation of NextGen procedures

Airport Noise Compatibility Planning Consultation, Engagement and Outreach

- Port Authority:
 - Consulted with
 - All local, state, and federal entities with land use control within DNL 65+ dB
 - FAA regional officials
 - Regular aeronautical users of the airport
 - All interested parties in review of and comment on draft items
 - Engaged with the Technical Advisory Committee at 14 meetings
 - Reached out to the public with four workshops and hearing on the recommended Noise Compatibility Program

Measure Initiation Plan

Measures to be Initiated within One Year of FAA Record of Approval*

EWR Noise Abatement Measure 1: Design and Implement an Offset Approach Procedure to Runway 22L
EWR Noise Abatement Measure 4/5: Determine and Implement Optimal Easterly Departure Headings
EWR Noise Abatement Measure 6: Encourage Use of FAA-prescribed Distant Noise Abatement Departure Profile Procedures on a Voluntary Basis
EWR Noise Abatement Measure 7: Minimize Nighttime Intersection Departures
EWR Noise Abatement Measure 8: Implement a Nighttime Preferential Runway Use Program
EWR Noise Abatement Measure 9: Implement Nighttime Optimized Profile Descent Procedures
EWR Noise Abatement Measure 10: Implement Nighttime Unlimited Climb Procedures
EWR Noise Abatement Measure 11/12: Implement Nighttime “New Jersey Turnpike” Departure Procedures
EWR Land Use Measure 3: Port Authority Assistance with Establishing an Airport Overlay Zone
EWR Program Management Measure 7: Establish a Community Planners Forum
EWR Program Management Measure 8: Establish a Fly Quiet Program

Measures without Identified Timeline & Schedule Dependent Upon External Factors/Pandemic Recovery

EWR Land Use Measure 1: Sound Insulate Eligible Dwelling Units
EWR Land Use Measure 2: Sound Insulate Eligible Non-Residential Noise-Sensitive Structures
EWR Program Management Measure 10: Update the Noise Exposure Map
EWR Program Management Measure 11: Update the Noise Compatibility Program

** Date is tentative and subject to change*

Next Steps

- Comments collected through October 15, 2021
- Final Noise Compatibility Program Report
 - Will include public comments and responses
 - Submission to FAA – Early 2022*
- FAA will have 180 days to review
- FAA will issue Record of Approval
- Port Authority will release the Final Noise Compatibility Program Report

** Date is tentative and subject to change*