

Chapter 1

Inventory

This chapter of the Noise Exposure Map (NEM) for Wilmington International Airport (ILM) describes the roles and responsibilities of various levels of government for noise and land use compatibility planning pertaining to this study. Specifically, it delves into the Code of Federal Regulations (CFR) rules governing the Federal Aviation Administration (FAA)'s actions on noise matters are outlined in detail. Additionally, it summarizes the State of North Carolina regulations that grant authority and guidance to the county and city authorities to plan for land use beyond the airport boundaries. The specific zoning ordinances and general plan documents from each city and county with jurisdiction over the study area surrounding Wilmington International Airport are included in this discussion. To establish a baseline, the analysis incorporates existing land use and generalized maps at the appropriate scale. Airport facility and operational information are also provided in detail to establish the existing conditions and constraints at Wilmington International Airport. This background information will serve as a foundation for later chapters in the NEM analysis and will also inform any future noise compatibility program measures.

ROLES AND RESPONSIBILITIES

Federal, state, and local governments have specific roles in reducing or limiting aviation noise impacts. The following sections (Federal Government, State and Local Land Use Policies, and Local Land Use Policies and Regulations) provide overviews of each level of government's role in airport land use compatibility planning. Additional information on this topic is included in the Federal Aviation Noise Regulations section of the Resource Library in **Appendix C**.



FEDERAL GOVERNMENT

The FAA is the federal agency dedicated to civil aviation safety and tasked with providing for “the safe and efficient use of national airspace.” The FAA was created on August 23, 1958, under the *Federal Aviation Act*.

The FAA recognizes the concern that aviation noise can cause for communities; therefore, the FAA has provided support for noise reduction within its authority, including the following:

- **Implementation and Enforcement of Aircraft Operational Procedures** – Where and how aircraft are operated are under the complete authority of the FAA. This includes pilot responsibilities, compliance with air traffic control instructions, flight restrictions, monitoring compliance of aircraft operations, and addressing careless and reckless operations of aircraft.
- **Management of the Air Traffic Control System** – The FAA is responsible for the control of navigable airspace and the review of any proposed alterations in flight procedures for noise abatement.
- **Pilot Licensing** – Individuals licensed as pilots are trained under strict guidelines that concentrate on safe and courteous aircraft operating procedures. For example, the FAA Safety Team recently launched the ALC-500 course – a “Fly Neighborly” training program for helicopter operators – with the goal of educating pilots on noise-reducing solutions and effective communication with the community.¹ The course is based on a 2017 focused FAA and National Aeronautics and Space Administration (NASA) flight test program.²
- **Certification of Aircraft** – The FAA requires the reduction of aircraft noise through certification, modification of engines, or aircraft replacement as defined in Title 14 Code of Federal Regulations (14 CFR) Part 36. Additionally, 14 CFR Part 91 outlines the phaseout of aircraft that do not meet requirements under Part 36.
- **Airport Noise Compatibility Planning** – The FAA collaborates with aircraft sponsors to fund and evaluate noise compatibility planning studies and noise exposure maps in accordance with 14 CFR Part 150 regulations.
- **Research and Technology** – In addition to providing 14 CFR Part 150 funding, the FAA funds numerous research efforts to investigate the impacts of aviation noise on communities and individuals. The establishment of the ASCENT Center of Excellence and Airport Cooperative Research Program are two such initiatives. The Continuous Lower Energy, Emissions, and Noise (CLEEN) Program also drives the FAA’s partnership with the private sector to incentivize improvements in aircraft technology to reduce noise.³ On January 13, 2021, the FAA released a summary of its research programs to the public in Federal Register Volume 86, Number 8. In February 2021, the FAA released a final report of its Neighborhood Environmental Survey (NES), a detailed analysis of over 10,000 survey responses from individual neighborhoods surrounding a sample of 20 commercial service airports across the country to create a dose-response curve of annoyance in response to aircraft noise exposure.⁴

¹ FAA Course Catalog, January 2023 (https://www.faa.gov/gslac/ALC/course_catalog.aspx)

² Page, J. A., Rapoza, A.S., and Jacobs, E. W., 2021 In Situ Development and Application of Fly Neighborly Noise Abatement Procedures for Helicopters (<https://www.volpe.dot.gov>)

³ FAA Noise & Research Programs, July 2022 (https://www.faa.gov/noise/research_programs)

⁴ Miller, N. P.; Czech, J.J.; Hellauer, K. M.; Nicholas, B. L.; Lohr, S.; Jodts, E.; Broene, P.; Morganstein, D.; Kali, J.; Zhu, X.; Cantor, D.; Hudnall, J.; Melia, K. DOT/FAA/TC-21/4_Analysis of NES, 2021 (<https://www.airporttech.tc.faa.gov>)

- **Community Engagement** – In addition to overseeing the community engagement requirements of each Part 150 study, the FAA engages directly with communities to address noise issues, hosts a designated FAA Noise Ombudsman at each of its nine regional offices who can be reached by community members directly, and hosts an online FAA noise portal where complaints can be submitted. The iFlyQuiet community engagement program published in 2021 is another example of this effort.⁵

The FAA collaborates with other federal agencies – such as the U.S. Department of Transportation Volpe Center and NASA – in support of these efforts, along with contributing to the Federal Interagency Committee on Noise (FICON). The federal government has also begun tracking changes in transportation noise across modalities, including road and rail. A simplified version of noise modeling is used in the National Transportation Noise Map published for 2016 and 2018 by the Volpe National Transportation Systems Center. Airport contours, vehicle traffic, and noise generated by railroad operations are all contributing factors addressed in the federal government’s multimodal transportation noise model map.⁶ Facilities with military-only operations are excluded.

Wilmington International Airport is frequently used by military aircraft for training and refueling purposes. It is important to note that the FAA does not have authority over military aircraft; however, the military does follow FAA regulations. The military will participate in this voluntary study by providing necessary information and input throughout the study process.

The specific FAA regulations related to aircraft noise are codified under several CFR titles, including the following:

14 CFR Part 36, Noise Standards: Aircraft Type and Airworthiness Certification

The FAA limits noise emitted from individual aircraft by regulations adopted under 14 CFR Part 36. Individual aircraft must be inspected and certified for airworthiness under one of four stages. Part 36 applies to small piston-driven aircraft, civil turbojet aircraft, and transport aircraft and requires new aircraft types to be markedly quieter than earlier models by limiting the noise emissions allowed by newly certified aircraft. To achieve this, Part 36 has a four-stage certification process, each with a progressively more stringent noise level threshold. These regulations only apply to civilian fixed-wing aircraft and helicopters and do not address noise generated by military aircraft or other non-stage aircraft (for example, former military aircraft, such as jet warbirds and other World War II-era aircraft). It should also be noted that Part 36 applies to aircraft certification requirements and not specific operations. Section 36.5 states that “no determination is made, under this part, that these noise levels are or should be acceptable or unacceptable for operation at, into, or out of, any airport.”

⁵ iFlyQuiet Community Engagement Guide, 2021 (<https://rotor.org/wp-content/uploads/2021/07/iFlyQuiet-Community-Engagement-Guide.pdf>)

⁶ U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Noise Map Documentation, 2020

The 1977 amendment to Part 36 introduced a three-stage classification system to provide terminology that differentiates between the original and revised standards. The stages are classified as follows:

- Stage 1: aircraft have never been shown to meet any noise standards, either because they have never been tested or because they have been tested and failed
- Stage 2: aircraft meet original noise limits, set in 1969
- Stage 3: aircraft meet more stringent limits, established in 1977

Amendments in 2005 created a fourth stage of certification. Stage 4 noise limits are a cumulative 10 effective perceived noise level (EPNdB) lower than those for Stage 3. Additionally, the FAA published a Final Rule on November 3, 2017, which created Stage 5 noise standards, resulting in the most recent amendment to 14 CFR Part 36. Stage 5 noise standards apply to new aircraft designs with a maximum certified takeoff weight of 121,254 pounds (lbs.) or more submitted on or after December 31, 2017, or with a maximum certified takeoff weight of less than 121,254 lbs. on or after December 21, 2020. As noted in the Final Rule, the change sets a lower noise limit for these aircraft and does not affect either the operation of the current U.S. fleet or new type designs submitted before the applicable compliance date for Stage 5.⁷

Federal law required the phaseout of civil subsonic jet aircraft with a maximum weight of 75,000 lbs. or less that did not comply with Stage 3 standards by December 31, 2015.⁸ Additional restrictions or phaseout dates have not been adopted for Stage 3, Stage 4, or Stage 5 aircraft.

Helicopter noise is also addressed within Part 36; however, these aircraft are only classified as Stage 1 and Stage 2. The Stage 2 certification date for helicopters was March 6, 1986. The Part 36 noise requirements for helicopters have not been reduced like they have been for fixed-wing aircraft.

Propeller-driven small aircraft (i.e., less than 12,500 lbs.) were added in a 1974 amendment to Part 36, before the establishment of the Stage 1-5 classification. These small aircraft, such as a Cessna 172 or PC 12 aircraft, are termed certified or uncertified instead of being assigned a noise stage. The noise standards for small aircraft are based on A-weighted decibel (dBA) limits for level flyovers at an altitude of 1,000 feet above ground level (AGL).

14 CFR Part 91, Subpart I, Operating Noise Limits

14 CFR Part 91, Subpart I, sets operating noise limits and regulations for civilian aircraft operations in the U.S. This section of the federal code relates back to 14 CFR Part 36, as previously discussed, and specifically applies to civil subsonic jet (turbojet) aircraft with a maximum weight of 75,000 lbs operating within the U.S. Also known as the “Fleet Noise Rule,” 14 CFR Part 91, Subpart I mandated that Stage 1 aircraft were to be retired, retrofitted with hush kits, or have their engines replaced with quieter ones by January 1, 1988.

⁷ Federal Register Vol. 82, No. 191, October 4, 2017, Pages 46123-46132 (<https://www.federalregister.gov/documents/2017/10/04/2017-21092/stage-5-airplane-noise-standards>); October 2019

⁸ 49 USC §47534, February 14, 2012

Amendments passed in 1990 established a deadline of December 31, 1999, by which Stage 2 aircraft exceeding 75,000 lbs. were required to be discontinued from service. Per § 91.858 of 14 CFR Part 91,⁹ Stage 2 aircraft over 75,000 lbs. are permitted to continue non-revenue service under the following circumstances:

- Selling, leasing, or scrapping of the aircraft;
- Modifying aircraft to comply with Stage 3, Stage 4, or Stage 5 noise levels;
- Scheduling heavy maintenance or significant modifications;
- Delivering aircraft to a lessee or returning aircraft to a seller;
- Parking or storing the aircraft;
- Preparing the aircraft for any of the above events; and
- Operating under an experimental airworthiness certificate.

A phaseout date of December 31, 2015, was established within the *FAA Modernization and Reform Act of 2012* for Stage 2 aircraft weighing less than 75,000 lbs. No additional restrictions or phaseout dates have been established for Stage 3 or Stage 4 aircraft.

Civil supersonic airplanes must comply with Stage 2 noise limits after October 13, 1977. In addition, overland supersonic flights over a speed of Mach 1 have been prohibited since 1973 under Section 91.817, *Civil Aircraft Sonic Boom*; however, due to an increased interest in development of supersonic aircraft, an amendment to § 91.817 in January 2021 streamlined and modernized the FAA's procedure for special flight authorizations.¹⁰

14 CFR Part 161, Notice and Approval of Airport Noise and Access Restrictions

The *Airport Noise and Capacity Act of 1990* (ANCA) grants the FAA preemptive authority for setting noise restrictions at airports. U.S. Congress passed the act to address noise concerns at the federal level and provide a framework for addressing noise concerns at airports nationwide. Airports may not adopt noise restrictions that limit operations of Stage 2 or Stage 3 aircraft without following the regulations imposed in 14 CFR Part 161.

14 CFR Part 150, Airport Noise Compatibility Planning

A 14 CFR Part 150 noise compatibility planning study (Part 150 study) is a voluntary process that results in the preparation of two official documents for participating airports: the noise exposure maps (NEMs) and the noise compatibility program (NCP). The NEM document is the baseline analysis for the noise conditions at the airport and includes existing and forecast noise exposure contours. The NCP is the second phase of a complete Part 150 study and provides an analysis of alternatives to reduce or eliminate airport noise impacts identified in the NEMs. See **Appendix C** for a Resource Library of Federal Aviation Noise Regulations.

⁹ 14 CFR 91, Subpart I, § 91.858, Special Flight Authorizations for Non-Revenue Stage 2 Operations, July 15, 2002; amended October 4, 2017

¹⁰ Federal Register Volume 86, Number 10 (2021), Special Flight Authorizations for Supersonic Aircraft (<https://www.federalregister.gov/documents/2021/01/15/2021-00113/special-flight-authorizations-for-supersonic-aircraft>)

Noise Exposure Maps

In addition to the baseline information included in this chapter, a Part 150 study details the existing and projected noise conditions (i.e., the NEMs), based on operational variables that will be discussed in Chapters Two and Three. The scope of the noise environment at the airport is defined as those areas outlined in the NEMs for both the existing condition and at least a five-year forecast. The noise contours are shown on the local land use map to identify areas of existing or potential incompatible land uses. The document includes supporting information explaining the methods used to develop noise exposure contours and the accompanying land use analysis.

14 CFR Part 150 outlines the methodology and noise metrics to be used in analyzing and describing airport noise. It also establishes guidelines to identify land uses that are incompatible with varying noise levels. Airport proprietors are required to update noise exposure contours when changes in the operations at the airport would create any new, substantial, incompatible use. The most widely used threshold of significance is an increase in the yearly day-night average sound level (DNL) of 1.5 decibels (dB) over incompatible land uses.¹¹

Additionally, Part 150 defines a change in the operation of an airport as an increase in the yearly DNL of 1.5 dB or greater in either a land area that was formerly compatible but is made incompatible under 14 CFR Part 150, Appendix Table 1, or in a land area that was previously determined to be incompatible under 14 CFR Part 150, Appendix Table 1, and the incompatibility of which is now significantly increased.¹²

Once the NEM document is completed and adopted locally, it is submitted to the FAA for review. The FAA's review concludes with a determination as to whether the NEMs were prepared in a manner consistent with Part 150 regulations. The NEMs produced through this study will be the first ones produced for Wilmington International Airport.

Pursuant to FAA regulations, the NEMs are subject to public review and comment. Public comments regarding this study are located in **Appendix B** and are on file with the Memphis FAA Airports District Office manager.

Noise Compatibility Program

A noise compatibility program includes an evaluation of various noise abatement and land use alternatives. The result of this planning effort can include a plan with recommendations for the abatement of aircraft noise that would reduce the noise experienced by noise-sensitive land uses within the 65 DNL. Two criteria are of particular importance when considering noise abatement recommendations: (1) No action can be taken that impose an undue burden on interstate or foreign commerce; and (2) no action can unjustly discriminate between different categories of airport users. The plan may also include recommendations for land use compatibility planning and actions to mitigate the impact of noise on incompatible land uses. Additionally, regulations state that the program should contain provisions for updates and periodic revisions.

¹¹ FAA Order 1050.1F – Environmental Impacts: Policies and Procedures

¹² 47 USC §47506

In a similar process to the NEM document review, the NCP is submitted to the FAA for evaluation. The FAA responds with a Record of Approval that states which program measures comply with Part 150 criteria. In some cases, a Part 150 study will not have qualified components due to a lack of impacts within federally prescribed noise thresholds. In these situations, measures may be recommended for adoption in an NCP to ensure future impacts do not occur. The FAA may or may not accept the recommended measures. If impacts are found within the federally prescribed noise thresholds, an airport may become eligible for funding through the federal Airport Improvement Program (AIP) to implement the qualified components of the program.

FAA policy discourages development of new incompatible land uses within the airport environs. The FAA will not approve NCP measures proposing noise mitigation actions for incompatible development that could occur in the vicinity of airports after October 1, 1998. Additionally, funding for these projects will not be available from the AIP noise set-aside fund.¹³

STATE AND LOCAL LAND USE POLICIES

Control of land use in noise impact areas around airports is a key tool in limiting the number of land uses exposed to noise. The federal government has no direct legal authority to regulate land use. This responsibility rests exclusively with state and local governments; however, as outlined in FAA Order 5190.6B, *FAA Airport Compliance Manual*, the airport sponsor's role regarding noise abatement and land use planning is:

"...to reduce the effect of noise on residents of the surrounding area. Such actions include optimal site location, improvements in airport design, noise abatement ground procedures, land acquisition, and restrictions on airport use that do not unjustly discriminate against any user, impede the federal interest in safety and management of the air navigation system, or unreasonably interfere with interstate or foreign commerce."¹⁴

Additionally, upon receipt of FAA grant funding, the airport sponsor agrees to take appropriate action, including the adoption of zoning laws, to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations, in accordance with FAA Grant Assurance 21, *Compatible Land Use*.¹⁵

The State of North Carolina legislates the authority of land use regulation to local governments. This regulation is accomplished through zoning ordinances and comprehensive plans.

¹³ FAA, Final Policy on Part 150 Approval of Noise Mitigation Measure: Effect on the Use of Federal Grants for Noise Mitigation Projects, Fed. Reg. 63, no. 64, April 3, 1998 (<https://www.govinfo.gov/content/pkg/FR-1998-04-03/pdf/98-8835.pdf>)

¹⁴ As noted in FAA Order 5190.6B, Section 13.2(2), sponsor actions are, "subject to constitutional prohibitions against creation of an undue burden on interstate and foreign commerce, and unreasonable, arbitrary, and unjust discriminatory rules that advance the local interest, other statutory requirements, and interference with exclusive federal regulatory responsibilities over safety and airspace management."

¹⁵ FAA Grant Assurances, May 2022 (https://www.faa.gov/sites/faa.gov/files/airports/new_england/airport_compliance/assurances-airport-sponsors-2022-05.pdf)

Zoning Ordinance

The State of North Carolina gives local jurisdictions, such as cities and counties, the authority to regulate the use of buildings, structures, and land through the adoption and administration of a zoning ordinance or code.¹⁶ While comprehensive plans and land use plans are intended to guide future development and land use, municipalities control land use through regulatory measures, such as zoning ordinances and development codes.

Zoning helps control development in two primary land uses: residential and non-residential. Residential zoning classifications establish the number and type of dwelling units that can be constructed on a piece of land. Density, or the number of dwelling units per acre of land, is important in airport noise and land use compatibility planning. Increased density can increase the population in an area. If that area is exposed to airport noise above the 65 DNL threshold, a greater number of impacted dwelling units can result. Limiting the density near an airport can help improve compatibility and limit the number of impacts on surrounding land uses. Two residential categories are used in the analysis: single-family residential and multi-family residential. As indicated by the classification names, each zone limits the number of residences allowed on a parcel.

Non-residential land use classifications, such as commercial and industrial, are typically considered to be compatible with airport operations because of their inherent noise characteristics. Commercial and industrial categories include areas zoned for manufacturing, business parks, and retail services; however, some specific noise-sensitive non-residential land uses – such as hospitals, libraries, and childcare facilities – can be permitted in residentially zoned districts. Some residential type uses, such as senior living and group home facilities, can be permitted either by right or by conditional use in non-residential districts.

Comprehensive Plan

Under Article 5 of Chapter 160D, the State of North Carolina requires each local government to “*adopt and reasonably maintain a comprehensive plan or land-use plan*” in order to adopt and apply zoning regulations. The local comprehensive plans are considered by the planning board and governing board for zoning amendments but are advisory in nature.

While state law does not require specific topics to be addressed by the local comprehensive plans, the following list of topics is suggested:

1. Issues and opportunities facing the local government, including consideration of trends, values expressed by citizens, community vision, and guiding principles for growth and development
2. The pattern of desired growth, development, and civic design, including the location, distribution, and characteristics of future land uses, urban form, utilities, and transportation networks
3. Employment opportunities, economic development, and community development

¹⁶ North Carolina General Statutes Chapter 160D – Local Planning and Development Regulation (<https://www.ncleg.gov/Laws/GeneralStatuteSections/Chapter160D>)

4. Acceptable levels of public services and infrastructure to support development, including water, waste disposal, utilities, emergency services, transportation, education, recreation, community facilities, and other public services; plans and policies for provision of and financing for public infrastructure
5. Housing with a range of types and affordability to accommodate persons and households of all types and income levels
6. Recreation and open spaces
7. Mitigation of natural hazards, such as flooding, winds, wildfires, and unstable lands
8. Protection of the environment and natural resources, including agricultural resources, mineral resources, and water and air quality
9. Protection of significant architectural, scenic, cultural, historic, and archaeological resources
10. Analysis and evaluation of implementation measures, including regulations, public investments, and educational programs

Noise Insulation Standards

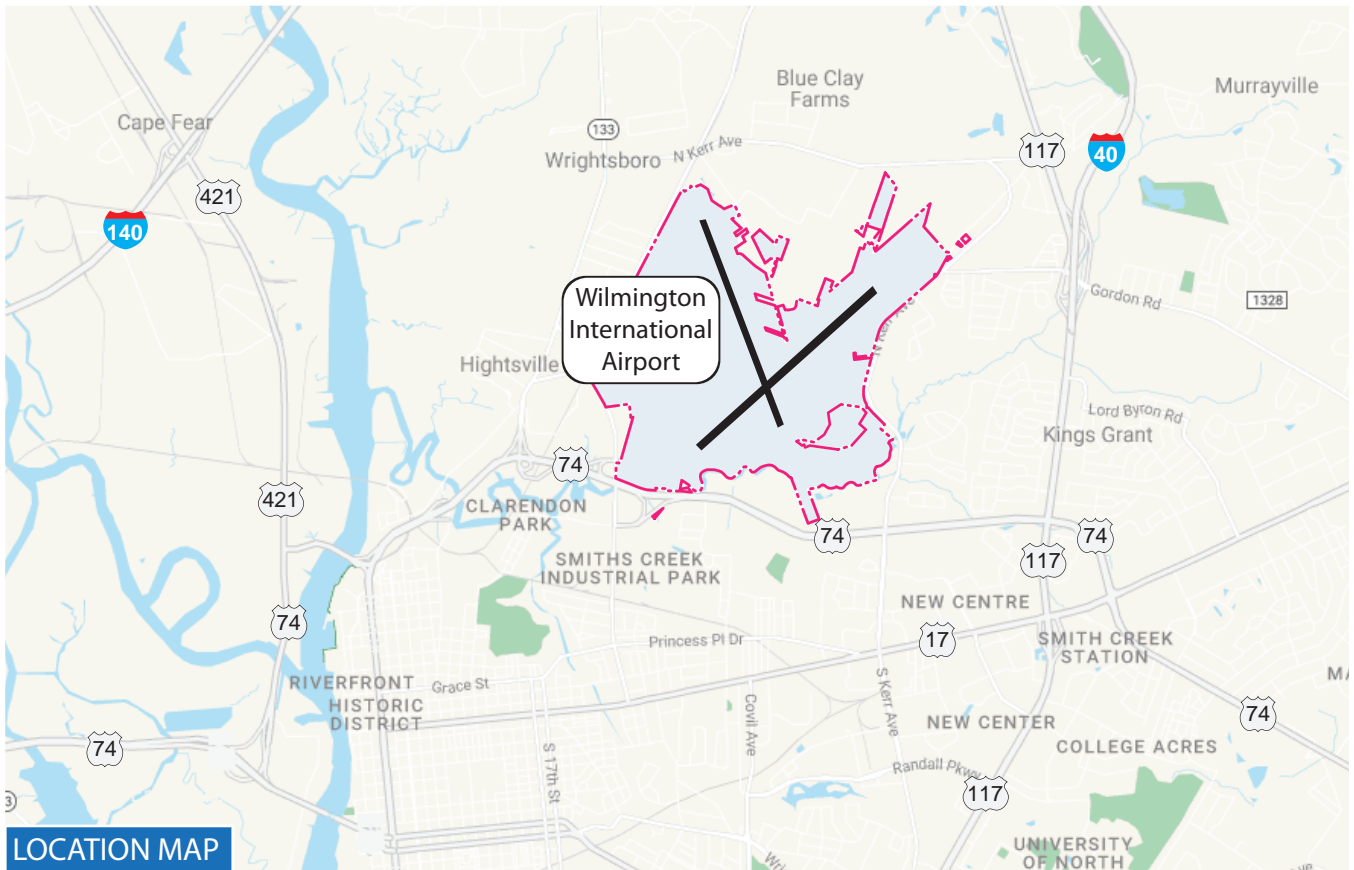
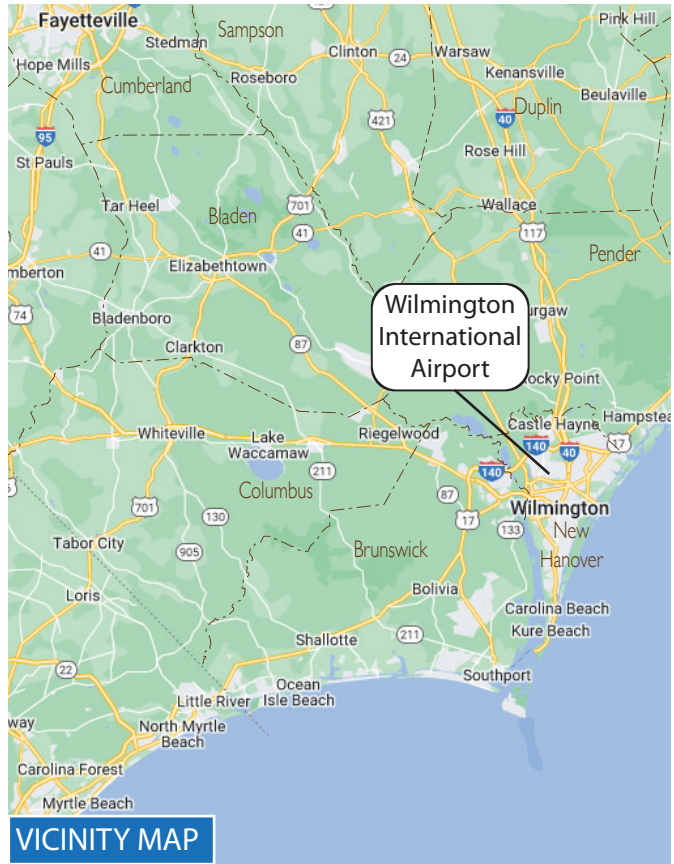
Chapter 12, Section 1206.4 of the North Carolina State Building Code, as adopted by the Building Code Council, provides minimum standards for interior walls and partitions as they relate to sound transmission; however, a specific interior noise level attributable to exterior source is not stipulated by the code.¹⁷ Interior noise level resulting from exterior noise is equally important as exterior noise levels as a determinant of acceptable noise levels, which are subjective in nature. In residential circumstances, the determining factors are speech interference and sleep disruption. Sound insulation should be reserved for existing land uses within the 65 DNL contour. For new development, the best form of noise mitigation is good land use planning, and insulation measures should be used as a final course of action.

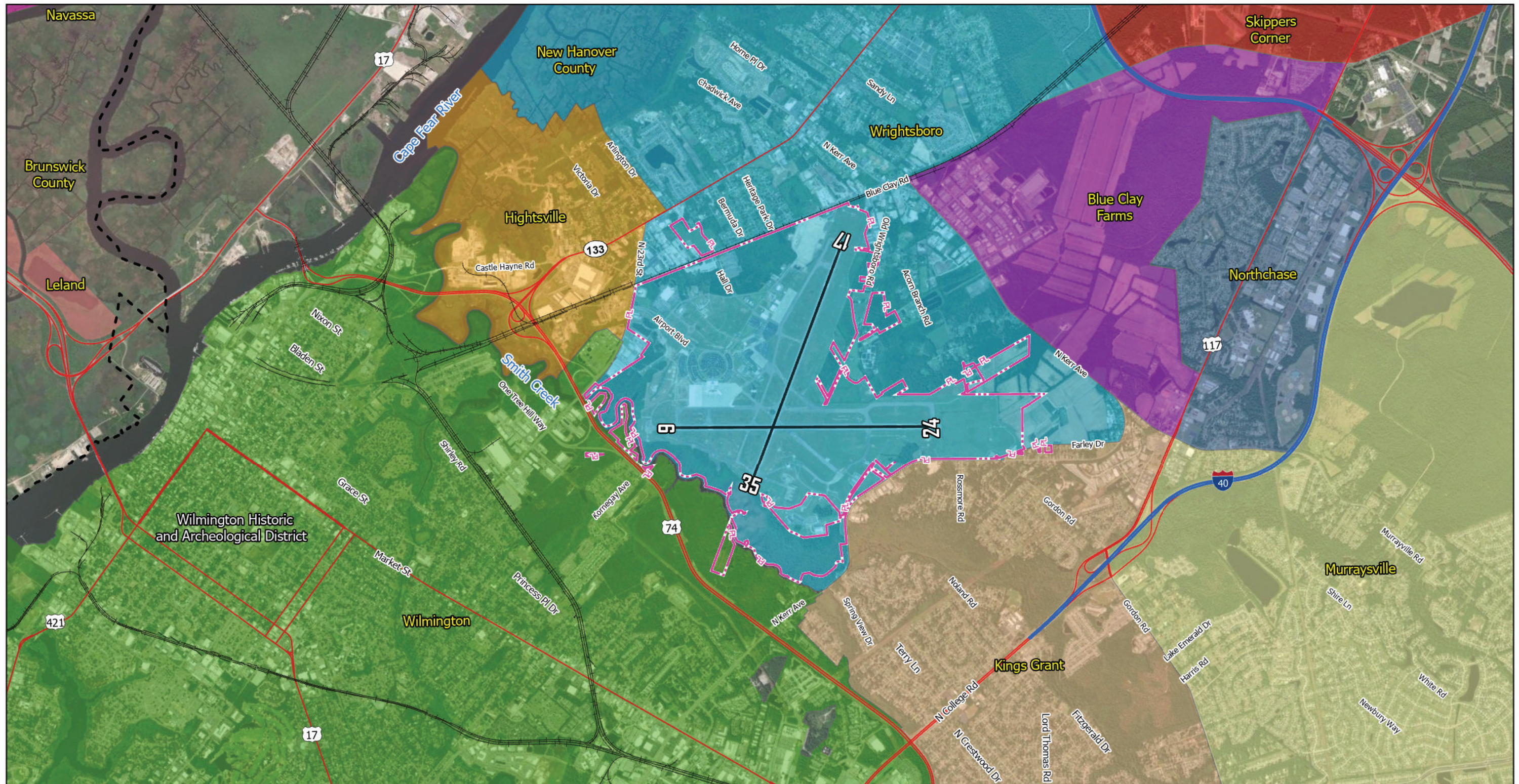
LOCAL LAND USE PLANNING POLICIES AND REGULATIONS

The general location of Wilmington International Airport within North Carolina's coastal plains region is depicted on **Exhibit 1A**. Zoning and comprehensive planning in the study area surrounding Wilmington International Airport are the responsibility of New Hanover County and the City of Wilmington. The jurisdictional limits of the City of Wilmington and other census-designated unincorporated areas of New Hanover County are depicted in **Exhibit 1B**. The detailed study area boundary indicates the extent of land use mapping gathered for this 2024 Part 150 NEM surrounding the airport at a scale of 1"=3,000', which is compliant with the FAA-mandated NEM scale of no less than 1"= 2,000'. The boundary does not represent the extent of aircraft operations or noise conditions.

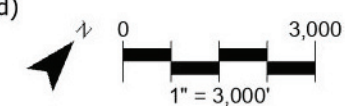
It is important to note the distinction between primary land use concepts used in evaluating development within the airport environs and existing, comprehensive plan, and zoned land use. Existing land use refers to property improvements as they *exist today*.

¹⁷ North Carolina G.S. § 143-138

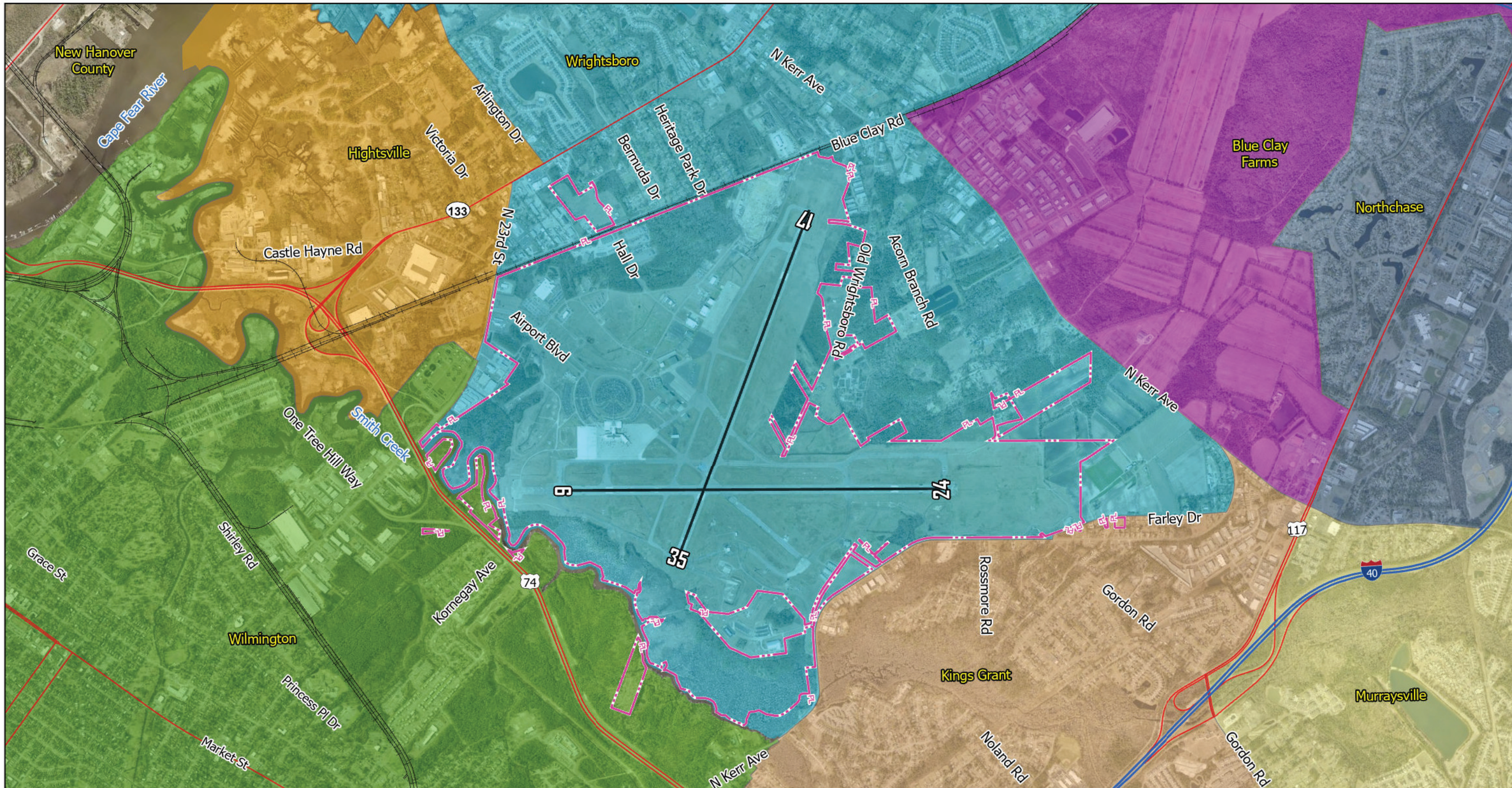




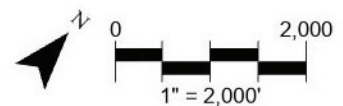
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|---------------------------|----------------------------------|------------------------------|----------------------------------|------------------------------|
| Airport Property Boundary | Highway | Hightsville (Unincorporated) | Navassa (Unincorporated) | Wrightsboro (Unincorporated) |
| Runway Centerline | Jurisdictional Boundaries | Kings Grant (Unincorporated) | Northchase (Unincorporated) | |
| Railroads | Blue Clay Farms (Unincorporated) | Leland (Unincorporated) | Skippers Corner (Unincorporated) | |
| Interstate | Murraysville (Unincorporated) | Wilmington | | |



Source: New Hanover County Aerial (2023), TIGER/Line, Coffman Associates Analysis



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Source: New Hanover County Aerial (2023), TIGER/Line, Coffman Associates Analysis

Zoning identifies the type of land use *permitted* on a given piece of property, according to the city and county zoning ordinances and maps. Local governments are required to regulate the subdivision of all lands within their corporate limits. Zoning ordinances should be consistent with the comprehensive plan (where one has been prepared). In some cases, the land use prescribed in the zoning ordinance or depicted in the comprehensive plan may differ from the existing land use.

The comprehensive plan land use map identifies the *projected or future* land uses, according to the goals and policies established in the locally adopted comprehensive plan. This document guides future development within the city and county planning area and provides the basis for zoning designations. In some cases, the land use allowed in the zoning ordinance or depicted on the comprehensive plan may differ from the existing land use.

Existing Land Use

An evaluation of the existing land uses surrounding the airport is necessary to understand if impacts result from noise exposure, per Part 150 guidelines. **Exhibit 1C** illustrates existing land uses within the study area, including non-residential noise-sensitive uses, such as schools, religious facilities, and hospitals. The study area – or the property near the airport where detailed land use information has been obtained – is comprised of all the land shown on **Exhibit 1C**. For comparative purposes, the total area for each land use category is presented in **Table 1A**. The areas of the land use categories are based on parcels identified in **Exhibit 1C**.

TABLE 1A | Existing Land Uses Within the Study Area

Land Use Type	Area (acres)	Study Area Percentage
Airport Property	1,652	6%
Non-Residential Noise-Sensitive	797	3%
Commercial	2,604	9%
Industrial	459	2%
Single-Family Residential	7,324	24%
Multi-Family Residential	1,284	4%
Vacant	3,843	13%
Mixed Use	28	<1%
Government Services	1,033	4%
Parks and Open Space	737	3%
Agricultural	2,517	9%
Right-of-Way, Bodies of Water, Parking & Utilities	6,517	23%
Total	28,794	100%

¹ Non-residential noise-sensitive land uses include educational facilities, hospitals, places of worship, and structures listed on the National Register of Historic Places.

Sources: New Hanover County GIS REST Services Directory tax parcels (January 2024); New Hanover County GIS aerial basemap imagery (2022); Coffman Associates analysis and windshield survey (January 2024).

The study area, as identified in **Table 1A**, consists of 28,794 acres, 1,652 acres of which belong to the airport (six percent of the study area). Single-family residential land uses comprise a majority of land within the study area (24 percent). Approximately 13 percent of the study area is vacant. The second group of major land uses consists of right-of-way, bodies of water, and parking and utilities (23 percent); commercial (nine percent); and agricultural (nine percent). A significant portion of the easement/right-of-way category

includes major highways, arterial roads, collector roads, local roads, railroad corridors, and the Cape Fear River. Examples of uses within the commercial category include neighborhood and regional shopping areas, office buildings, big box/wholesale retail, gas stations, hotels, restaurants and bars, and other retail. Agricultural uses include farming, forestry, horticulture, and conservation. The remaining existing uses in the study area include government services (four percent), multi-family residential (four percent), parks and open space (three percent), industrial (two percent), and mixed use (less than one percent). Non-residential noise-sensitive uses (schools, religious facilities, and hospitals) account for three percent of the study area and are located on a total of 797 acres.

Historic Resources

Historic resources listed on the National Park Service's National Register of Historic Places (NRHP) database are shown on **Exhibit 1C**. Historic districts located within the study area include the Wilmington Historic and Archaeological District, Carolina Place Historic District, Market Street Mansion District, and Brookwood Historic District. Other historic resources in the study area that not contained within a designated historic district are as follows: Tinga Nursery, located approximately one mile north of the airport; USS North Carolina, located in the southwest corner of the study area; and Wilmington National Cemetery, located approximately two miles south of the airport.

The North Carolina State Historic Preservation Office (SHPO) geographic information systems (GIS) database was consulted to determine if there are any North Carolina historic landmarks present within the Part 150 study area. The SHPO lists sites within the study area that are eligible for the NRHP under Section 106 of the *National Historic Preservation Act* but are not yet included, as well as other state and local historical resources.¹⁸ Resources near the airport that the SHPO has determined to be eligible include the Creekwood North Historic District, the former New Hanover County Prison Farm, and Wrightsboro Elementary School.

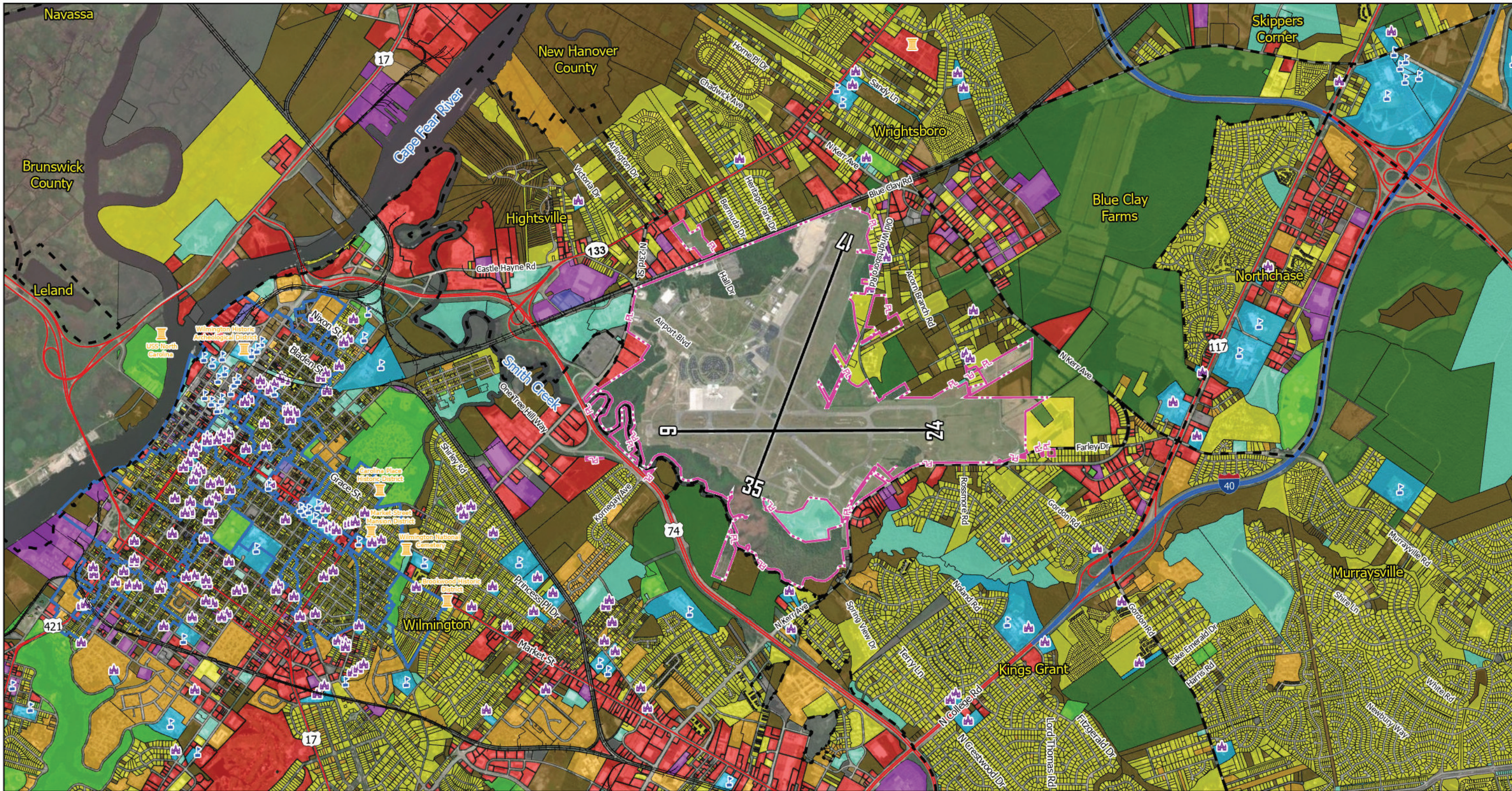
There are numerous publicly owned parks located within the study area that are protected under the *U.S. Department of Transportation Act*, Section 4(f), as defined by FAA Order 1050.1F. The Section 4(f) resources are designated as Parks & Open Space on **Exhibit 1C**.

Zoning

The City of Wilmington and New Hanover County have authority over the land uses in the study area around Wilmington International Airport and have adopted zoning ordinances which establish a variety of zones to control land use within all areas of their respective jurisdictions.

For the purpose of this Part 150 study, the zoning districts have been generalized to provide a uniform display of the zoning districts in the communities within the study area.

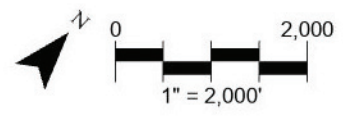
¹⁸ North Carolina State Historic Preservation Office GIS data, January 2024 (<https://www.hpo.nc.gov/survey-and-national-register/gis-maps-and-data>)



<ul style="list-style-type: none"> Airport Property Boundary Runway Centerline Jurisdictional Boundaries Railroads 	<ul style="list-style-type: none"> Interstate Highway National Register/Local Historic Districts 	<p>Noise Sensitive Points</p> <ul style="list-style-type: none"> Place of Worship and Associated Historic Sites School 	<p>Existing Land Use</p> <ul style="list-style-type: none"> Commercial Industrial Single Family Residential 	<ul style="list-style-type: none"> Multifamily Residential Vacant Mixed Use Governmental 	<ul style="list-style-type: none"> Non-Residential Noise Sensitive Parks & Open Space - Historic Agricultural Right of Way, Parking & Utilities, Water 	<div style="text-align: right;"> <p>1" = 3,000'</p> </div>	<p>Source: New Hanover County Aerial (2023), New Hanover County Gov. Parcels, New Hanover County Tax Department Assessment and Dwelling Data (2023), TIGER/Line, Coffman Associates Analysis</p>
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Airport Property Boundary	Highway	Historic Sites	Industrial	Governmental
Runway Centerline	National Register/Local Historic Districts	School	Single Family Residential	Non-Residential Noise Sensitive
Jurisdictional Boundaries	Noise Sensitive Points	Commercial	Multifamily Residential	Parks & Open Space
Railroads	Place of Worship and Associated	Vacant	Mixed Use	Agricultural
Interstate		Vacant		Right of Way, Parking & Utilities; Exclude - Water



Source: New Hanover County Aerial (2023), New Hanover County Gov. Parcels, New Hanover County Tax Department Assessment and Dwelling Data (2023), TIGER/Line, Coffman Associates Analysis

Table 1B summarizes the classification of zoning districts for each jurisdiction and how those zoning districts fit into a generalized zoning land use category.

TABLE 1B | Classification of Zoning Districts

Generalized Zoning Category	City of Wilmington	New Hanover County
Low-Density Residential	R-20, R-15, HDR	AR, R-20S, R-20, R-15, R-10, R-7, RMF-L
Medium-Density Residential	R-10, R-7, RO, R-5, R-3, MD-10	R-10, R-7, R-5, RMF-M
High-Density & Multi-Family Residential	MD-17, MF-MH (L), MF-H (L), MH, MF-17	RMF-MH, RMF-H
Commercial	CBD, CB, RB, CS, O&I	B-1, CB, B-2, O&I, SC, CS, AC
Mixed Use	UMX, MX (L), HD, HDMU	UMXZ
Planned/Conditional	–	RFMU, EDZD, PD, CUD, CZD
Industrial	LI, IND	I-1, I-2
Parks & Open Space	CEM	–

Sources: City of Wilmington Land Development Code (LDC) Supp. No. 5, Update 1, adopted November 8, 2023; New Hanover County, NC Unified Development Ordinance, updated June 5, 2023

Table 1C and **Exhibit 1D** present the generalized zoning districts in the study area.

TABLE 1C | Generalized Zoning Within the Study Area

Land Use Type	Area (acres)	Study Area Percentage
Commercial	3,727	13%
Industrial	5,821	20%
High-Density and Multi-Family Residential	1,128	4%
Medium-Density Residential	4,129	14%
Low-Density Residential	7,631	27%
Mixed Use	984	3%
Planned/Conditional	1,364	5%
Parks/Open Space	226	1%
Right-of-Way, Bodies of Water, Parking & Utilities	3,784	13%
Total	28,794	100%

Sources: New Hanover County Planning & Land Use Department; City of Wilmington Planning & Development Department; Coffman Associates analysis

As shown in **Table 1C**, the predominant zoning districts in the study area surrounding Wilmington International Airport are low-density residential (27 percent), industrial (20 percent), and medium-density residential (14 percent). The remaining study area zoning designations include commercial (13 percent – includes airport property), planned/conditional (five percent), high-density and multi-family residential (four percent), mixed use (three percent) and parks and open space (one percent). Right-of-way, bodies of water, and parking and utilities account for 13 percent of the study area.

Comprehensive Plans

A comprehensive plan designates the proposed future land use classification distribution and proposed density or intensity of future development in a jurisdiction. A comprehensive plan reflects the community’s vision for the distribution of land use and aligns with other long-range planning efforts.

Future land use designations from the following sources are identified in **Table 1D** and on **Exhibit 1E**:

- City of Wilmington – *Create Wilmington Comprehensive Plan* (adopted March 1, 2016)¹⁹
- New Hanover County – *Plan NHC: Charting the Course* (adopted July 11, 2016)²⁰

TABLE 1D | Comprehensive Plan Land Uses Within the Study Area

Land Use Type	Area (acres)	Study Area Percentage
Commerce Zone	1,976	7%
Employment Center	2,407	8%
General Residential	6,391	22%
Urban Mixed Use	1,029	4%
Community Mixed Use	3,368	12%
Conservation	3,371	12%
High-Density Transitions	929	3%
Live/Work Innovation Zone	1,634	6%
Neighborhood Scale Infill Development	756	3%
Postindustrial and Inner City Revitalization	329	1%
Suburban Commercial Retrofit	369	1%
City/Other	6,235	21%
Total	28,794	100.0%

Sources: New Hanover County Planning & Land Use Department; City of Wilmington Planning & Development Department; Coffman Associates analysis

City of Wilmington’s Create Wilmington Comprehensive Plan

The *Create Wilmington Comprehensive Plan* was adopted by the Wilmington City Council in 2016 and is currently in the process of being updated. The plan elements consist of five reports which set the general direction for future growth and redevelopment of the city through a 25-year planning horizon. The following is a list of the reports contained in the city’s comprehensive plan with a summary of the contents of each report:

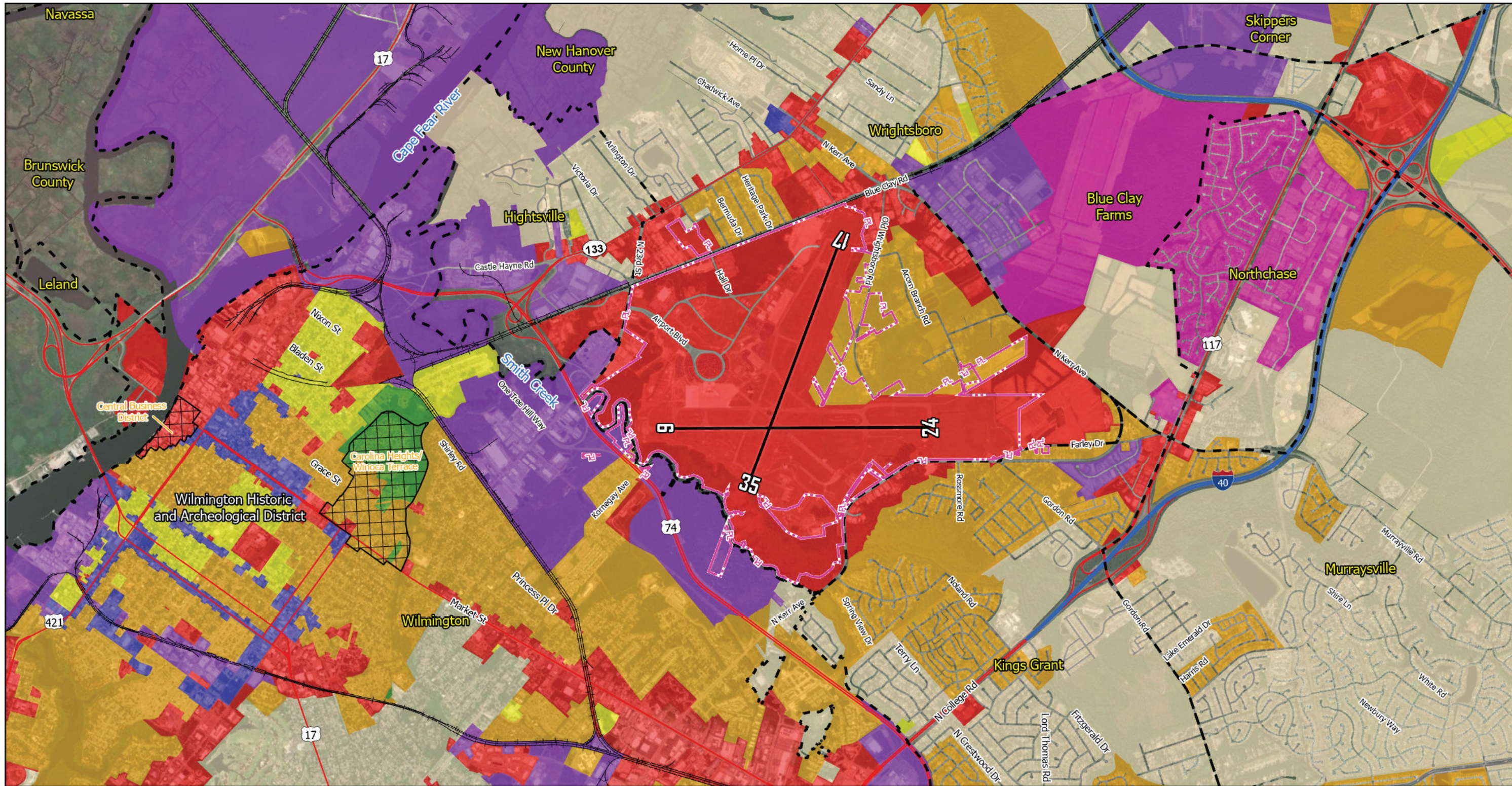
- *Growth Factors Report*, a narrative describing the plan’s history and existing conditions;
- *Foundations Report*, a summary of community input received during the planning process;
- *Policies*, the core document of the plan with practices and priorities for development of the city;
- *Growth Strategies Map*, five individual maps and a composite map depicting the framework for future growth; and
- *Growth Strategies Report*, a narrative describing the *Growth Strategies Map*.

Noise and land use compatibility are addressed in the *Policies* report by Policy 1.5.6, which states:

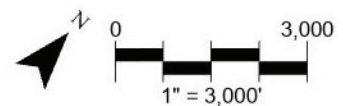
“1.6.5 – The location of high-impact commercial uses that generate excessive late-night activity and noise should not negatively impact the quality of life in nearby residential areas.”

¹⁹ <https://www.wilmingtonnc.gov/departments/planning-development-and-transportation/comprehensive-plan>

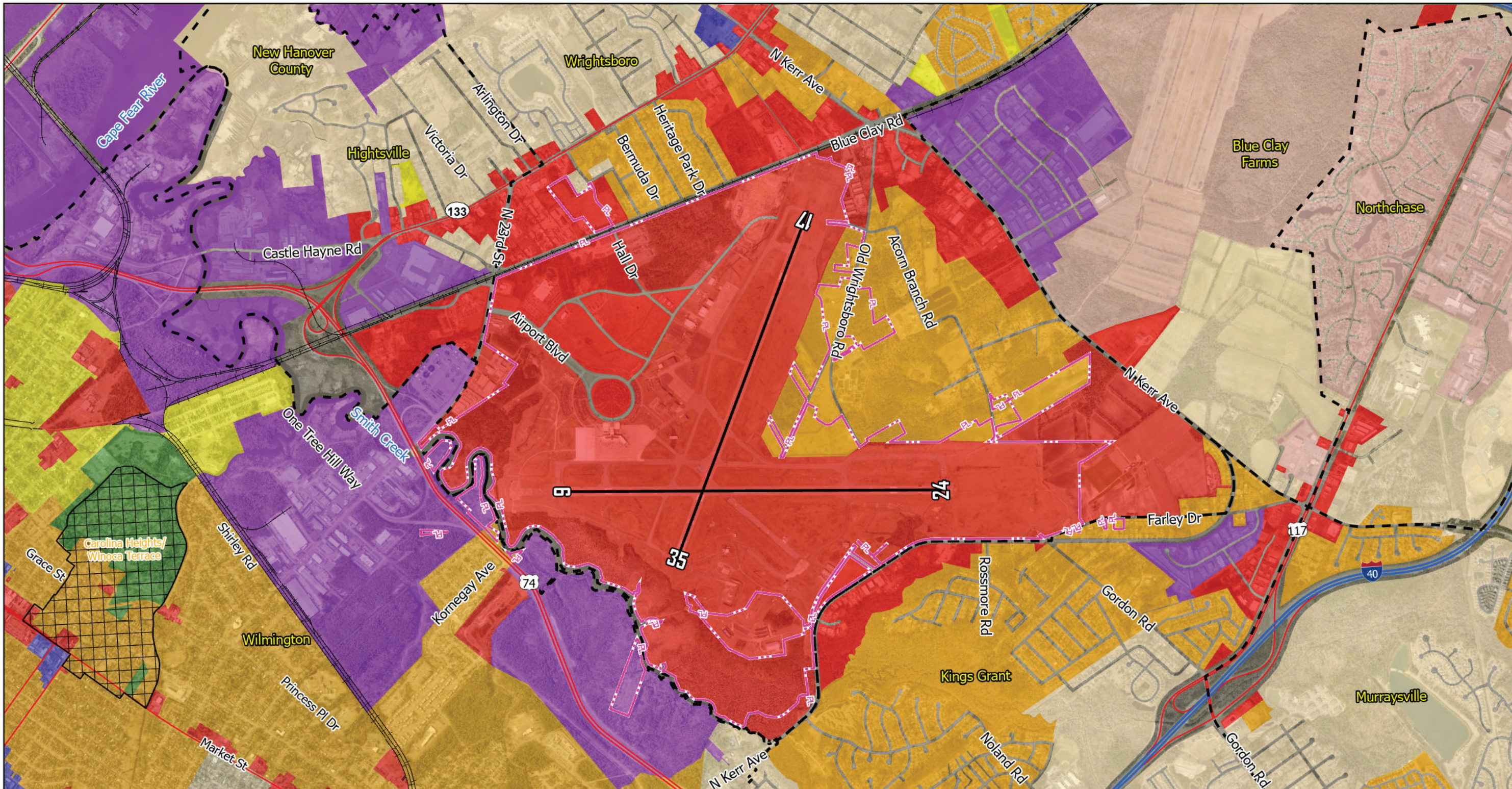
²⁰ <https://maps.nhcgov.com/DocumentCenter/View/2147/Comprehensive-Plan-PDF?bidId=>



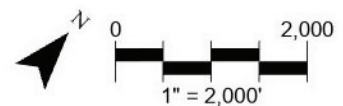
Airport Property Boundary	Highway	General Industrial	Low Density Residential
Runway Centerline	Historic Overlay District	Mixed Use	Parks/Open Space
Jurisdictional Boundaries	Zoning	Planned/Conditional	Right of Way, Bodies of Water, Parking & Utilities
Railroads	Commercial Business	High Density Residential	
Interstate	Medium Density Residential		



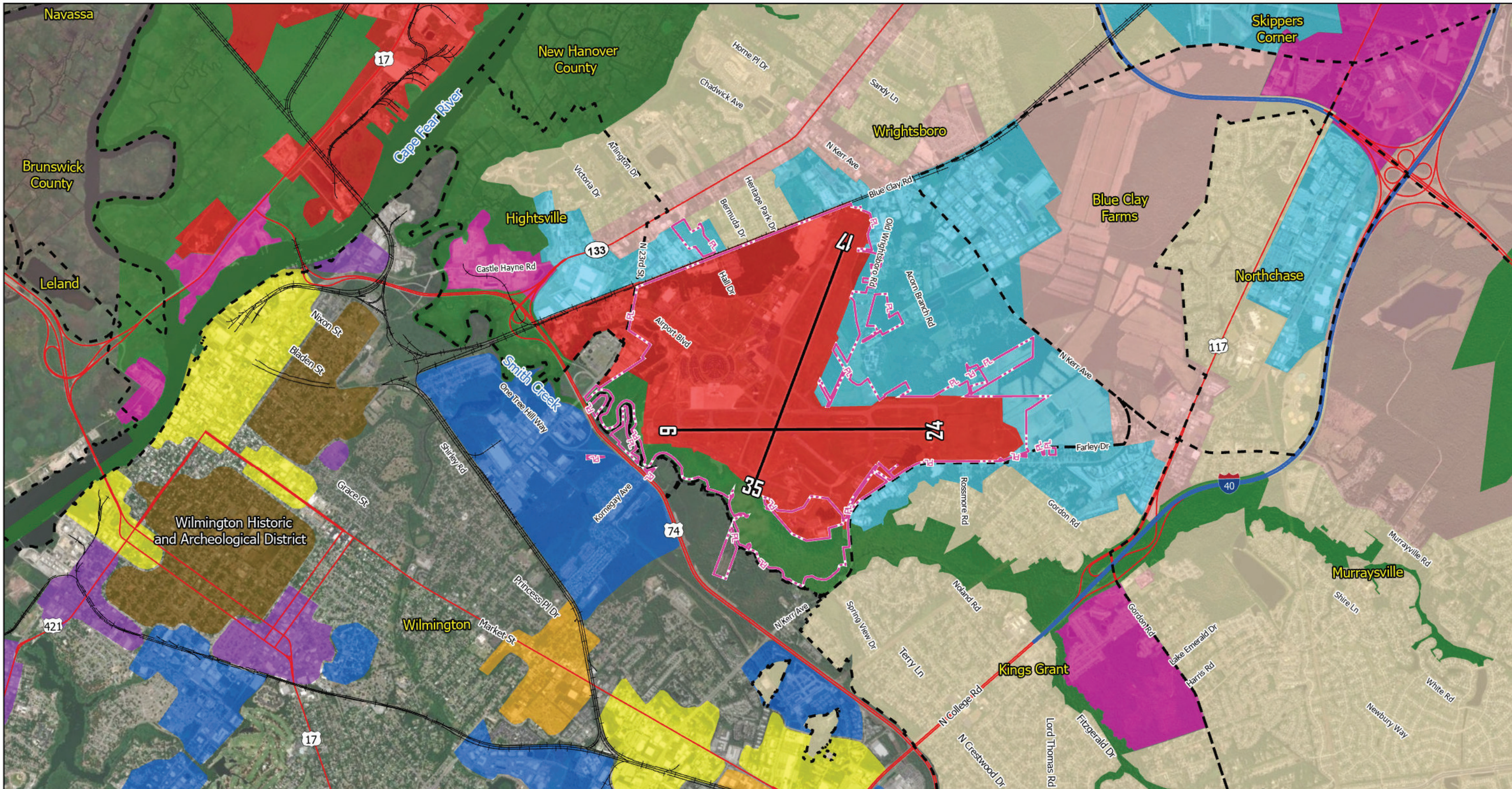
Source: New Hanover County Aerial (2023), New Hanover County Unified Development Ordinance (1/3/2023), City of Wilmington Zoning, New Hanover County Zoning, TIGER/Line, Coffman Associates Analysis



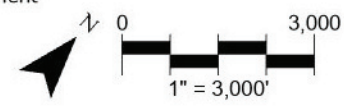
Airport Property Boundary	Highway	General Industrial	Low Density Residential
Runway Centerline	Historic Overlay District	Mixed Use	Right of Way, Bodies of Water, Parking & Utilities
Jurisdictional Boundaries	Zoning	Commercial Business	High Density Residential
Railroads	Medium Density Residential		
Interstate			



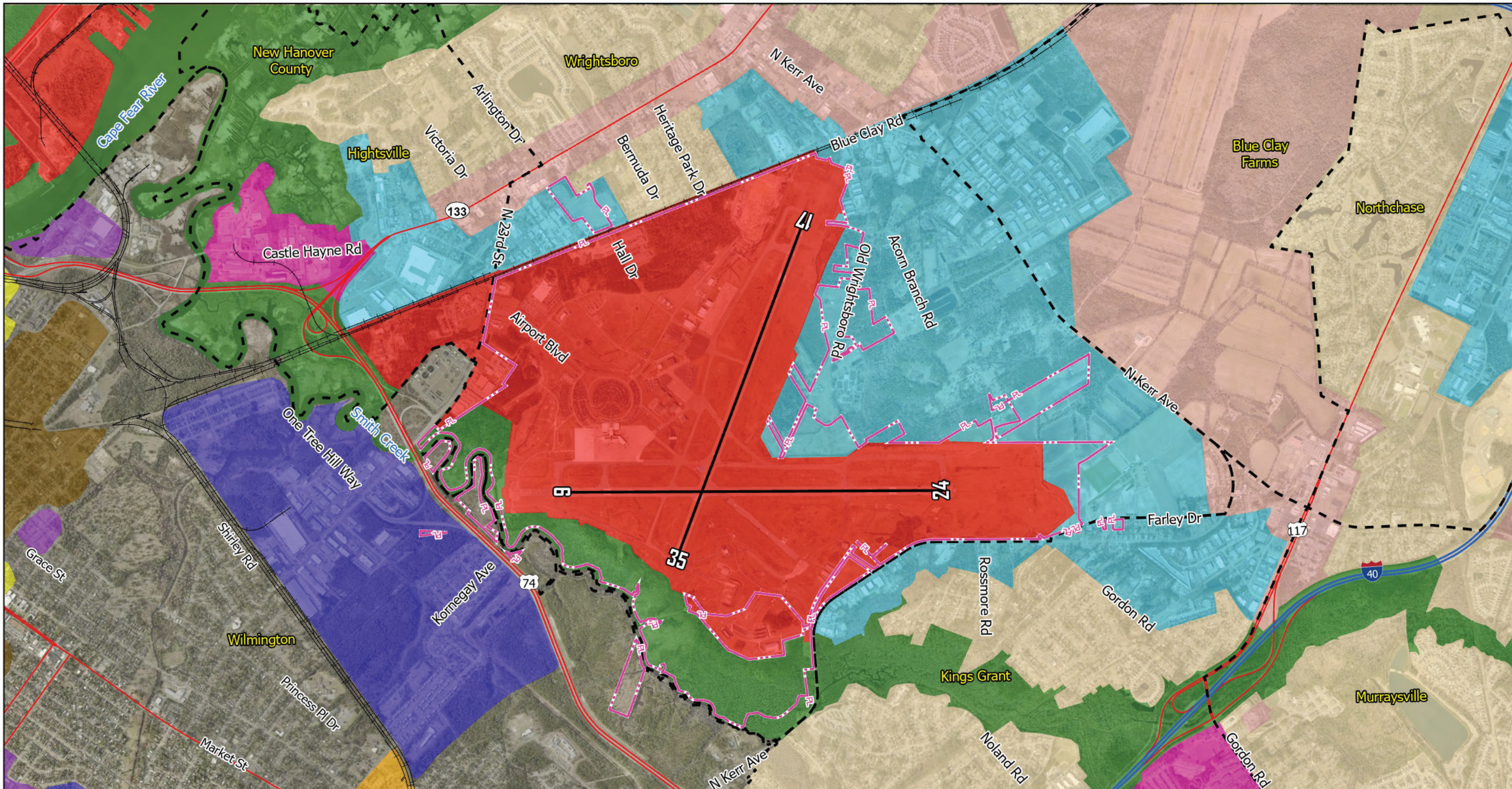
Source: New Hanover County Aerial (2023), New Hanover County Unified Development Ordinance (1/3/2023), City of Wilmington Zoning, New Hanover County Zoning, TIGER/Line, Coffman Associates Analysis



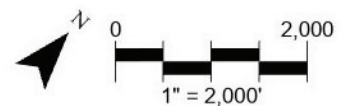
- | | | | | |
|---------------------------|---------------------------|--|------------------------------|---------------------------------------|
| Airport Property Boundary | Interstate | Community Mixed Use | Live/Work Innovation Zones | Neighborhood-scale Infill Development |
| Runway Centerline | Highway | Postindustrial & Inner-city Revitalization | High-density Transitions | Conservation |
| Jurisdictional Boundaries | | Urban Mixed Use | General Residential | City/Other |
| Railroads | | Employment Center | Suburban Commercial Retrofit | |
| | Comprehensive Plan | Commerce Zone | | |



Source: New Hanover County Aerial (2023), New Hanover County ERA Plan, New Hanover County Areas of Opportunity Plan, County Gov. Land Use, TIGER/Line, Coffman Associates Analysis



Airport Property Boundary	Interstate	Community Mixed Use	Live/Work Innovation Zones	Neighborhood-scale Infill Development
Runway Centerline	Highway	Postindustrial & Inner-city Revitalization	High-density Transitions	Conservation
Jurisdictional Boundaries	Comprehensive Plan	Urban Mixed Use	General Residential	City/Other
Railroads	Commerce Zone	Employment Center	Suburban Commercial Retrofit	



Source: New Hanover County Aerial (2023), New Hanover County ERA Plan, New Hanover County Areas of Opportunity Plan, County Gov. Land Use, TIGER/Line, Coffman Associates Analysis

The *Growth Strategies Map* was used to depict future land use considerations shown on **Exhibit 1E**. In addition to major corridors, the following planned uses are identified on the *Growth Strategies Map* within the study area boundary:

- A transit hub located at the airport terminal building with an associated high-capacity transit route extending south into the city;
- A passenger rail transit route immediately west of the airport;
- Two mixed-use centers to the south and southwest;
- One neighborhood node to the southwest; and
- Areas of Opportunity.

The mixed-use centers are areas where investment and revitalization should be concentrated. The mixed-use centers may range in density, size, and regional impact, depending on the underlying community development pattern. The neighborhood node is a specific type of mixed-use designated area that is intended to foster neighborhood-scale focal points of activity. In the *Growth Strategies Report*, neighborhood nodes are described as low-intensity development.

An Area of Opportunity is an area that is expected to experience more intense change than other areas of the city through new development, redevelopment, and infrastructure improvements. The Areas of Opportunity vary in terms of land use hierarchy, intensity of development, and anticipated change, depending on the underlying community development pattern. Specific Areas of Opportunity planned within the study area boundary include the following: Postindustrial and Inner-City Revitalization, High-Density Transitions, Neighborhood Scale Infill Development, Live/Work Innovation Zones, and Suburban Commercial Retrofit.

New Hanover County's Plan NHC

The New Hanover County comprehensive plan identifies Wilmington International Airport as a key economic engine and significant regional asset for the community.²¹ The airport is discussed in depth in the Transportation section of the Existing Conditions chapter of the plan.

The plan designates the following place types within the study area: Commerce Zone, General Residential, Community Mixed Use, Urban Mixed Use, Employment Center, Commerce Zone, and Conservation.

Cape Fear Moving Forward – 2045 Metropolitan Transportation Plan

The *Wilmington Urban Area Metropolitan Transportation Plan* – published by the Wilmington Area Metropolitan Planning Organization (WMPO) in November 2020 – identifies aviation as a crucial support component of the region's transportation network and ILM as the region's only public airport. The plan supports multimodal connectivity with the airport throughout the region's existing and planned transportation network. In addition, the WMPO coordinates state funding through the North Carolina Department of Transportation (NCDOT) according to this plan.

²¹ <https://maps.nhcgov.com/DocumentCenter/View/2147/Comprehensive-Plan-PDF?bidId=>

Wilmington - New Hanover County Joint Coastal Area Management Plan

The joint *Coastal Area Management Plan (CAMP)* for the City of Wilmington and New Hanover County was certified by the North Carolina Coastal Resources Commission on November 30, 2016.²² This local land use plan for coastal areas was established in addition to the zoning and comprehensive plans adopted for the area. Developments are evaluated for consistency with the CAMP during the *Coastal Area Management Act (CAMA)* permitting process. The CAMP implementation strategies for Policy 6.7, *Alternative Forms of Transportation*, encourage the growth of Wilmington International Airport as a non-highway transportation facility providing passenger and freight access to the area. Policy 19.5 of the plan also supports cooperation with the New Hanover Airport Authority on shared objectives.

EXISTING FACILITIES

Airport facilities can be categorized into two separate classifications: airside facilities and landside facilities. Airside facilities are directly associated with aircraft operations. These facilities may include (but are not limited to) runways, taxiways, airport lighting, and navigational aids. Landside facilities are necessary to provide safe and efficient transitions from surface transportation to air transportation and support aircraft servicing, storage, maintenance, and safe operations. The existing airside and landside facilities are presented on **Exhibit 1F**.

AIRSIDE FACILITIES

Wilmington International Airport is served by two intersecting runways (Runway 6-24 and Runway 17-35). Runway 6-24 is 8,016 feet long by 150 feet wide and Runway 17-35 is 7,754 feet long by 150 feet wide. Both runways are marked as precision instrument runways. The runway pavement on both runways is constructed of grooved asphalt. Runway 6-24 has a gradient of 0.22 percent, sloping upward from west to east. The pavement strength rating for Runway 6-24 is published as 75,000 pounds single wheel gear (S), 160,000 pounds dual wheel gear (D), and 275,000 pounds double dual wheel gear (DD). The pavement strength rating for Runway 17-35 is published as 60,000 pounds single wheel gear (S), 185,000 pounds dual wheel gear (D), and 300,000 pounds double dual wheel gear (DD). Both runways are equipped with high intensity runway lights (HIRL) and four-box precision approach path indicator (PAPI-4) systems serving the ends of each runway. Both runways are served by full-length parallel taxiway systems, as depicted on **Exhibit 1F**. The airport has a wide variety of aircraft hangars, including box hangars, executive box hangars, and T-hangars.

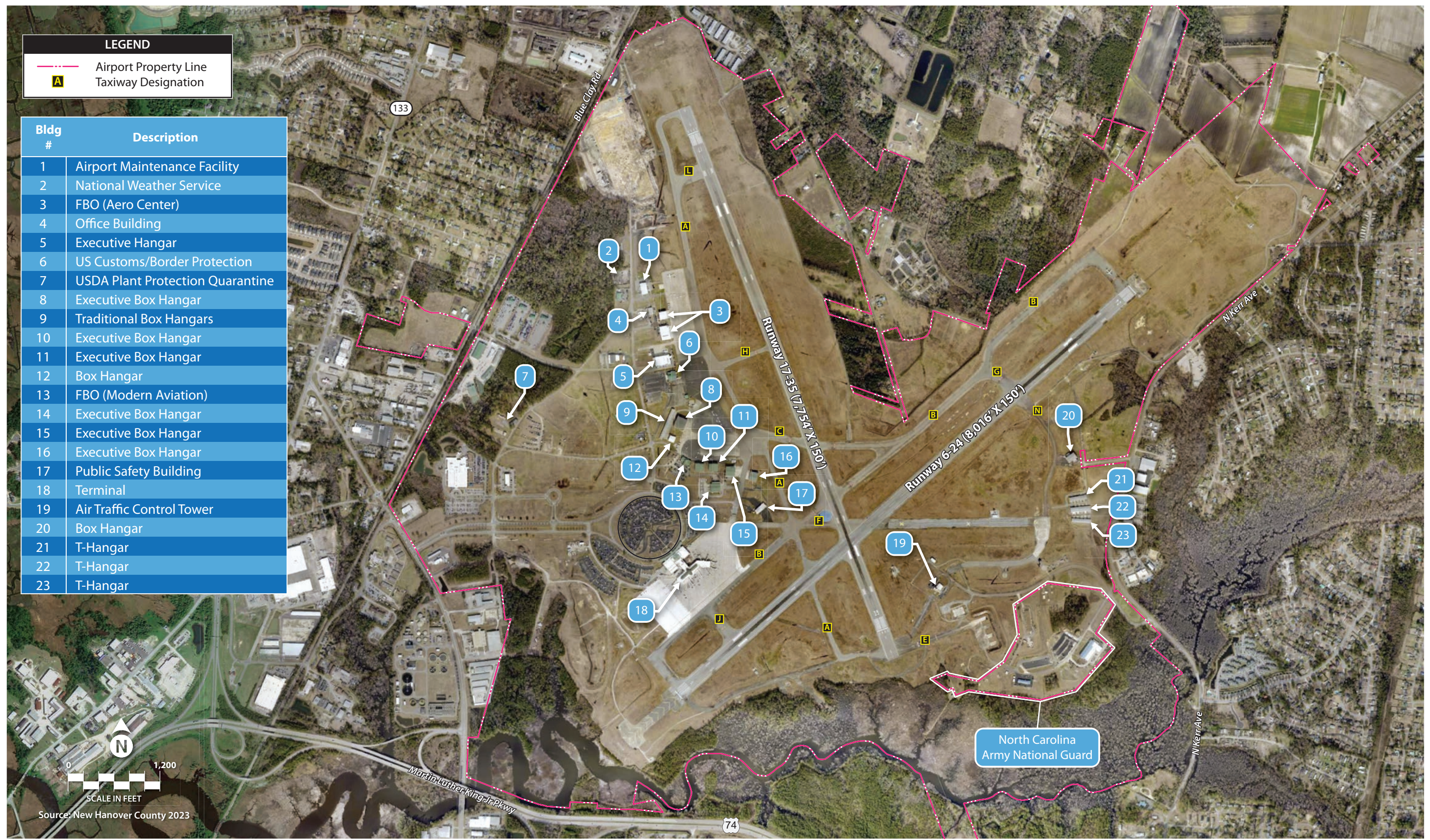
Table 1E summarizes the airside facilities data available at ILM. Navigational aids (NAVAIDS) include three lighted and two non-lighted wind cones, one lighted airport beacon, an automated surface observing system (ASOS), a ground-based very high frequency (VHF) omnidirectional radio range and tactical air navigation (VORTAC) system, and a satellite-based global positioning system (GPS).

²² <https://www.deq.nc.gov/documents/pdf/land-use-plans/wilmington-new-hanover-county-joint-land-use-plan/download>

LEGEND

- Airport Property Line
- Taxiway Designation

Bldg #	Description
1	Airport Maintenance Facility
2	National Weather Service
3	FBO (Aero Center)
4	Office Building
5	Executive Hangar
6	US Customs/Border Protection
7	USDA Plant Protection Quarantine
8	Executive Box Hangar
9	Traditional Box Hangars
10	Executive Box Hangar
11	Executive Box Hangar
12	Box Hangar
13	FBO (Modern Aviation)
14	Executive Box Hangar
15	Executive Box Hangar
16	Executive Box Hangar
17	Public Safety Building
18	Terminal
19	Air Traffic Control Tower
20	Box Hangar
21	T-Hangar
22	T-Hangar
23	T-Hangar



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TABLE 1E | Airside Facilities Data – Wilmington International Airport

	Runway 6	Runway 24	Runway 17	Runway 35
Length	8,016'	8,016'	7,754'	7,754'
Width	150'	150'	150'	150'
Elevation	21.0'	20.2'	30.9'	18.3'
Displaced Thresholds	0	0	350'	400'
Pavement Surface	Grooved Asphalt	Grooved Asphalt	Grooved Asphalt	Grooved Asphalt
Pavement Condition	Good	Good	Good	Good
Pavement Strength				
• Single Wheel Loading	75,000 lbs	75,000 lbs	60,000 lbs	60,000 lbs
• Dual Wheel Loading	160,000 lbs	160,000 lbs	185,000 lbs	185,000 lbs
• Dual Tandem	275,000 lbs	275,000 lbs	300,000 lbs	300,000 lbs
Edge Lighting	HIRL	HIRL	HIRL	HIRL
Pavement Markings	Precision	Precision	Precision	Precision
Visual Approach Aids	PAPI (P4R)	PAPI (P4L)	PAPI (P4L)	PAPI (P4L)
Instrument Approach Procedures	ILS/DME	ILS	RNAV (GPS)	ILS
Air Traffic Control	Continuous	Continuous	Continuous	Continuous
Weather Reporting	ASOS	ASOS	ASOS	ASOS
Fixed-Wing Aircraft Traffic Pattern	Left	Left	Left	Left
Acronyms:				
ASOS = automated surface observing system		LOC = localizer		
ATCT = airport traffic control tower		ODALS = omnidirectional approach lighting system		
DME = distance measuring equipment		REIL = runway end identifier lights		
GPS = global positioning system		RNAV = area navigation		
HIRL = high intensity runway lights		VASI = visual approach slope indicator		
ILS = instrument landing system		VOR = very high frequency omnidirectional range		

Source: U.S. Chart Supplements (effective November 30, 2023, to January 25, 2024)

LANDSIDE FACILITIES

Landside facilities include all airport elements that are inaccessible to aircraft. These facilities include vehicle parking lots, fuel farms, the airport business park, and ancillary buildings and structures.

The airport’s two fuel farms are operated by fixed base operators (FBOs) Modern Aviation and AeroCenter. Both FBOs have hangar and apron space, and provide aircraft maintenance. Other landside buildings include the U.S. Customs and Border Protection building and separate terminal building. The expanded terminal building features sections for security, ticketing, baggage claim, car rental, and access to nine gates. The current parking lot configuration includes 1,843 public parking spaces, with additional lots designated for employees and rental car parking.

The public safety facility on the airport is utilized by both ILM’s aircraft rescue and firefighting (ARFF) team and the law enforcement team from New Hanover County Sheriff’s Office. The New Hanover County Sheriff’s Department also utilizes a nearby hangar and apron space for its transport helicopter. The North Carolina Army National Guard facility, located in the southwest corner, is not a part of airport property but is surrounded by it. There is a public observation area outside the secured fence which is accessible to the public from Kerr Avenue.

Additionally, a 140-acre business park is located on non-aviation portions of the deactivated air base property. The most recent conceptual development plan has identified 16 parcels for the existing and future development of the business park. Users of the business park may pursue development of various building types, such as offices, warehouses, distribution centers, and light industrial facilities.

AIRPORT OPERATIONS

Wilmington International Airport is situated at 31.7 feet mean sea level (MSL). The traffic pattern altitude for all single-engine aircraft is 1,000 feet above ground level (AGL) and 1,500 feet AGL (1,075 feet MSL) for multi- and turbine engine aircraft. For military aircraft operations that require an overhead approach maneuver, the five-mile initial altitude is 2,500 feet AGL and breaks at 2,000 feet AGL. The airport traffic control tower (ATCT) determines the direction of the break and carrier breaks are not prohibited.

The airport utilizes standard left-hand traffic patterns for all runways, with runway use dictated by prevailing wind conditions. Ideally, it is desirable for aircraft to land directly into the wind. Runway 6-24 is designated as the calm wind runway, and during the summer months, prevailing wind conditions often favor its use.

NOISE ABATEMENT PROCEDURES

Beginning in January 2022, the FAA and Department of Defense (DoD) executed a letter of agreement to establish voluntary noise abatement procedures related to military aircraft operations at Wilmington International Airport. A copy of the agreement can be found in **Appendix D**. The DoD has agreed to specific procedures, including avoiding overflights of the Historic Downtown Wilmington area designated as noise-sensitive in the agreement.

Carrier breaks are also prohibited in the agreement. A carrier break is an overhead maneuver typically requested by Naval fighter aircraft for training purposes to simulate aircraft carrier landings. A carrier break occurs at a lower altitude and higher speed than the standard landing procedures under visual flight rules (VFR).

INSTRUMENT APPROACH PROCEDURES

Instrument approach procedures are a series of predetermined maneuvers established by the FAA using electronic navigational aids to assist pilots in locating and landing at an airport. The capability of an instrument approach is defined by the visibility and cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance that a pilot must be able to see to initiate the approach. In some cases, cloud ceilings define the lowest level a cloud layer (defined in feet above the ground) can be situated for a pilot to initiate the approach.

Precision approach instrument landing systems (ILS) and non-precision GPS area navigation (RNAV) instrument approaches are available on all runways. Details of the published instrument approach procedures for each runway are shown in **Table 1F**.



TABLE 1F | ILM Airport Instrument Approach Data

	MINIMUMS (FEET) BY AIRCRAFT APPROACH CATEGORY			
	Category A	Category B	Category C	Category D
ILS Y or LOC Rwy 6				
S-ILS 6		228/40		
S-LOC 6	420/55		420/60	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
ILS Z Rwy 6				
S-ILS 6		225/40		
RNAV (GPS) Rwy 6				
LPV DA		228/40		
LNAV/VNAV DA		464/60		
LNAV MDA	500/55		500-1½ mi	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
ILS Y or LOC Rwy 24				
S-ILS 24**		226/24		
S-LOC 24	500/24		500/50	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
ILS Y Rwy 24 (SA CAT I & II)				
S-ILS 24		SA CAT I RA 151/14		
S-ILS 24		SA CAT II RA 108/12		
		SA CATEGORY I & II SPECIAL AIRCREW & AIRCRAFT CERTIFICATION REQUIRED		
ILS Z Rwy 24				
S-ILS 24**		226/24		
RNAV (GPS) Rwy 24				
LPV DA		226/24		
LNAV/VNAV DA		401/40		
LNAV MDA	500/24		500/50	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
ILS Y or LOC Rwy 35				
S-ILS 35		242/24		
S-LOC 35	500/24		500/50	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
ILS Z Rwy 35				
S-ILS 35		242/24		
RNAV (GPS) Rwy 35				
LPV DA		242/24		
LNAV/VNAV DA		426/45		
LNAV MDA	500/24		500/50	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
RNAV (GPS) Rwy 17				
LPV DA		369-1½ mi		
LNAV/VNAV DA		405-1½ mi		
LNAV MDA	420'/1 mi		420'/1½ mi	
Circling	560'/1 mi		720'/2 mi	920'/3 mi
TACAN-A				
Circling	560'/1 mi		720'/2 mi	920'/3 mi
Aircraft categories are based on the approach speed of aircraft, which is determined as 1.3 times the stall speed in landing configuration. The approach categories are as follows:				
Category A: 0-90 knots (e.g., Cessna 172)				
Category B: 91-120 knots (e.g., Beechcraft KingAir)				
Category C: 121-140 knots (e.g., B-737, Regional Jets, Canadair Challenger)				
Category D: 141-166 knots (e.g., B-747, Gulfstream IV)				
Category E: greater than 166 knots (e.g., certain large military or cargo aircraft)				
Abbreviations:				
ILS = instrument landing system		LNAV/RNAV/VNAV = a technical variant of GPS (lateral navigation/area navigation/vertical navigation)		
LPV = localizer performance with vertical guidance		DA = decision altitude (used for vertically guided approaches)		
VOR = very high frequency omnidirectional range		MDA = minimum descent altitude (used for non-precision approaches)		
GPS = global positioning system				
Note:				
(xxx'/x-mile) = visibility (in feet)/cloud ceiling height (in miles)				

Source: U.S. Terminal Procedures (effective January 25 - February 21, 2024)

AIRSPACE AND AIR TRAFFIC CONTROL

The *Federal Aviation Administration Act of 1958* established the FAA as the responsible agency for the control and use of navigable airspace within the United States. The FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS covers the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; and personnel and material. Wilmington International Airport has no direct control over either airspace management or the airport traffic control tower (ATCT) for aircraft operating at the airport. These functions are handled by the FAA and the local ATCT staff.

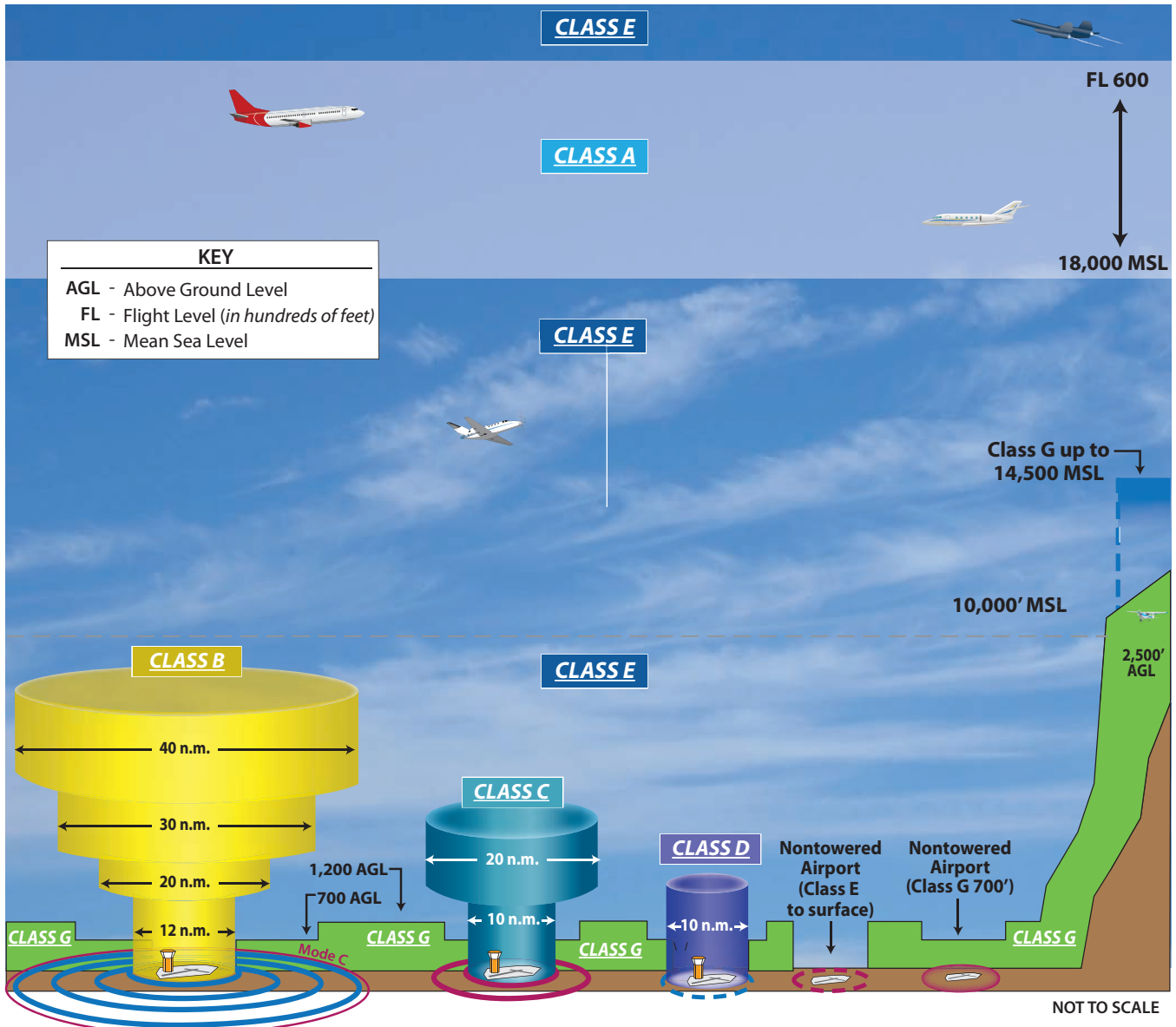
The ILM ATCT is located east of the runway intersection, near midfield. The tower is open 17 hours daily from 6:00 a.m. to 11:00 p.m. After-hours operations are managed by the Washington Air Route Traffic Control Center (ZDC).

AIRSPACE STRUCTURE

The FAA has established a standardized airspace system to regulate the use of airspace for all airports within the U.S. Within the FAA's system, airspace is broadly classified as either controlled or uncontrolled. The difference between controlled and uncontrolled airspace relates primarily to requirements for pilot qualifications, ground-to-air communications, navigation and air traffic services, and weather conditions.

Six classes of airspace have been designated in the U.S. **Exhibit 1G** shows the airspace structure classifications and terminology established by the FAA. Airspace designated as Class A, B, C, D, or E is considered controlled airspace. Aircraft operating within controlled airspace are subject to varying requirements for positive air traffic control. **Exhibit 1H** illustrates the airspace surrounding Wilmington International Airport.

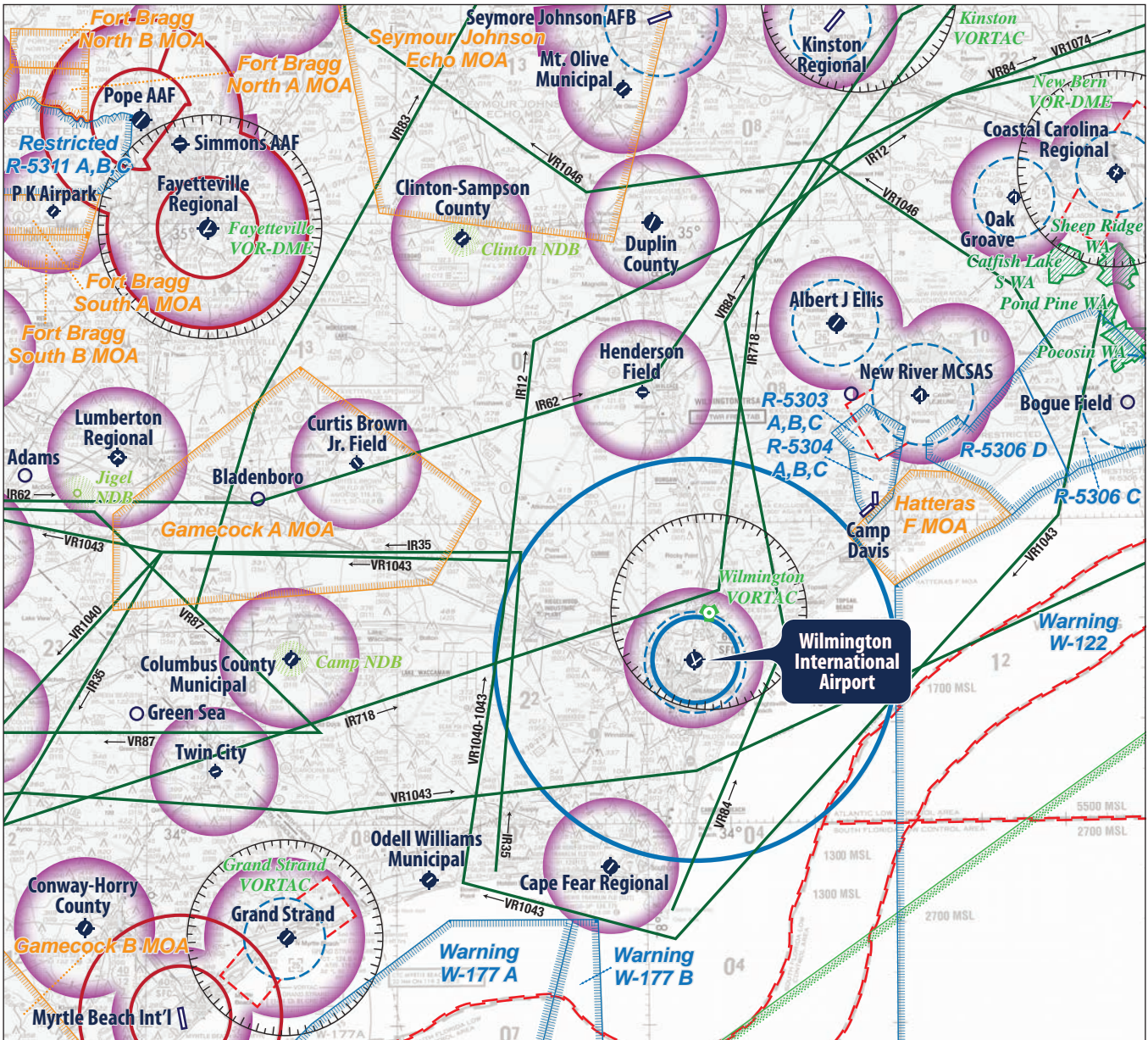
- **Class A** airspace is controlled airspace and includes all airspace from 18,000 feet MSL to flight level 600 (approximately 60,000 feet MSL).
- **Class B** airspace is controlled airspace surrounding high-activity commercial service airports, such as Charlotte Douglas International Airport. Class B airspace is individually tailored and consists of a surface area and two or more layers.
- **Class C** airspace is airspace that is within 30 nautical miles (nm) of primary airports' Class B airspace and within 10 nm of designated airports. The normal radius of the outer limits of Class C airspace is 10 nm.
- **Class D** airspace is controlled airspace surrounding low-activity commercial service or general aviation airports with an ATCT. Wilmington International Airport airspace is classified as Class D from the surface to 2,500 feet MSL within a radius of five nm from the tower. Class D airspace is effective during the time the ATCT is operational.



DEFINITION OF AIRSPACE CLASSIFICATIONS

- CLASS A** Think A - Altitude. Airspace above 18,000 feet MSL up to and including FL 600. Instrument Flight Rule (IFR) flights only, ADS-B 1090 ES transponder required, ATC clearance required.
- CLASS B** Think B - Busy. Multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports. ADS-B 1090 ES transponder required, ATC clearance required.
- CLASS C** Think C - Mode C. Mode C transponder required. ATC communication required. Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.
- CLASS D** Think D - Dialogue. Pilot must establish dialogue with tower. Generally airspace from the surface to minimum 2,500 feet AGL surrounding towered airports.
- CLASS E** Think E - Everywhere. Controlled airspace that is not designated as any other Class of airspace.
- CLASS G** Think G - Ground. Uncontrolled airspace. From surface to a 1,200 AGL (in mountainous areas 2,500 AGL) Exceptions: near airports it lowers to 700' AGL; some airports have Class E to the surface. Visual Flight Rules (VFR) minimums apply.

Source: www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/15_phak_ch15.pdf



LEGEND

- | | | | |
|--|---|--|--|
| | Airport with other than hard-surfaced runways | | Terminal Radar Service Area (TRSA) |
| | Airport with hard-surfaced runways 1,500' to 8,069' in length | | Class C Airspace |
| | Airport with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'. | | Class D Airspace |
| | Compass Rose | | Class E Airspace |
| | VORTAC | | Class E Airspace with floor 700 ft. above surface that laterally abuts 1200 ft. or higher Class E airspace |
| | Non-Directional Radio Beacon (NDB) | | Victor Airways |
| | Wilderness Area | | Military Training Route |
| | Air Defense Identification Zone (ADIZ) | | Military Operation Area (MOA) |
| | | | Alert Areas |
| | | | Differential Floors |

Source:
Charlotte Sectional Chart
US Department of Commerce
National Oceanic and
Atmospheric Administration
October 5, 2023

- **Class E** airspace is controlled airspace surrounding an airport which encompasses all instrument approach procedures and low altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio contact with air traffic control, visual flight can only be conducted if minimum visibility and cloud ceilings exist. When the tower is closed, the Class D airspace reverts to Class E airspace and the airport operates in Class E airspace with a floor of 700 feet AGL extending to 18,000 feet MSL.
- **Class G** airspace is uncontrolled airspace that does not require communication with an ATCT. Class G airspace extends from the surface to the overlying Class E airspace.

SUMMARY

The information presented in this chapter provides the foundation for the remaining elements of the planning process. Information on current airport facilities and utilization will serve as the basis for the development of the aircraft noise analysis during the next phase of the study. The airport environs information found in this inventory section will be utilized in the assessment of airport noise impacts in later chapters.