ILM

Wilmington International Airport

14 CFR Part 150 Noise Compatibility Study

Agenda

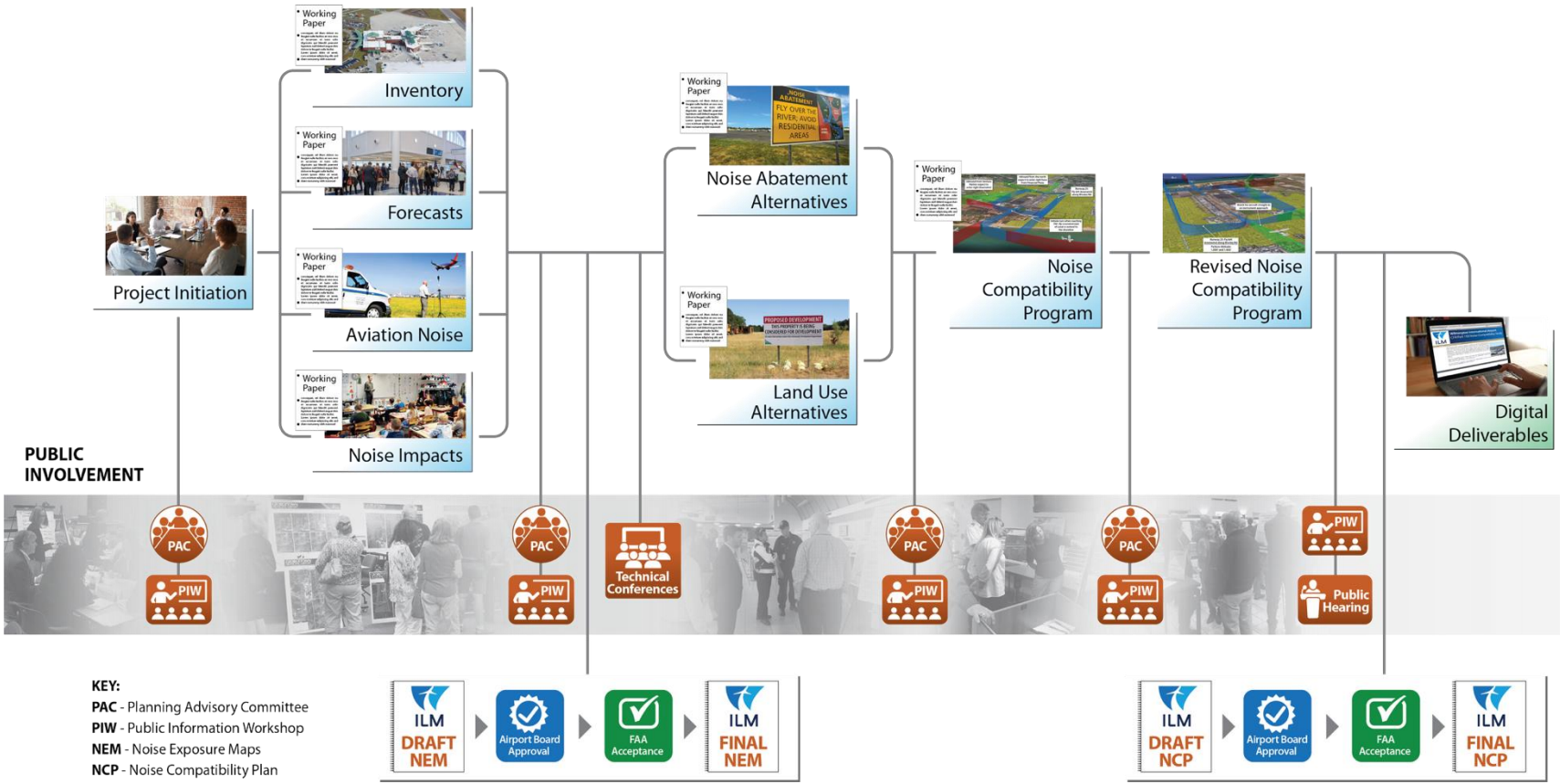
1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. Study Process
   - Kory Lewis, Coffman Associates
3. Chapter 1 & 2 Review
   - Madeline Holliman, Coffman Associates
4. Chapter 3: Aviation Noise
   - Madeline Holliman, Coffman Associates
5. Chapter 4: Noise Impacts
   - Kory Lewis, Coffman Associates
6. Next Steps
   - Kory Lewis, Coffman Associates
7. PAC Members Discussion
   - Sarah Ferrara, Compass Rose Communications

Welcome and Introductions

Agenda

1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. **Study Process**
   - **Kory Lewis, Coffman Associates**
3. Chapter 1 & 2 Review
   - Madeline Holliman, Coffman Associates
4. Chapter 3: Aviation Noise
   - Madeline Holliman, Coffman Associates
5. Chapter 4: Noise Impacts
   - Kory Lewis, Coffman Associates
6. Next Steps
   - Kory Lewis, Coffman Associates
7. PAC Members Discussion
   - Sarah Ferrara, Compass Rose Communications

Study Process



What is a Part 150 Study?

A Part 150 Study:

- Identifies the current and projected annualized aircraft noise levels at ILM using the Day Night Average Sound Level (DNL) noise metric.
- Identifies measures to reduce the noise impacts within the noise exposure contours from aircraft operating to and from Airport through changes in aircraft operations or airport facilities.
- Encourages future land uses which are compatible with aircraft noise, such as commercial or industrial in undeveloped areas.
- Determines methods to reduce the adverse impacts of noise above FAA thresholds in existing residential areas.
- Establishes a procedure to implement, review, and update the program.

A Part 150 Study does not:

- Evaluate aircraft operations from other area airports.
- Consider other types of impacts (air quality, accidents, etc.).
- Use noise metrics other than DNL to determine noise impacts.
- Provide justification for airport expansion.

Priorities of the Current Phase

Develop existing & future noise contours based on 14 CFR Part 150/FAA Guidelines

- Using FAA developed and required software, Aviation Environmental Design Tool (AEDT)
- Inputs are the approved forecast fleet mix, time-of-day, radar tracks, and runway use data

Overlay AEDT contours on land use mapping to quantify impacts

- Land use mapping depicts noise-sensitive properties
- Includes residences, schools, hospitals, and places of worship
- Exposure to 65+ DNL is considered significant according to FAA threshold

Next Phase: Evaluate alternatives to mitigate impacts

- Technical Advisory Committees will weigh-in on feasibility of alternatives
- Results will be presented in Chapters 5 & 6
- Final recommendations will be included the Noise Compatibility Program (Chapter 7)
- Next PAC meeting to be held in Spring 2026

Agenda

1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. Study Process
   - Kory Lewis, Coffman Associates
3. **Chapter 1 & 2 Review**
   - **Madeline Holliman, Coffman Associates**
4. Chapter 3: Aviation Noise
   - Madeline Holliman, Coffman Associates
5. Chapter 4: Noise Impacts
   - Kory Lewis, Coffman Associates
6. Next Steps
   - Kory Lewis, Coffman Associates
7. PAC Members Discussion
   - Sarah Ferrara, Compass Rose Communications

Chapter 1 — Inventory

- Federal Government
- State and Local
- Local Land Use Policies and Regulations
- Airport Facility Inventory

Roles and Responsibilities

- Pilots
  - Responsible for safe operation of aircraft in the air and on the ground
- FAA
  - Establishes airspace – where aircraft may be flown
  - Sets aircraft noise standards
  - Certifies aircraft and pilots
  - No off-airport land use authority
  - Establishes the Part 150 land use compatibility planning process
- Wilmington International Airport
  - No control over aircraft in flight
  - May establish run-up times, voluntary noise abatement procedures
  - Responsible for maintaining a safe airport
  - Must comply with FAA Grant Assurances
- New Hanover County and City of Wilmington
  - Promote compatible land use through zoning
  - Set noise ordinances, but aircraft are exempt per City of Burbank v. Lockheed Air Terminal (411 U.S. 624 (1973))

Chapter 2 — Forecasts

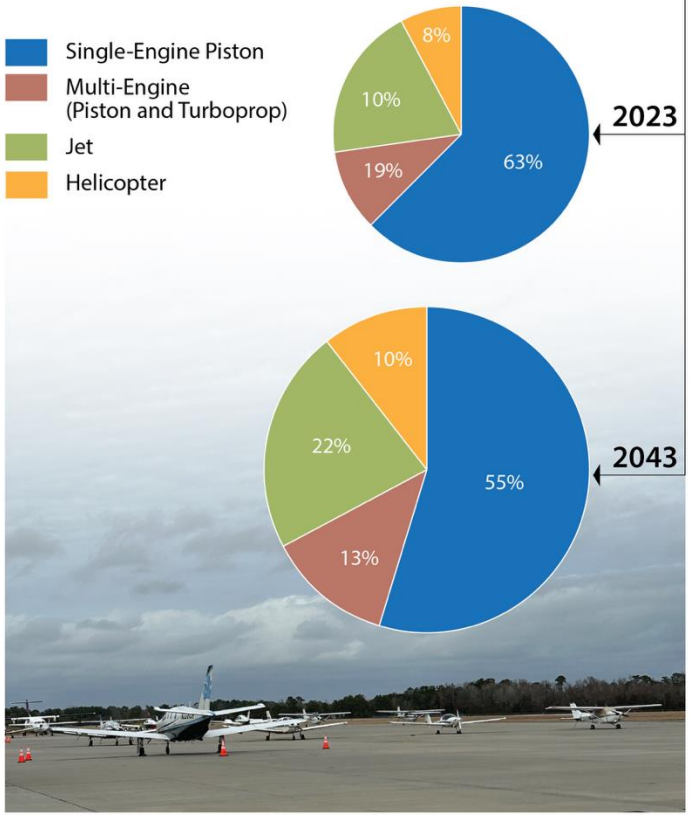
- National Aviation Trends
- Core Socioeconomic Forecast
- Commercial Service Forecast
- Enplanement Forecast
- Airline Operations Forecast
- Air Cargo Forecast
- Other Commercial Operations Forecast

Exhibit 2J: Forecast Summary

Approved by the FAA in September 2024

	BASE	FORECAST		
	2023	2028	2033	2043
OPERATIONS				
Itinerant				
Airline	17,800	19,600	20,400	21,800
Air Cargo	960	900	900	900
Other Air Taxi	6,669	7,700	8,500	10,400
General Aviation	33,113	37,000	38,400	41,800
Military	5,968	6,110	6,110	6,110
Subtotal	**64,510**	**71,310**	**74,310**	**81,010**
Local				
General Aviation	20,074	23,400	26,600	33,200
Military	3,078	3,129	3,129	3,129
Subtotal	**23,152**	**26,529**	**29,729**	**36,329**
Total Operations	**87,662**	**97,839**	**104,039**	**117,339**
PEAKING				
Peak Month	8,312	9,277	9,865	11,126
Busy Day	373	417	443	501
Design Day	273	305	324	366
Design Hour	14	15	16	18
Peak Hour	33	36	39	44
BASED AIRCRAFT				
Single-Engine Piston	74	82	87	104
Multi-Engine (Piston and Turboprop)	12	15	17	24
Jet	23	26	31	42
Helicopter	9	11	14	20
Total Based Aircraft	**118**	**133**	**149**	**189**

Based Aircraft Fleet Mix



Agenda

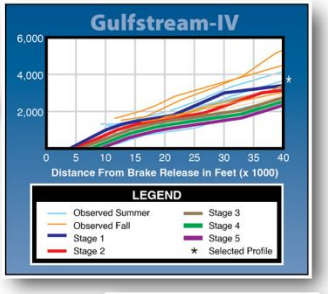
1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. Study Process
   - Kory Lewis, Coffman Associates
3. Chapter 1 & 2 Review
   - Madeline Holliman, Coffman Associates
4. **Chapter 3: Aviation Noise**
   - **Madeline Holliman, Coffman Associates**
5. Chapter 4: Noise Impacts
   - Kory Lewis, Coffman Associates
6. Next Steps
   - Kory Lewis, Coffman Associates
7. PAC Members Discussion
   - Sarah Ferrara, Compass Rose Communications

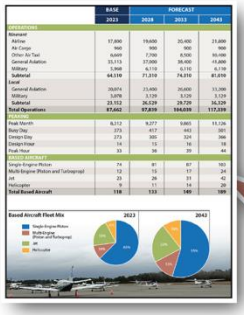
AEDT Process

Flight Tracks

Time of Day

Profile Analysis





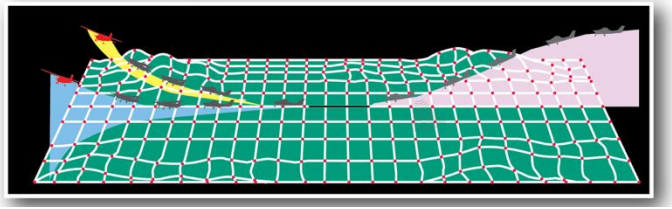
Existing & Forecast
Operations/Fleet Mix

Terrain Data

AVIATION ENVIRONMENTAL DESIGN TOOL (AEDT)

Noise Contours

Grid Point Analysis



Fleet Mix

TABLE 3C | ILM Operational Fleet Mix

Aircraft Type[1]	AEDT Designator[2]	2023 Operations[3]	2028 Operations[3]
Itinerant Operations			
Single-Engine Piston, Fixed	GASEPF	15,653	17,490
Single-Engine Piston, Variable	GASEPV	15,653	17,490
Multi-Engine Piston	BEC58P	1,330	1,487
Turboprop	DHC8	608	571
Turboprop	CNA208	352	329
Turboprop	Pilatus PC-12	327	378
Turboprop	DHC6	1,219	1,407
Turbojet, Medium	CNA525C	1,225	1,414
Turbojet, Medium	CNA55B	990	1,143
Military, Turbojet	AV8B	191	0
Military, Turbojet	F-18	191	0
Military, Turbojet	F-35	381	781
Military, Turbojet	CNA560E	328	336
Military, Turbojet	737700	175	179
Military, Turbojet	737800	2,088	2,138
Total Itinerant Operations		***64,510***	***71,310***
Local Operations			
Single-Engine Piston, Fixed	GASEPF	9,537	11,115
Single-Engine Piston, Variable	GASEPV	9,537	11,115
Multi-Engine Piston	BEC58P	1,000	1,170
Military, Turboprop	C130E	3,078	3,129
Total Local Operations		***23,152***	***26,529***
TOTAL OPERATIONS		**87,662**	**97,839**

GA = General Aviation

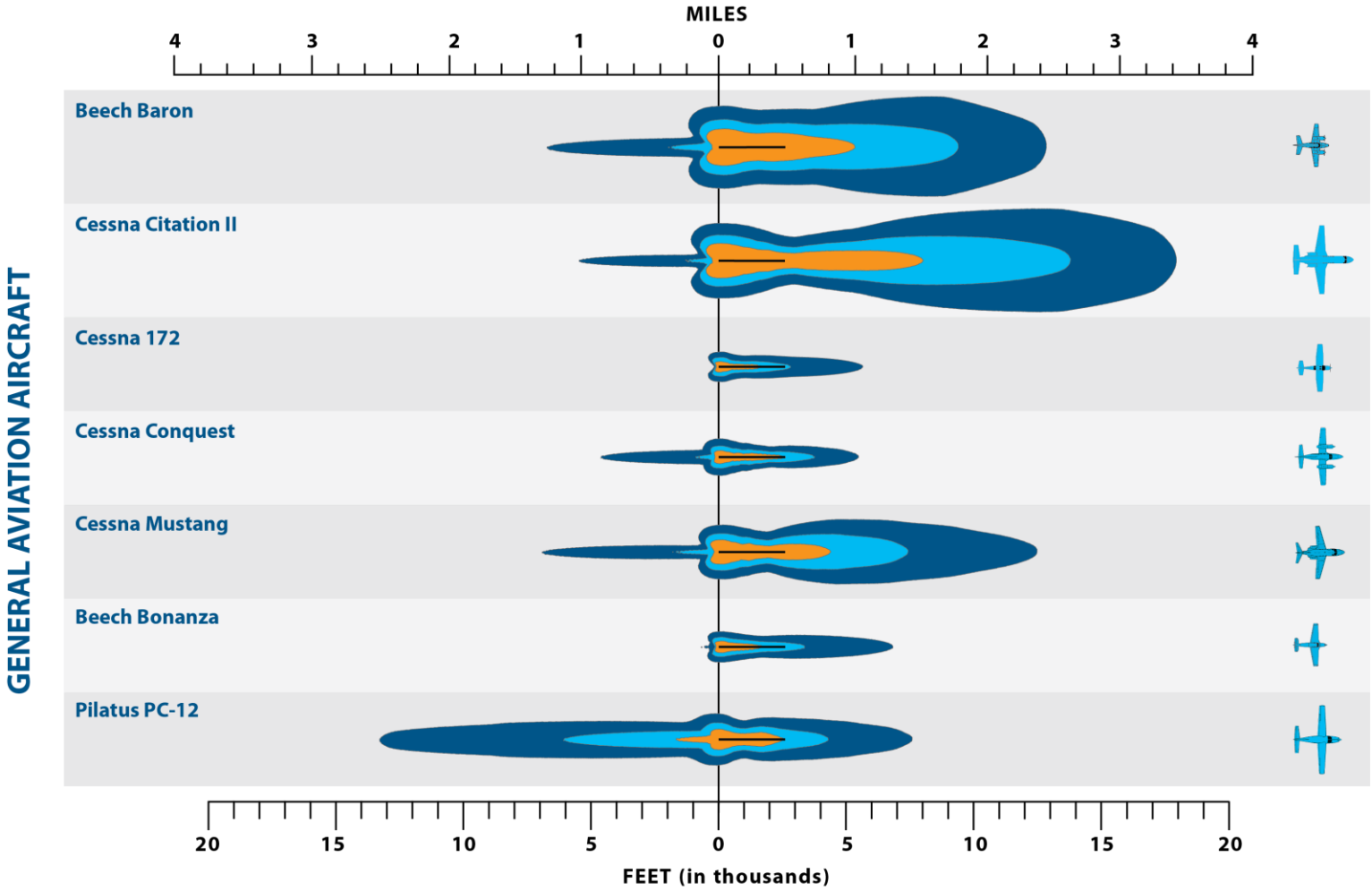
[1] Coffman Associates analysis. No user-defined aircraft or profiles requiring FAA approval were used in the AEDT modeling.

[2] FAA Traffic Flow Management System Counts, Wilmington International Airport, January through December 2023; Automatic Dependent Surveillance-Broadcast data collected from February through December 2023.

[3] The FAA approved the forecast contained in Chapter 2 – Forecasts, which was prepared as part of this study. (See **Appendix E**.)

TABLE 3C | ILM Operational Fleet Mix

Aircraft Type[1]	AEDT Designator[2]	2023 Operations[3]	2028 Operations[3]
Itinerant Operations			
Single-Engine Piston, Fixed	GASEPF	15,653	17,490
Single-Engine Piston, Variable	GASEPV	15,653	17,490
Multi-Engine Piston	BEC58P	1,330	1,487
Turboprop	DHC8	608	571
Turboprop	CNA208	352	329
Turboprop	Pilatus PC-12	327	378
Turboprop	DHC6	1,219	1,407
Turbojet, Medium	CNA525C	1,225	1,414



The contours represent sound exposure levels (SEL) of 85, 90 and 95 dB for one arrival and one departure of each aircraft type.
The outer contour represents 85 dB SEL. The inner contour represents 95 dB SEL.

Runway Use

TABLE 3E | ILM Runway Use Percentages

ARRIVALS			
Runway 6	**Runway 24**	**Runway 17**	**Runway 35**
29.16%	39.57%	15.31%	15.95%
DEPARTURES			
Runway 6	**Runway 24**	**Runway 17**	**Runway 35**
31.27%	38.85%	13.60%	16.28%

Sources: 1200.aero ADS-B data; Coffman Associates analysis

Time of Day

TABLE 3D | ILM Time-of-Day Operations Percentages

	2023		2028	
Aircraft Category and Type	**Day %**	**Night %**	**Day %**	**Night %**
Turbojet (Airlines) B757-300; B767-300; A330 (200+ seats)	77.2	22.8	77.2	22.8
Turbojet (Airlines) B737-800; B757-200; A321 (177-179 seats)	98.6	1.4	98.6	1.4
Turbojet (Airlines) B737-800; A320 (155-174 seats)	88.2	11.8	88.2	11.8
Turbojet (Airlines) B737-700; A320 (135-154 seats)	86.3	13.7	86.3	13.7
Turbojet (Airlines) B737-700; A319 (115-134 seats)	99.3	0.7	99.3	0.7
Turbojet (Airlines) B717-200; A220: ERJ 190 (95-114 seats)	72.6	27.4	72.6	27.4
Turbojet (Airlines) Q400; ERJ 190-E2 (80-94 seats)	80.3	19.7	80.3	19.7
Turbojet (Airlines) CRJ 900; ERJ 175 (70-79 seats)	99.0	1.0	99.0	1.0
Turbojet (Airlines) CRJ 700; ERJ 170 (60-69 seats)	77.2	22.8	77.2	22.8
Turbojet (Airlines) CRJ 200; ERJ 140,145 (40-59 seats)	98.6	1.4	98.6	1.4
Turboprop	94.6	5.4	94.6	5.4
Piston	96.1	3.9	96.1	3.9
Helicopter	96.1	3.9	96.1	3.9
Military	97.7	2.3	97.7	2.3

Note: Night = 10:00 p.m. to 7:00 a.m.

Sources: ADS-B Data (2023); Coffman Associates analysis

Flight Tracks – Fixed Wing

TABLE 3F | ILM Flight Track Use Percentages by Aircraft Category and Type

AIRCRAFT CATEGORY AND TYPE	DEPARTURES							
	RUNWAY 6		RUNWAY 24		RUNWAY 17		RUNWAY 35	
	Track	%	Track	%	Track	%	Track	%
Turbojet, Turboprop, Single-Engine Piston, and Multi-Engine Piston	6A	70%	24A	70%	17A	60%	35A	70%
	6B	5%	24B	5%	17B	10%	35B	10%
	6C	5%	24C	5%	17C	10%	35C	10%
	6D	5%	24D	5%	17D	5%	35D	5%
	6E	5%	24E	5%	17E	5%	35E	5%
	6F	5%	24F	5%	17F	5%	–	–
	6G	5%	24G	5%	17G	5%	–	–
AIRCRAFT CATEGORY AND TYPE	**ARRIVALS**							
	RUNWAY 6		RUNWAY 24		RUNWAY 17		RUNWAY 35	
	Track	%	Track	%	Track	%	Track	%
Turbojet, Turboprop, Single-Engine Piston, and Multi-Engine Piston	6A	60%	24A	70%	17A	80%	35A	70%
	6B	5%	24B	5%	17B	5%	35B	5%
	6C	5%	24C	5%	17C	5%	35C	10%
	6D	10%	24D	10%	17D	5%	35D	5%
	6E	5%	24E	10%	17E	5%	35E	5%
	6F	10%	–	–	–	–	35F	5%
	6G	5%	–	–	–	–	–	–
AIRCRAFT CATEGORY AND TYPE	**TOUCH-AND-GOS**							
	RUNWAY 6		RUNWAY 24		RUNWAY 17		RUNWAY 35	
	Track	%	Track	%	Track	%	Track	%
Single-Engine Piston and Multi-Engine Piston	6TA	100%	24TA	60%	17TA	100%	35TA	60%
	–	–	24TB	40%	–	–	35TB	40%
Turbojet, Turboprop Military	6TM	100%	24TM	100%	17TM	100%	17TM	100%
	6TM	100%	24TM	100%	17TM	100%	17TM	100%

Exhibit 3C – Arrival Tracks

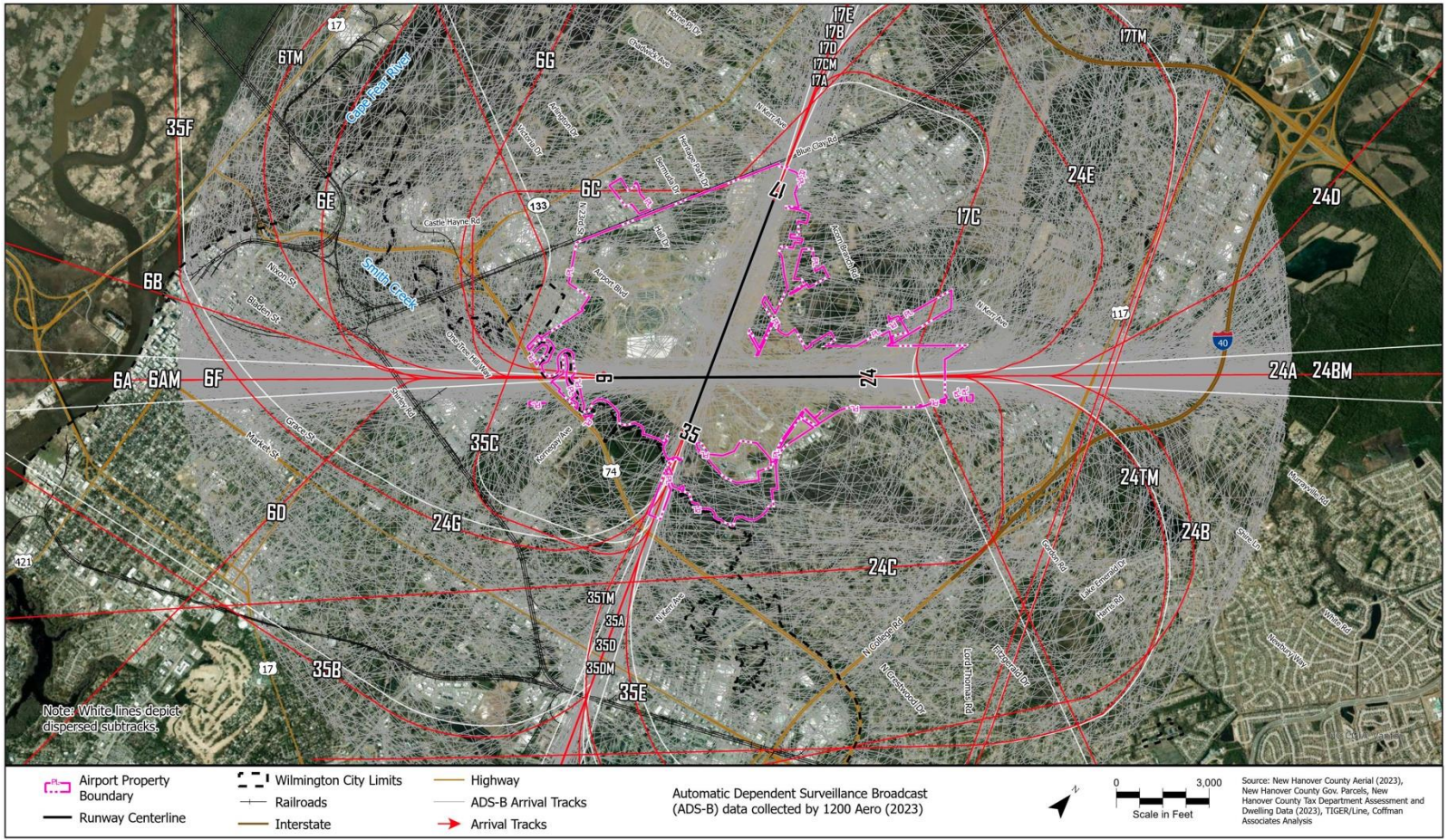


Exhibit 3D – Departure Tracks

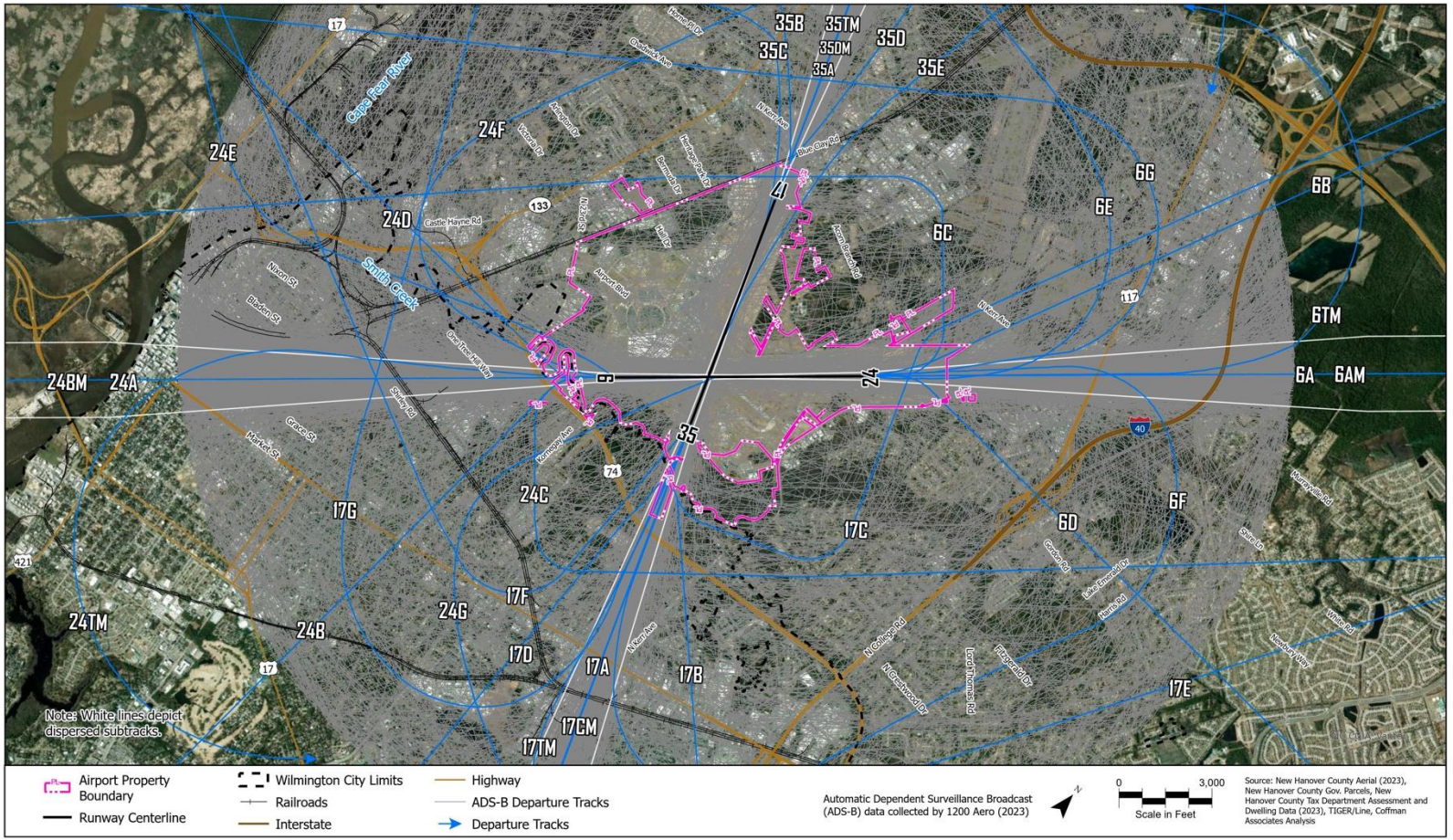
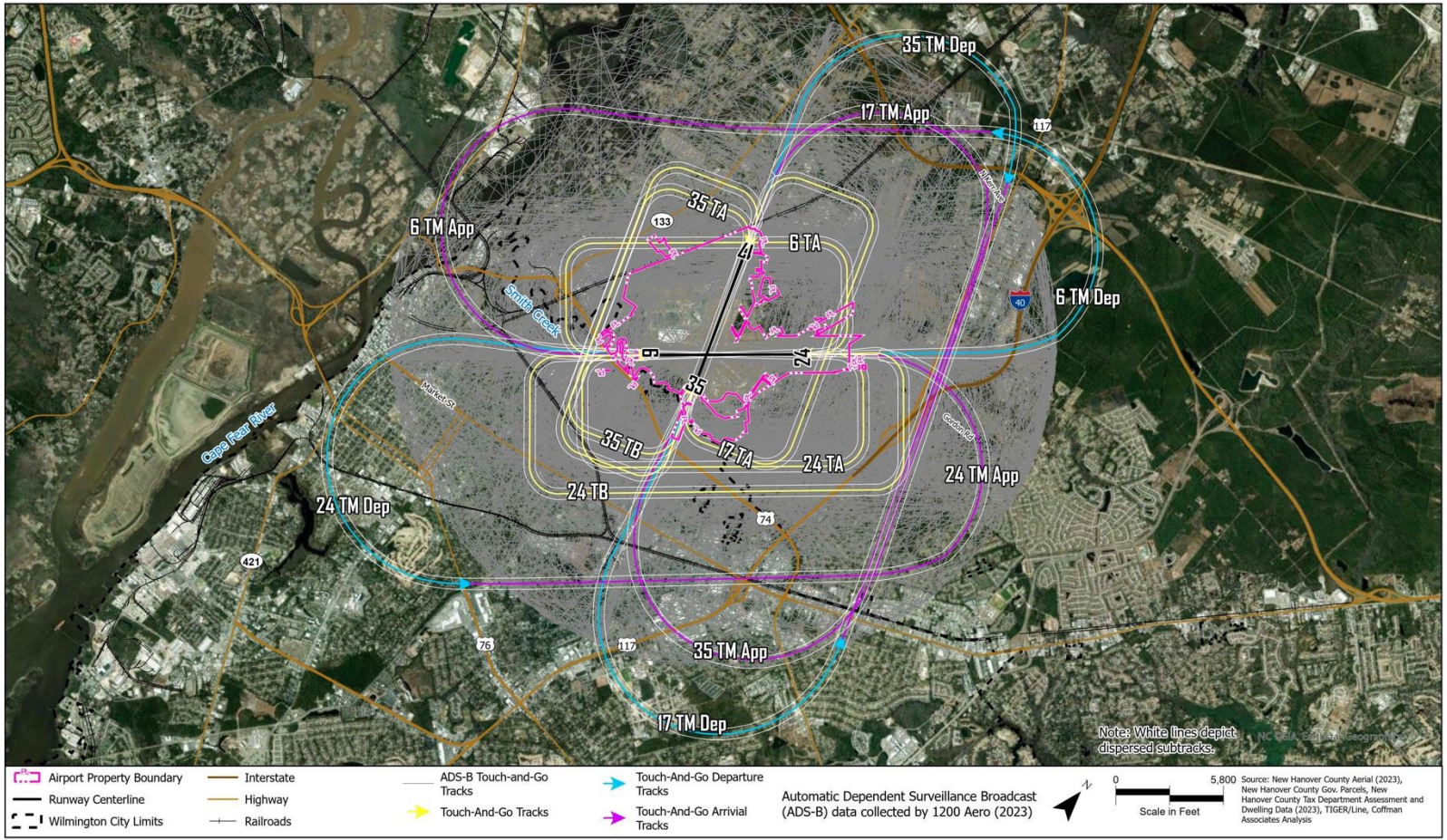


Exhibit 3E – Touch-and-Go Tracks

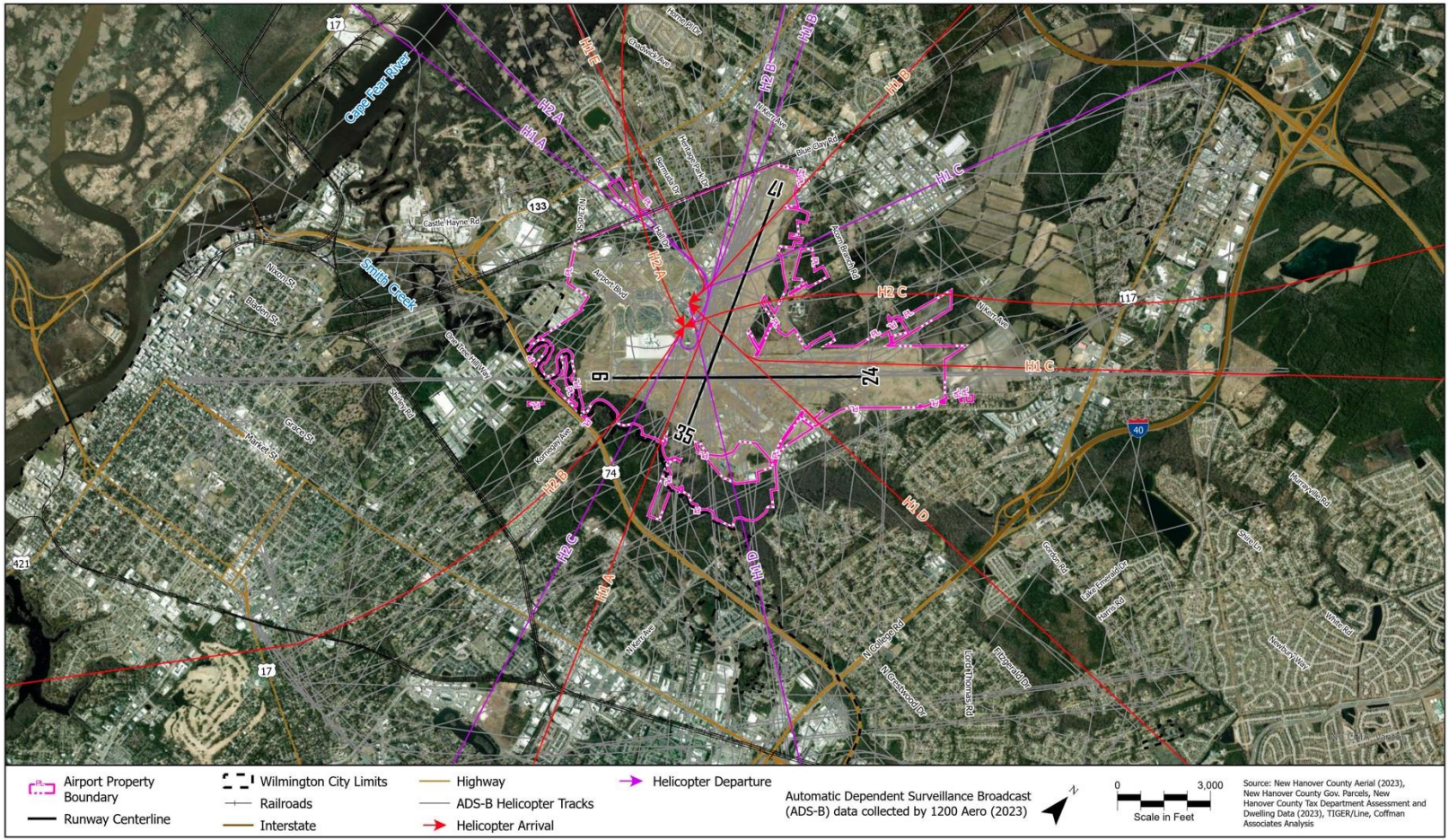


Flight Tracks – Helicopter

AIRCRAFT CATEGORY AND TYPE	ARRIVALS AND DEPARTURES					
	HELIPAD H1			HELIPAD H2		
	Track	Arrival %	Departure %	Track	Arrival %	Departure %
Helicopter	H1A	20%	25%	H2A	34%	34%
	H1B	20%	25%	H2B	33%	33%
	H1C	20%	25%	H2C	33%	33%
	H1D	20%	25%	–	–	–
	H1E	20%	–	–	–	–

Source: 1200.aero ADS-B data (February 2023–January 2024), Coffman Associates analysis

Exhibit 3F – Helicopter Tracks



NOISEMAP (NMAP) Modeling

Some aircraft in the ILM fleet mix do not have flight profiles in AEDT

- NMAP DoD model was used to model fighter jets
- NMAP and AEDT results were combined in AEDT
- See Appendix H for flight profiles and fleet mix

Based on information contained in the *Continuing Environmental Review Statement (CERS) for F-35 basing at Marine Corps Air Station Cherry Point, North Carolina*

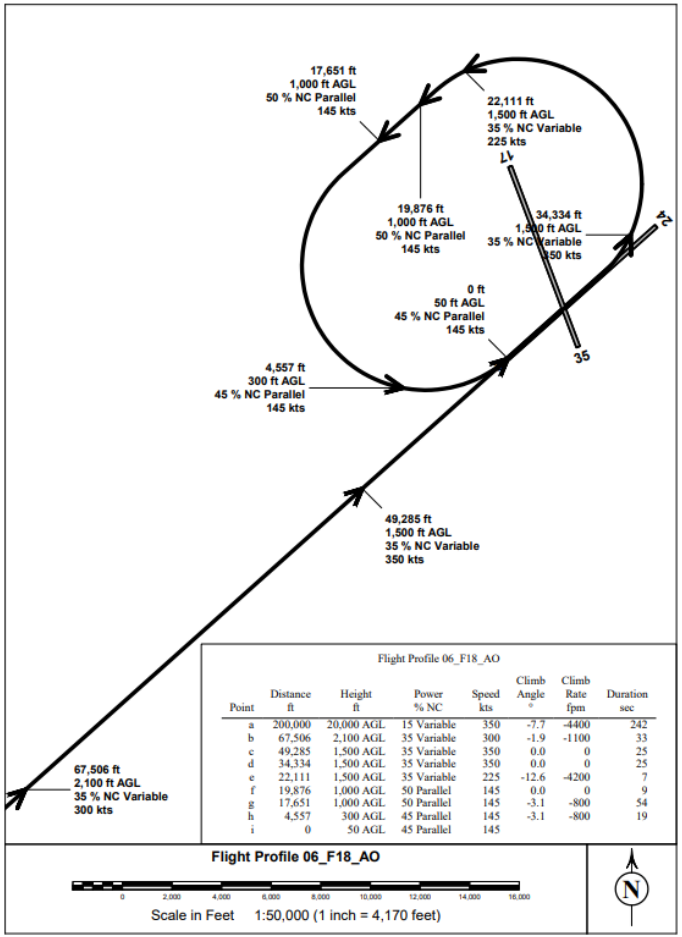
TABLE H1 | NMAP Operational Fleet Mix

Aircraft Type[1]	AEDT Designator[2]	2023 Operations[3]	2028 Operations[3]
Itinerant Operations			
Military, Turbojet	AV8B	191	0
Military, Turbojet	F-18	191	0
Military, Turbojet	F-35	381	781
Total		**763**	**781**

TABLE H2 | ILM Runway Use Percentages

ARRIVALS			
Runway 6	**Runway 24**	**Runway 17**	**Runway 35**
29.16%	39.57%	15.31%	15.95%
DEPARTURES			
Runway 6	**Runway 24**	**Runway 17**	**Runway 35**
31.27%	38.85%	13.60%	16.28%

Sources: 1200.aero ADS-B data; Coffman Associates analysis



Agenda

1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. Study Process
   - Kory Lewis, Coffman Associates
3. Chapter 1 & 2 Review
   - Madeline Holliman, Coffman Associates
4. Chapter 3: Aviation Noise
   - Madeline Holliman, Coffman Associates
5. **Chapter 4: Noise Impacts**
   - **Kory Lewis, Coffman Associates**
6. Next Steps
   - Kory Lewis, Coffman Associates
7. PAC Members Discussion
   - Sarah Ferrara, Compass Rose Communications

14 CFR Part 150 Noise Compatibility Guidelines

LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	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
Government 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	25	30	N	N
Utilities	Y	Y	Y[2]	Y[3]	Y[4]	N
Communication	Y	Y	25	30	N	N

LAND USE	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
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

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable 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.

Exhibit 3G – 2023 Noise Contours

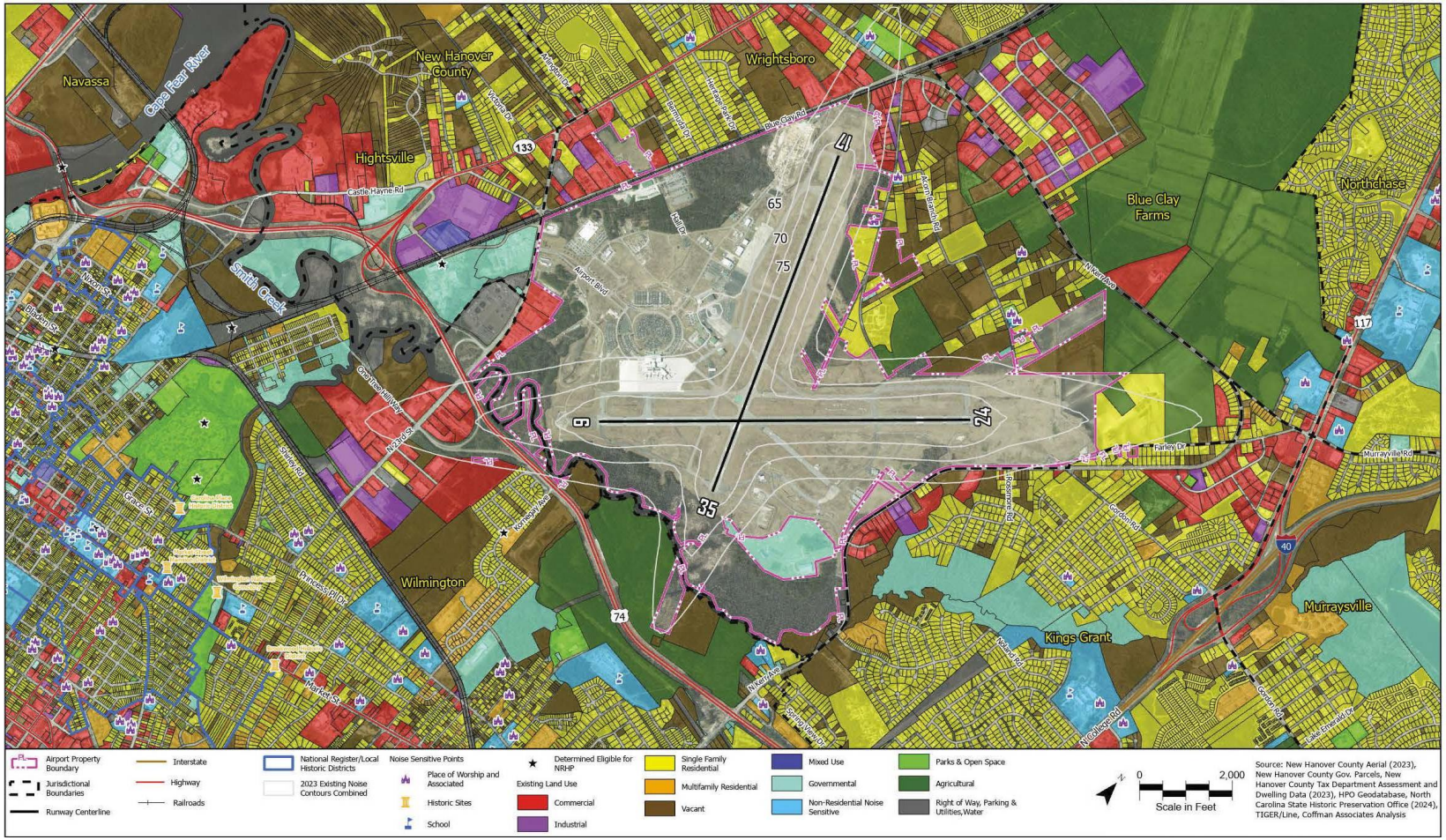


Exhibit 4B – 2023 Dwelling Units

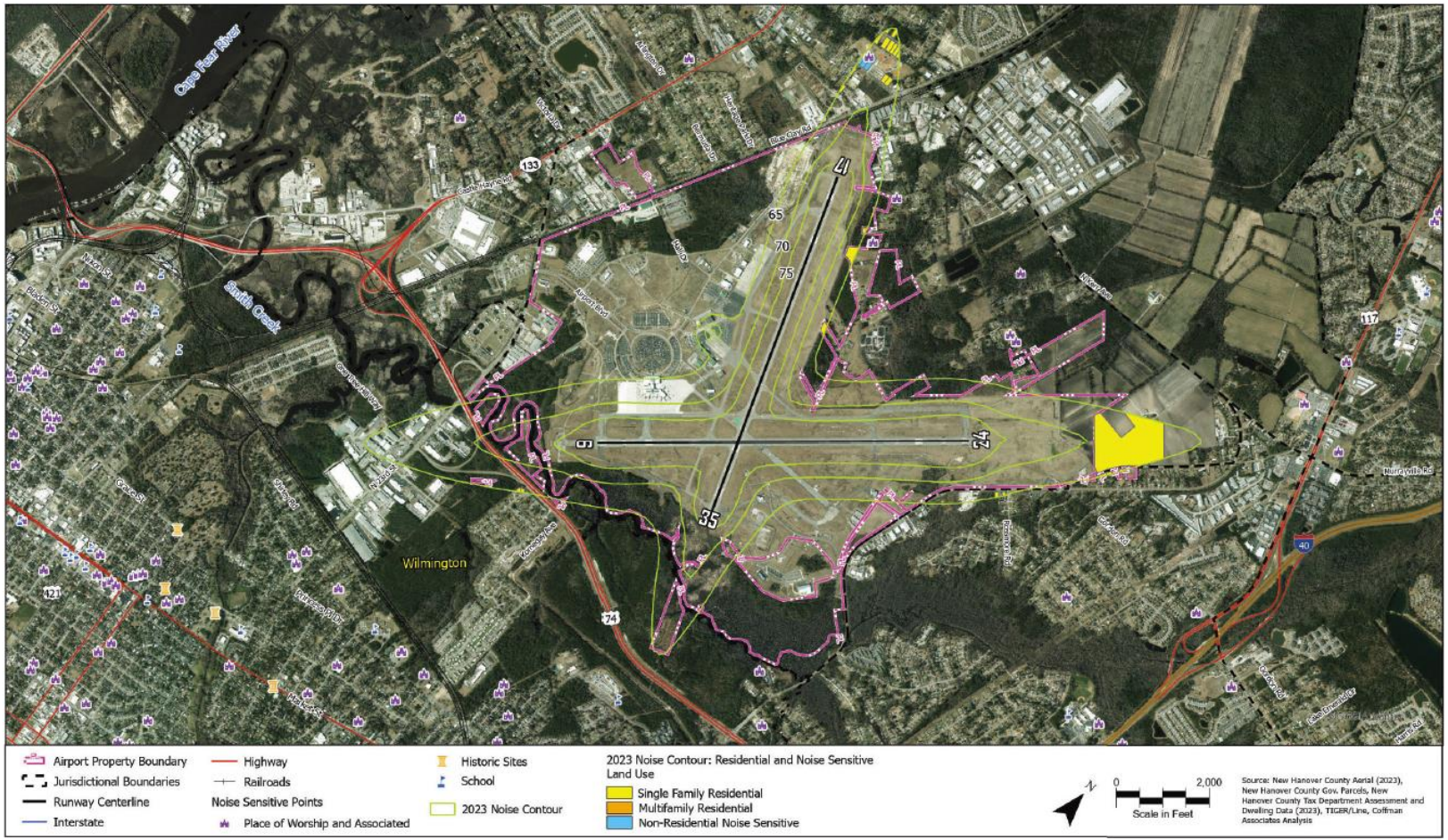


Exhibit 3H – 2028 Noise Contours

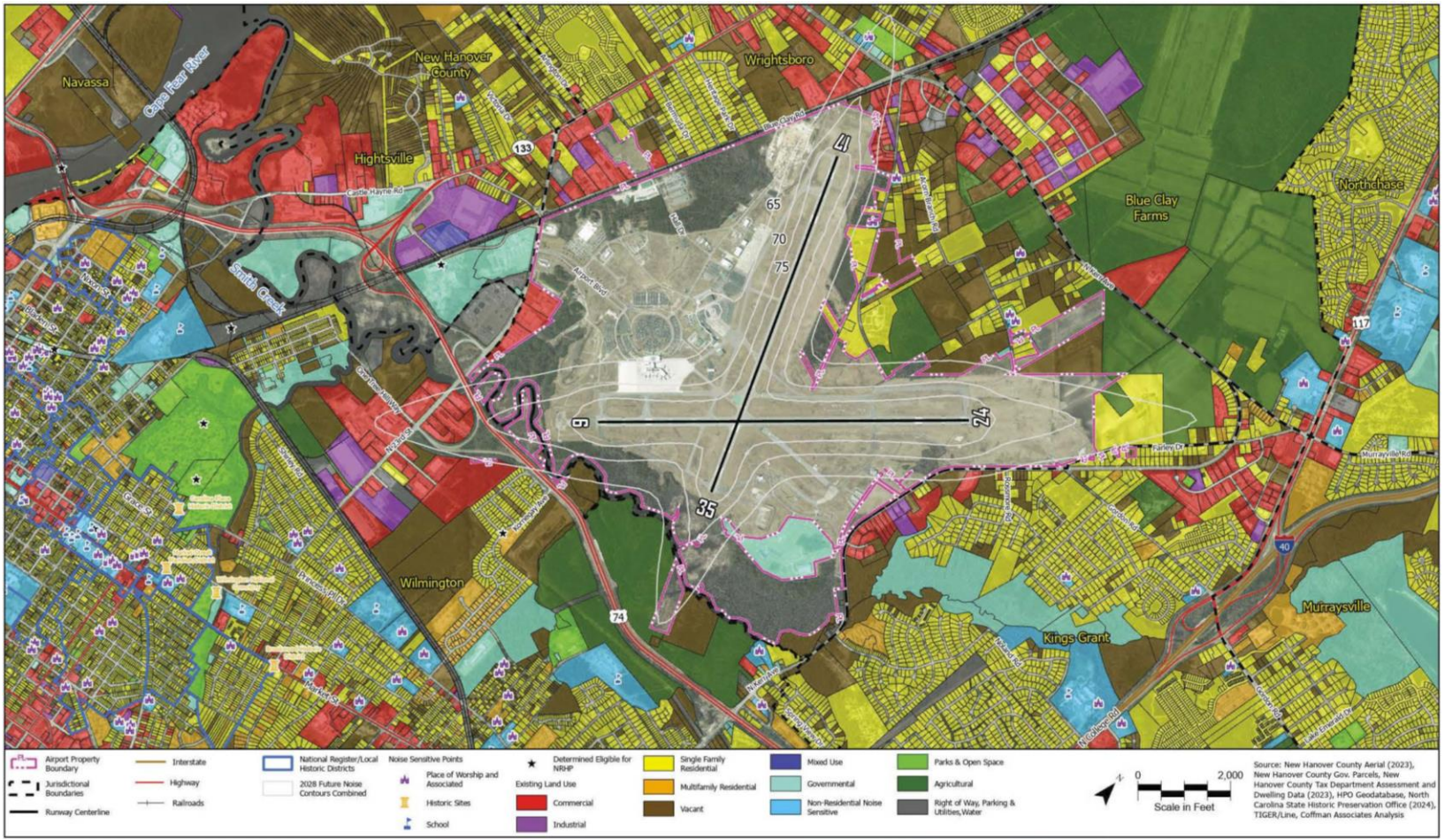
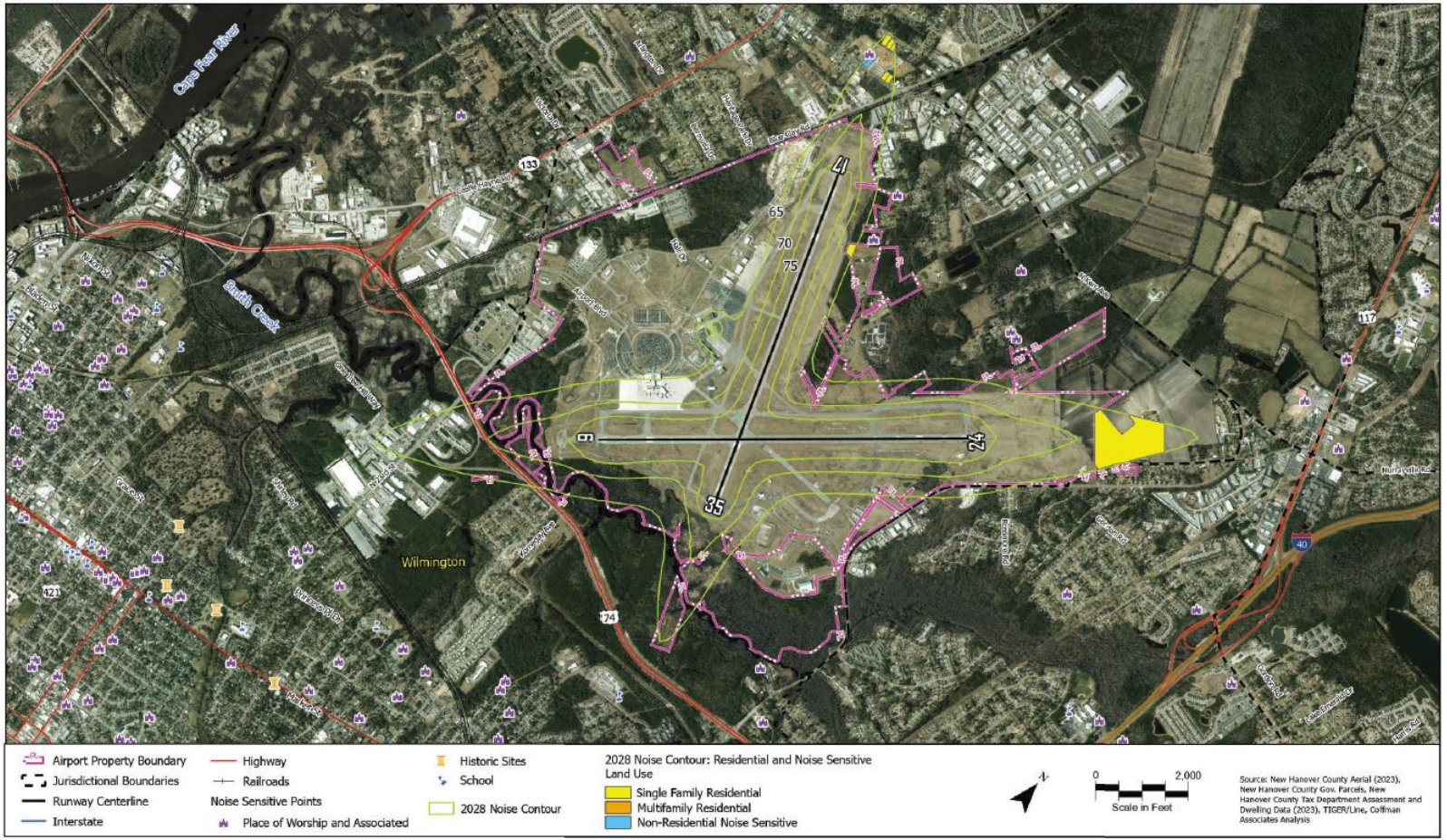


Exhibit 4C – 2028 Dwelling Units



Summary of Noise Impacts

TABLE 4J | ILM Noise-Sensitive Land Use Impact Summary

	65-70 DNL	70-75 DNL	75+ DNL
Noise-Sensitive Parcels/Dwelling Units (d.u.)			
Existing (2023)	46.96 acres/14 d.u.	–	–
Future (2028)	37.14 acres/2 d.u.	–	–
Estimated Population			
Existing (2023)	31 people	–	–
Future (2028)	5 people	–	–
Growth Risk for Noise-Sensitive Land Uses			
Single-Family Residential	22.47 acres	0.82 acres	–
Manufactured Housing	13.81 acres	–	–
Places of Worship	22.47 acres	0.82 acres	–
Hospitals	7.49 acres	0.82 acres	–
Schools	1.17 acres	–	–

Sources: New Hanover County Tax Department (2024); Coffman Associates analysis

Agenda

1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. Study Process
   - Kory Lewis, Coffman Associates
3. Chapter 1 & 2 Review
   - Madeline Holliman, Coffman Associates
4. Chapter 3: Aviation Noise
   - Madeline Holliman, Coffman Associates
5. Chapter 4: Noise Impacts
   - Kory Lewis, Coffman Associates
6. **Next Steps**
   - **Kory Lewis, Coffman Associates**
7. PAC Members Discussion
   - Sarah Ferrara, Compass Rose Communications

Next Steps

- Submit Noise Exposure Map document to FAA for approval
- Technical Advisory Committee Meetings
- Begin Noise Compatibility Program
  - Chapter 5 – Noise Abatement Alternatives
  - Chapter 6 – Land Use Alternatives
- Next PAC Meeting in Spring 2026

Agenda

1. Welcome and Introductions
   - Jeff Bourk, Wilmington International Airport
2. Study Process
   - Kory Lewis, Coffman Associates
3. Chapter 1 & 2 Review
   - Madeline Holliman, Coffman Associates
4. Chapter 3: Aviation Noise
   - Madeline Holliman, Coffman Associates
5. Chapter 4: Noise Impacts
   - Kory Lewis, Coffman Associates
6. Next Steps
   - Kory Lewis, Coffman Associates
7. **PAC Members Discussion**
   - **Sarah Ferrara, Compass Rose Communications**

Public Involvement

ilmpart150.airportstudy.net

Thank You!