Final Noise Study
159th Fighter Wing at
NAS JRB New Orleans, Louisiana
for the Air National Guard
F-15EX Eagle II & F-35A
Operational Beddowns
Environmental Impact Statement

December 2023

TABLE OF CONTENTS

List of Figures

List of Tables

ACRONYMS AND ABBREVIATIONS

159 FW	159th Fighter Wing
AAD	Average Annual Day
AGL	Above Ground Level
ANG	Air National Guard
ANSI	American National Standards Institute
ASA	Acoustical Society of America
ATCT	Air Traffic Control Tower
BAF	Westfield-Barnes Regional Airport
CDNL	C-weighted Day-Night Average Sound Level
DAF	Department of the Air Force
dB	Decibel
dBA	A-weighted decibel
DNL	Day-Night Average Sound Level
DNWG	Department of Defense Noise Working Group
DoD	Department of Defense
DON	Department of the Navy
FAA	Federal Aviation Administration
FAT	Fresno Yosemite International Airport
FICON	Federal Interagency Committee on Noise
GCA	Ground-Controlled Approach
Hz	Hertz
JRB	Joint Reserve Base
kPa-s/m^2	kilopascal-seconds per square meter
L_{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average A-weighted Sound Level
L_{eq}	Equivalent Sound Level
L_{max}	Maximum Sound Level
MOA	Military Operations Area
MRNMap	Military Operating Area and Range Noise Model
MSL	mean sea level
NA	Number of Events at or above a specified threshold
NAS	Naval Air Station
NED	National Elevation Dataset
NGB	National Guard Bureau
PA	Probability of Awakening
PAA	Primary Aerospace Vehicle Authorized
PHL	Potential for Hearing Loss
POI	Point of Interest
R-	Restricted Area
RNM	Rotary Noise Model
SEL	Sound Exposure Level
SUA	Special Use Airspace
TA	Time Above a specified level
U.S.	United States
USGS	United States Geological Survey
VFA	Strike Fighter Squadron
VFC	Fighter Squadron Composite
W-	Warning Area

1.0 INTRODUCTION

1.1 BACKGROUND

The United States (U.S.) Department of the Air Force (DAF) and National Guard Bureau (NGB) propose to maintain the combat capability of the Air National Guard (ANG) by recapitalizing the remaining F-15C/D aircraft, which are being retired due to age and associated maintenance costs. There are three remaining ANG units that are still flying the F-15C/D aircraft (that are not already undergoing similar evaluation); these include the 104th Fighter Wing at Westfield-Barnes Regional Airport (BAF) in Westfield, Massachusetts; the 144th Fighter Wing at Fresno Yosemite International Airport (FAT) in Fresno, California; and the 159th Fighter Wing (159 FW) at Naval Air Station (NAS) Joint Reserve Base (JRB) New Orleans, in Belle Chasse, Louisiana (Figure 1-1). Figure 1-2 depicts the training airspace associated with the 159 FW.

This Noise Study is in support of the beddown, operation, and associated infrastructure construction of one squadron of F-15EX Eagle II (F-15EX) aircraft or one squadron of F-35A Lightning II (F-35A) aircraft squadrons at NAS JRB New Orleans. These aircraft could replace the aging fleet of F-15C/D fighter aircraft at NAS JRB New Orleans., which is the subject of this Noise Study.

For this analysis, the "current" aircraft operations reflect the operational data and noise modeling conditions for all aircraft operating at NAS JRB New Orleans. Military flight operations were based on interviews with members of the 159 FW and updated as needed to reflect current operational data for based military operations, which were determined to be an accurate estimate of anticipated military operations several years into the future. Transient military operations data was obtained from the Air Traffic Activity Analyzer with flight tracks based upon military personnel input.

This analysis also includes various possible afterburner usage scenarios. The F-15EX is modeled with 50 and 90 percent afterburner usage for departure operations, while the F-35A is modeled with 5, 50, and 95 percent afterburner usage for departures. All other flight activity would remain consistent with the existing conditions.

Thus, within this Noise Study for the 159 FW, the following aircraft alternatives and afterburner usage scenarios are modeled:

- F-15C/D – 18 Primary Aerospace Vehicle Authorized (PAA) (current)
- F-15EX – 21 PAA (proposed alternative)
    - 50 percent afterburner usage
    - 90 percent afterburner usage
- F-35A – 21 PAA (proposed alternative)
    - 5 percent afterburner usage
    - 50 percent afterburner usage
    - 95 percent afterburner usage

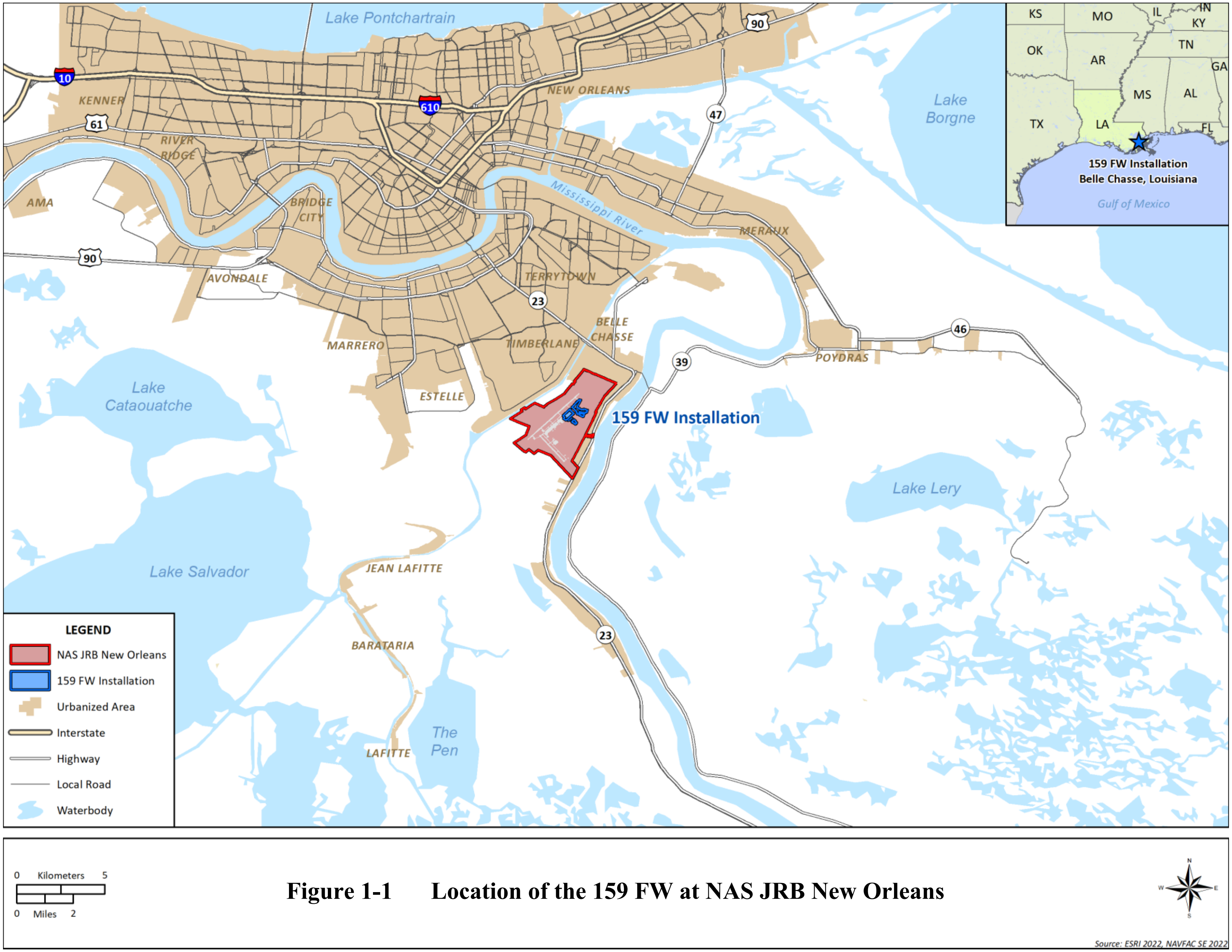


Figure 1-1 Location of the 159 FW at NAS JRB New Orleans

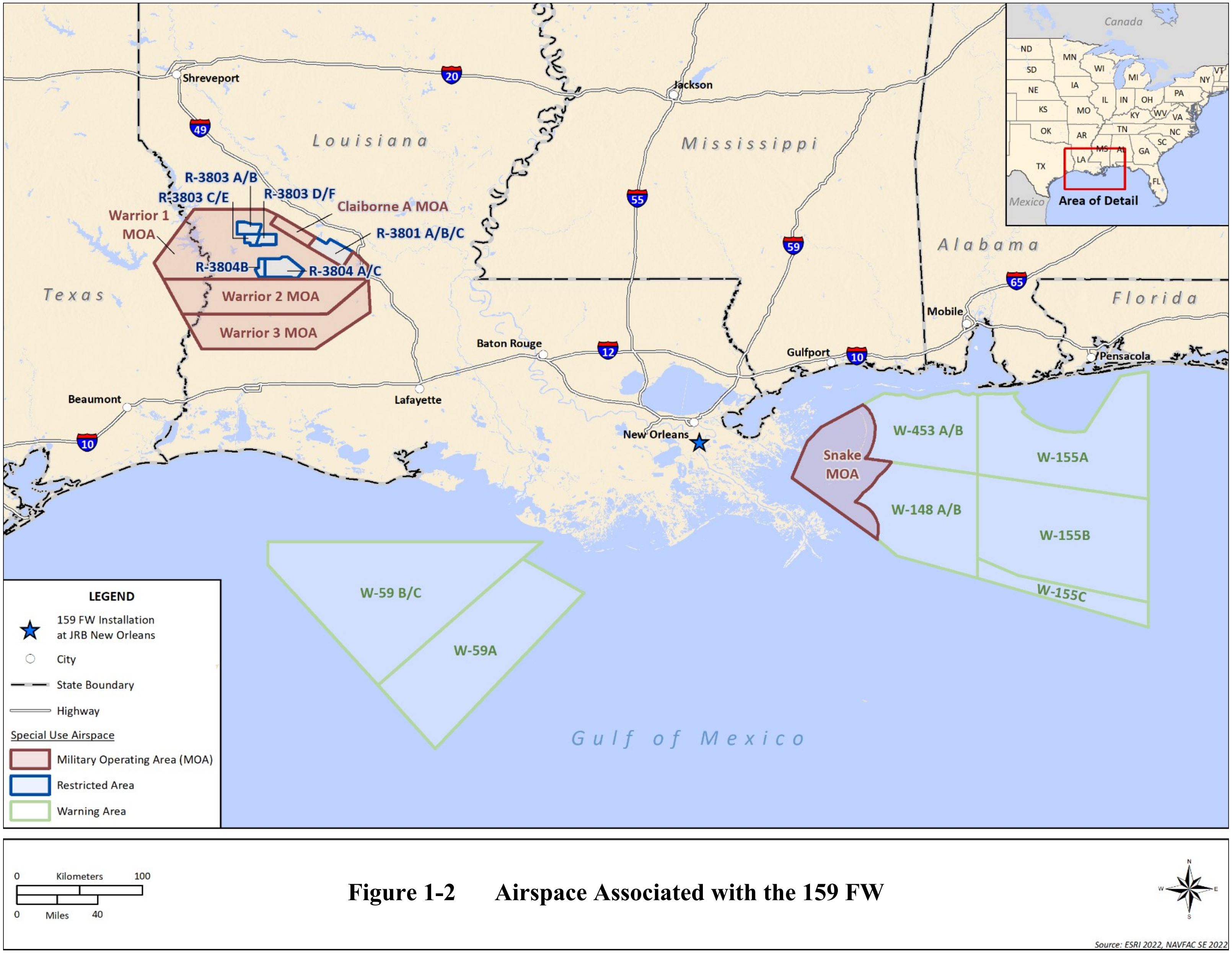


Figure 1-2 Airspace Associated with the 159 FW

1.2 DOCUMENT STRUCTURE

Section 1.0 introduced this study; while Section 2.0 describes the methodology used in the analysis. Section 3.0 provides the modeling data used and the noise exposure for the current operations (existing conditions). Section 4.0 provides the noise exposure for the proposed F-15EX and F-35A (and their various afterburner scenarios) and Section 5.0 describes the No Action Alternative. Section 6.0 presents conclusions and Section 7.0 provides the references.

2.0 METHODOLOGY

The Department of Defense (DoD) and the Federal Interagency Committee on Noise (FICON) (1978) outline the types of metrics to describe noise exposure for environmental impact assessment, while the Defense Noise Working Group (DNWG) provides guidance on military noise modeling methodology. The following subsections describe these noise metrics and noise modeling methodology.

2.1 NOISE MODELING AND PRIMARY NOISE METRICS

The DoD prescribes use of the Noisemap suite of computer programs (Wyle 1998; Wasmer Consulting 2006) containing the core computational programs called "NMAP," version 7.3, the Rotary Noise Model "RNM," and "MRNMap," version 3.0. For this Noise Study, the Noisemap suite of programs refers to BASEOPS as the input module, Noisemap or RNM as the noise model for predicting noise exposure in the airfield environment, and MRNMap as the noise model used to predict subsonic noise exposure in the Special Use Airspace (SUA). Supersonic noise is estimated with BOOMAP96. NMPLOT is the tool used to combine the noise contours produced by Noisemap and RNM into a single noise exposure map. Table 2-1 presents noise modeling parameters used in this analysis.

Table 2-1 Noise Modeling Parameters

Software	*Analysis*	*Version*
NMAP	Airfield noise – military fixed-wing aircraft	7.3
RNM[1]	Airfield noise – military rotary-wing aircraft	8.4
MRNMap	Airspace Noise (subsonic)	3.0
BOOMAP	Airspace Noise (supersonic)	96
Parameter	***Description***	
Receiver Grid Spacing	500 ft in x and y	
Metrics	DNL and CDNL (primary) L_{dnmr}, SEL, L_{max}, L_{eq}, NA	
Basis	AAD Operations (NMAP/RNM); Busiest Month (MRNMap)	
Topography		
Elevation Data Source	USGS 30m NED	
Elevation Grid Spacing	500 ft in x and y	
Impedance Data Source	USGS Hydrography DLG	
Impedance Grid spacing	500 ft in x and y	
Flow Resistivity of Ground (soft/hard)	225 kPa-s/m^{2} for land and 100,000 kPa-s/m^2 for water	

Table 2-1 Noise Modeling Parameters

Modeled Weather (Monthly Averages 2015-2020; April selected)	
Temperature	70.7 °F
Relative Humidity	57.1 %
Barometric Pressure	29.99 in Hg

Legend: °F = degrees Fahrenheit; AAD = Average Annual Day; CDNL = C-weighted Day-Night Average Sound Level; DLG = Digital Line Graph; DNL = Day-Night Average Sound Level; ft = feet; in Hg = inches Mercury kPa-s/m^2 = kilopascal-seconds per square meter; L_{dnmr} = Onset-Rate Adjusted Monthly Day-Night Average Sound Level; L_{eq} = Equivalent Sound Level; L_{max} = maximum sound level; m = meters; NA = Number of Events at or above a specified threshold; NED = National Elevation Dataset; SEL = Sound Exposure Level; USGS = U.S. Geological Survey.

Note: 1) Helicopter modeling occurred prior to the AAM software release in 2022 so the helicopter portion of the analysis utilized the Rotary Noise Model (RNM), which contains the same sound propagation calculations as AAM when used for rotary-wing aircraft.

Human hearing sensitivity to differing sound pitch, measured in cycles per second or hertz (Hz), varies by frequency. To account for this effect, sound measured for environmental analysis utilizes A-weighting, which emphasizes sound roughly within the range of typical speech and de-emphasizes very low and very high frequency sounds. All decibels (dB) presented in this study utilize A-weighted (dBA or dB[A]) but are presented as dB for brevity, unless otherwise noted in the few instances when C-weighted noise levels are used for supersonic impulsive events.

The primary noise metric utilized in this analysis for noise impacts is the Day-Night Average Sound Level (L_{dn}, also written as DNL), which is A-weighted applicable for subsonic aircraft operations. DNL is a cumulative metric that includes all noise events occurring in a 24-hour period with a nighttime noise penalty applied to events occurring after 10 p.m. (2200) and before 7 a.m. (0700). The daytime period is defined as 7 a.m. (0700) to 10 p.m. (2200). An adjustment (penalty) of 10 dB is added to events occurring during the DNL nighttime period to account for the added intrusiveness while people are most likely to be relaxing at home or sleeping. Note that “daytime” and “nighttime” in calculation of DNL always correspond to the times given above. This is often different than the “day” and “night” used commonly in military aviation, which are directly related to the times of sunrise and sunset applicable for military training in dark conditions. These times vary latitudinally, and throughout the year with the seasonal changes.

Similar to DNL, C-weighted Day-Night Average Sound Level (CDNL) represents a cumulative metric that includes all noise events occurring in a 24-hour period with a DNL (or CDNL) nighttime noise penalty applied to events occurring after 10 p.m. (2200) and before 7 a.m. (0700). However, CDNL is C-weighted for impulsive sounds that contain greater low frequency noise, like ordnance or supersonic “booms,” to better reflect the level of annoyance generated by these activities. Given that there would be no change to the airspace or where supersonic operations would occur, analysis of CDNL is not part of this analysis.

DoD Noise Program Policy (DoD Instruction 4715.13, 28 January 2020) requires the use of the DNL noise metric to describe aircraft noise exposure levels at airfields based on average annual day (AAD) averaged over 365 days for purpose of long-term compatible land use planning. Consistent with that standard, this study analyzed both military and civil operations at the airfield on an average annual basis. Flight activity in the SUA can vary throughout the year, so AAD may not always be the most informative approach for SUA. Therefore, the SUA analysis considers the ‘busiest month’ to better reflect flight activity during an average day of the ‘worst month’ of the year.

Assessment of noise associated with a proposed action requires prediction of future conditions that cannot be easily measured until after implementation or would require excessive cost or time to measure. The solution to this includes the use of computer software to simulate the future conditions, as detailed in the following sections. A recent congressionally mandated study compared the accuracy of noise modeling methods described in this section to real-world field measurements. The report found that DoD-approved noise models operate as intended providing accurate prediction of noise exposure levels from aircraft operations for use in impact assessments and long-term land use planning (Department of the Navy 2021). The study also determined that the largest variable in any aircraft noise-modeling effort is the expected operational flight parameter data, such as runway and flight track utilization, altitudes at various points in the flight track, engine power settings, and other parameters.

2.1.1 Naval Air Station Joint Reserve Base New Orleans

This section discusses the airport facilities, including the airspace, air traffic control tower (ATCT), and runways at NAS JRB New Orleans and the aircraft noise modeling.

2.1.1.1 Airport Facilities

Airspace

The airspace surrounding NAS JRB New Orleans is shown in Figure 1-2. All airspace within the U.S. National Airspace System is classified into a number of classes (A, B, C, D, E and G) based on availability of air traffic control services and/or restrictions of ownership (civilian versus military). NAS JRB New Orleans is considered a Class D airport, which is positively controlled by an ATCT that operates between the hours of 1 p.m. (1300) and 5 a.m. (0500). Monday through Friday and Saturday and Sunday from 4 p.m. (1600) to 12 a.m. (2400). NAS JRB New Orleans's Class D airspace extends to 2,500 feet above ground level (AGL) and has a diameter of 5 statute miles (or approximately 4.3 nautical miles). Class D airspace rules require aircraft to maintain positive radio contact with the ATCT at the airport when operating within the airspace. The NAS JRB New Orleans Class D airspace is bordered to the north by Louis Armstrong New Orleans International Airport Class B airspace.

Air Traffic Control Tower

The airport's ATCT is a military facility which is staffed daily between the hours of 1 p.m. (1300) and 5 a.m. (0500). Monday through Friday and Saturday and Sunday from 4 p.m. (1600) to 12 a.m. (2400). The ATCT, located on an airfield, is responsible for the movement of aircraft on and around the immediate airport. The NAS JRB New Orleans ATCT is operated by military personnel that adheres to all rules and regulations set forth by the federal government.

Runways

NAS JRB New Orleans is comprised of two runways with Runway 04/22 oriented in a northeast and southwest direction, while Runway 14/32 heads in a southeast and northwest direction. The majority of DoD aircraft operations occur along Runway 04/22 which is 10,000 feet in length and 200 feet in width.

Aircraft Noise Modeling

Standard noise modeling methodology was carried forward adhering to DoD noise modeling criteria. Modeling of noise, using the Noisemap software suite, was accomplished by determining and building each aircraft's flight tracks (paths over the ground) and profiles, which includes altitude, airspeed, power settings, and other flight conditions. Included in this development was the confirmation and revisions associated with the airfield, which included runway locations and dimensions, elevations, and whether displaced thresholds existed. Table 2-2 describes airfield details utilized within this Noise Study. This information is developed iteratively with a team primarily made up of representatives from the installation's flying squadrons and air traffic controllers as well as the NGB. The data was compiled in a data validation package, reviewed by the team, and approved for use by the NGB team prior to modeling (NGB 2022). This data has been combined with the numbers of each type of operation by aircraft/track/profile, local climate, terrain surrounding the airfield, and similar data related to aircraft engine runs that occur at specific locations on the ground (e.g., pre- and post-flight and maintenance activities). Appendix A shows summary flight tracks, as well as representative flight profiles for the aircraft operations modeled. The proposed F-15EX noise modeling utilized recent measurements obtained in 2022 at Eglin Air Force Base, while other aircraft types used existing data within the NMAP's Noisefile for fixed wing aircraft and NC Spheres for rotary-wing aircraft (BRRC 2023).

Table 2-2 NAS JRB New Orleans Airfield Details for Noise Modeling

Runway	*Start*	*End*	*Length*	*Width*	*Elevation*	*Displaced Threshold*	*Traffic Pattern*	*Instrument Approach*
04	29.823507N 90.037301W	29.843198N 90.015288W	10,000 ft	200 ft	-2.8 ft	N/A	Left	LOC/GS
14	29.823352N 90.033097W	29.810617N 90.021069W	6,000 ft	200 ft	-2.5 ft	N/A	Right	N/A
22	29.843198N 90.015288W	29.823507N 90.037301W	10,000 ft	200 ft	-1.1 ft	N/A	Right	N/S
32	29.810617N 90.021069W	29.823352N 90.033097W	6,000 ft	200 ft	-0.9 ft	N/A	Left	N/A

Legend: Start and End in Decimal Degrees; ft = feet; GS= glideslope; LOC= localizer; N/A=non-applicable; ILS=Instrument Lighting System
Source: AIRNAV 2023

Noisemap's ability to account for the effects of sound propagation includes consideration of varying terrain elevation, taken from the U.S. Geological Survey (USGS) National Elevation Dataset (NED), and ground impedance conditions, taken from USGS Hydrography data. In this case, "soft ground" (e.g., grass-covered ground) is modeled with a flow resistivity of 225 kilopascal-seconds per square meter (kPa-s/m^2) and "hard ground" (in this case, water) is modeled with a flow resistivity of 100,000 kPa-s/m^2. For ambient temperature, humidity, and pressure, each month was assigned a temperature, relative humidity, and barometric pressure from data available for that month for the years 2015 through 2020. Noisemap then determined and used the month with the weather values that produced the median results in terms of noise propagation effect, which in this case was the month of April (with the values noted in Table 2-1).

The results of the DoD's Noisemap and RNM modeling were combined for all aircraft activity at the airfield for both existing conditions and proposed future conditions. The combined noise exposure is presented in terms of contours, i.e., which are lines of equal DNL value. DNL contours of 65 to 85 dB, presented in 5-dB increments, provide a graphical depiction of the aircraft noise environment in the vicinity of the airfield. In addition to the DNL plots, specific noise sensitive locations (schools, hospitals, places of worship, and residential neighborhoods) have been identified in the surrounding communities referred to as representative Points of Interest (POIs). Table 2-3 lists and Figure 2-1 presents the 43 selected representative POIs used for this study. Section 2.2 provides a discussion on the supplemental metric noise calculations performed for each POI.

2.1.2 Special Use Airspace

In the SUA environment, the Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}) serves as the primary noise metric, with predicted sound levels based on the month with the most aircraft activity in each airspace unit to account for the sporadic nature of operations. Under DNWG guidance, L_{dnmr} is the U.S. Government standard for modeling and predicting the cumulative noise exposure and assessing community noise impacts in the SUA environment. L_{dnmr} is identical to the DNL except that an additional penalty is applied to account for the startle effect due to the quick increase in sound level created by aircraft operating at low altitudes and high rates of speed (over 400 knots). The penalty is based on how quickly the sound increases when heard by an observer on the ground, described as 'rise-time' rate, and ranges for 0 to up to 11 dB. Thus, DNL will always be equal to or lower than L_{dnmr}.

If there are large variations in the distribution of airspace utilization from one month to the next, then L_{dnmr} would be based upon the month with the most aircraft activity in each airspace unit to account for the sporadic nature of operations. However, the airspace training considered in this study for the existing F-15C/D and proposed F-15EX and F-35A would remain consistent, so an average month of training forms the basis for the airspace noise analysis. Noise modeling in the airspace was accomplished by identifying the overland airspace unit nearest noise sensitive receptors and assuming a 'worst-case' scenario with all ANG training events occurring within that airspace with typical airspace profiles appropriate for each aircraft type. This approach provides a conservative estimate of the greatest L_{dnmr} that could occur within the SUA. L_{dnmr} for a typical year would be less because a portion of training would occur in over-water training airspace where there would be no noise impacts to humans. Both the rise-time penalty and potential busy month modeling of operations applicable to L_{dnmr} result in calculated L_{dnmr} that will always be equal to or greater than DNL for the same activity.

Using the MRNMap model contained in the Noisemap software suite, noise modeling requires determining the use of each airspace unit and building each aircraft's flight profiles based on the aircraft's configuration (airspeed and power setting) and the amount of time spent at various altitudes throughout the airspace. With variation in the utilization of airspace by the 159 FW, this analysis conservatively assumed all 159 FW activity occurs in the over-land airspace where noise impacts to humans would be greatest, for all scenarios. The modeling details for airspace operation within the over-land airspace (altitude distributions, speeds, and power settings) was developed iteratively with a team primarily made up of representatives from NAS JRB New Orleans, the 159 FW, as well representatives from the NGB. The data were compiled in a validation package reviewed by and approved for use by the NAS JRB New Orleans, 159 FW, and NGB team prior to modeling (NGB 2022). The ambient temperature, humidity, and pressure were assumed the same as at the airfield (see Table 2-1).

Table 2-3 POIs in the Vicinity of NAS JRB New Orleans

Map ID	*Point Type*	*Named POI*[1]
NO-C-01	Census Tract Centroid	Census Tract 252.02
NO-C-02	Census Tract Centroid	Census Tract 6.18
NO-C-03	Census Tract Centroid	Census Tract 254
NO-C-04	Census Tract Centroid	Census Tract 250.03
NO-C-05	Census Tract Centroid	Census Tract 250.05
NO-C-06	Census Tract Centroid	Census Tract 6.17
NO-C-07	Census Tract Centroid	Census Tract 278.03
NO-C-08	Census Tract Centroid	Census Tract 251.02
NO-C-09	Census Tract Centroid	Census Tract 251.03
NO-C-10	Census Tract Centroid	Census Tract 251.04
NO-C-11	Census Tract Centroid	Census Tract 278.10
NO-C-12	Census Tract Centroid	Census Tract 278.11
NO-C-13	Census Tract Centroid	Census Tract 278.16
NO-C-14	Census Tract Centroid	Census Tract 278.14
NO-C-15	Census Tract Centroid	Census Tract 278.13
NO-C-16	Census Tract Centroid	Census Tract 278.17
NO-C-17	Census Tract Centroid	Census Tract 278.20
NO-H-01	Healthcare Facility	Bayside Healthcare Center
NO-H-02	Healthcare Facility	Padua Community Services Pediatric Residential Program
NO-H-03	Healthcare Facility	Belle Chasse Community Health Center
NO-R-01	Residential Area	Emily Oaks Drive near E. St Bernard Highway
NO-R-02	Residential Area	Clubhouse Drive near Harbour Town Court
NO-R-03	Residential Area	Highland Drive near E. St Bernard Highway
NO-R-04	Residential Area	Parc Riverwood Drive and Main Street
NO-R-05	Residential Area	Good News Avenue and Gravolet Street
NO-R-06	Residential Area	Census Tract 278.12
NO-R-07	Residential Area	Lac du Bay Drive and Lac Saint Pierre Drive
NO-R-08	Residential Area	Lake Lynn Drive
NO-R-09	Residential Area	Grand Tierre Drive
NO-R-10	Residential Area	Jean Lafitte Boulevard
NO-S-01	School	Belle Chasse Elementary School and Belle Chasse Primary School
NO-S-02	School	Athlos Academy of Jefferson Parish and GB Elementary School
NO-S-03	School	George Cox Elementary School
NO-S-04	School	Jefferson Rise Charter School
NO-S-05	School	Paul J. Solis Elementary School
NO-S-06	School	Woodland West Elementary School
NO-S-07	School	Brighter Horizons
NO-S-08	School	Woodmere Elementary
NO-S-09	School	Belle Chasse High School
NO-S-10	School	Jacob's Ladder Learning Academy
NO-S-11	School	Our Lady of Perpetual Help School
NO-S-12	School	Belle Chasse Academy
NO-S-13	School	Christian Fellowship Daycare

Notes: [1]The census tracts represent neighborhoods surrounding NAS JRB New Orleans where noise sensitive locations (such as residences, schools, places of worship, etc.) are likely to occur.

Legend: ID = Identification; POI = Point of Interest.

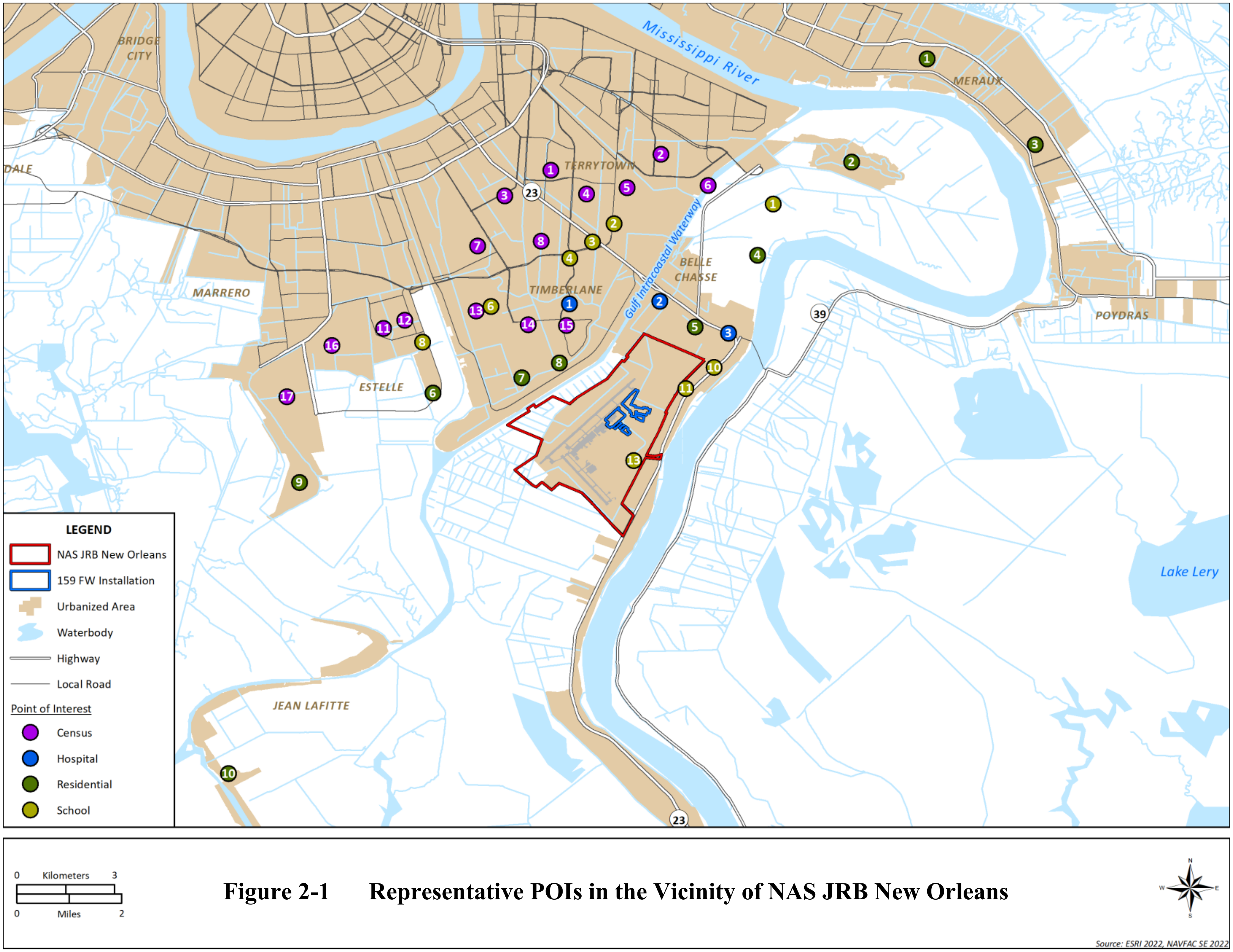


Figure 2-1 Representative POIs in the Vicinity of NAS JRB New Orleans

The software program, BOOMAP96, provides a method to estimate CDNL generated by supersonic flight operations in SUA. CDNL predicted from the BOOMAP96 software relies upon measured noise levels collected at ground level during Basic Flight Maneuvers within airspace with no minimum supersonic altitude restrictions. The airspace considered in this analysis imposes a minimum altitude of 10,000 feet mean sea level (MSL) for supersonic activity. Because BOOMAP96 does not provide user adjustment for minimum supersonic altitudes, the software predicted CDNL would be greater than the actual levels that would occur within airspace with altitude restrictions. Therefore, this study utilizes BOOMAP96 to calculate the relative change that would occur under each proposed action relative to the existing conditions.

2.2 ADDITIONAL (SUPPLEMENTAL) NOISE METRICS

While a cumulative metric, such as DNL is appropriate to predict the overall noise environment at airfields (and the airspace equivalent [L_{dnmr}] in the vicinity of the SUA), a full description of noise impacts to noise sensitive locations requires additional metrics. The DoD expands upon DNL with the following supplemental metrics described in the DNWG guidelines (DNWG 2009a):

- A measure of the greatest sound level generated by single aircraft events: Maximum Sound Level (L_{max}),
- A combination of the sound level and duration: Sound Exposure Level (SEL), and
- Number of Events at or above a specified threshold (NA),
- Equivalent Sound Level (L_{eq}),
- Time Above a specified level (TA), and
- Probability for Awakening (PA).

NA, TA, and L_{eq} use a specified period that can include an average 24-hour day, DNL daytime, DNL nighttime, school day, or other time period appropriate for the analysis. Details on the use of these supplemental metrics in this study are described in the following sections.

2.2.1 Maximum Sound Level

The highest A-weighted sound level measured during a single event in which the sound changes with time is called the maximum A-weighted sound level or L_{max}. L_{max} is the maximum level that occurs over one-eighth of a second and denoted as “fast” response on a sound level meter (American National Standards Institute [ANSI] 1988). L_{max} is used in this study for the calculation of numbers of events above, as described in Section 2.2.5 and 2.2.6, and to compare single-event noise levels between different aircraft types in Section 4.2.2. Although useful in determining when a noise event may interfere with conversation, TV or radio listening, or other common activities, L_{max} does not fully describe the noise because it does not account for how long the sound is heard.

2.2.2 Sound Exposure Level

SEL combines both the intensity of a sound and its duration by providing the sound level that would contain the same sound energy of an event if occurring over a 1 second period. This means SEL does not represent a sound level heard directly at any given time. However, SEL provides a much better metric for comparison of aircraft flyovers than L_{max} because it allows normalization of disparate events to their 1 second energy average. SEL values are larger than those for L_{max} for the same event because aircraft noise events last more than a few seconds. Section 4.2.2 provides single-event SEL comparisons across different aircraft while operating in the airspace.

2.2.3 Equivalent Sound Level

The L_{eq} is a "cumulative" metric that combines a series of noise events over a period by averaging the sound energy. The time period specified for L_{eq} is typically provided along with the value and relates to a type of activity and presented in parenthesis (e.g., $L_{eq[24]}$ for 24 hours). An $L_{eq(8)}$ is used in this study to represent a typical school day occurring from 7 a.m. (0700) to 3 p.m. (1500).

2.2.4 Potential for Hearing Loss

People exposed to high noise environments over a long period of time are at an increased risk of experiencing permanent hearing loss. Hearing loss is generally interpreted as a decrease in the ear's sensitivity to perceived sound, which can be either temporary or permanent. Various governmental organizations, including the Occupational Safety and Health Administration, have identified noise thresholds varying from 70 to 85 dB L_{eq} to protect workers with the exposure assumption of 40 hours per week over a 40-year work lifetime.

Exposure to noise for people residing in areas adjacent to airfields is quite different from a work environment. When people are indoors, the sound levels experienced decrease due to building attenuation. Additionally, when people spend time away from home, the exposure to noise from the airfield in question is removed so the Occupational Safety and Health Administration standards would tend to overpredict the hearing loss risk. By definition, DNL is equal to or greater than L_{eq}, so the DoD selected a screening threshold of 80 dB DNL of residences to ensure a conservative approach to assessing the potential for hearing loss (DNWG 2012). If residences are identified within the 80 dB DNL, or greater, additional analysis of L_{eq} should be performed.

2.2.5 Non-School Speech Interference

Aircraft noise events can disrupt activities like conversation or watching television when indoor L_{max} exceeds 50 dB because word intelligibility decreases at that level (DNWG 2013a). This study determines the number of potential speech interfering events at non-school POIs (such as residential or hospital) during a 15-hour day (from 7 a.m. [0700] until 10 p.m. [2200]) and presents the average hourly number of events as NA.

2.2.6 Classroom Learning Interference

A noisy environment can adversely affect and interfere with classroom learning. Various governmental organizations have identified both L_{eq} and number of interfering events as suitable criteria for classroom impacts. Consistent with DoD recommendations, this study used an exterior L_{eq} of 60 dB (equivalent to 45 dB interior L_{eq} with windows open) as screening criteria to determine schools at risk of classroom learning affects (DNWG 2009a). Locations that exceed this threshold have been further analyzed by counting the number of events per hour above an interior L_{max} of 50 dB, which equates to the highest permissible classroom level for speech intelligibility. The standard noise level reduction due to building attenuation of 15 dB for windows open and 25 dB for windows closed have been utilized to convert between exterior and interior sound levels. The duration, in minutes, that interior sound levels would exceed 50 dB has also been computed to assess the relative time per day that students and teachers may be impacted.

2.2.7 Residential Sleep Disturbance

2.2.7.1 Background

Sleep disturbance can be caused by excessive noise, which can hinder people's ability to fall asleep or to cause people to wake from sleep. A method for calculation of the PA from at least one event per night is described in ANSI/Acoustical Society of America (ASA) S12.9-2008/Part 6. The standard utilizes the estimated interior SEL caused by aircraft events along with the number of occurrences per night to calculate the PA from that event. The resulting PA estimates that percentage of the population would be awakened at least once per night under the noise conditions assessed. For instance, 1 percent PA estimates that 1 percent of the population would be awakened. Multiple events can be combined to determine the PA for all events during a single night. ANSI recommends that only nighttime events occurring during the DNL nighttime with SELs between 50 and 100 dB should be used for this PA calculation. Data suggests that events below 50 dB do not contribute significantly to PA and the formula under-predicts PA for events over 100 dB. The DNWG for environmental impact analysis has endorsed this ANSI/ASA 2008 methodology (DNWG 2009b).

In addition to the ANSI/ASA 2008 methodology, the DNWG guidance identifies outdoor numbers of events (commonly abbreviated as NA) above an SEL of 90 dB as additional criteria for sleep disturbance analysis:

> *Currently, there are no established criteria for evaluating sleep disturbance from aircraft noise, although recent studies have suggested a benchmark of an outdoor SEL of 90 dB as an appropriate tentative criterion when comparing the effects of different operational alternatives. The corresponding indoor SEL would be approximately 25 dB lower (at 65 dB) with doors and windows closed, and approximately 15 dB lower (at 75 dB) with doors or windows open.*

As described in DNWG (2009b), comparison of exterior number of events above 90 dB SEL across multiple study scenarios allows for sleep disturbance impacts to be considered. This does make use of the same PA formula identified in ANSI/ASA 2008 but groups all events as either equal to 90 dB exterior SEL or below the threshold for consideration.

As of July 2018, the ANSI and ASA have withdrawn the 2008 standard, which formed the basis of much of the DNWG 2009b guidance:

> *The decision of Working Group S12/WG 15 to withdraw ANSI/ASA S12.9-2008/Part 6 implies that the method for calculating "at least one behavioral awakening per night" contained in the former Standard should no longer be relied upon for environmental impact assessment purposes. The Working Group believes that continued reliance on the 2008 Standard would lead to unreliable and difficult-to-interpret predictions of transportation-noise-induced sleep disturbance (ANSI/ASA 2018).*

Without a reliable and standardized method to compute PA, or updated guidance from DNWG, this study presents the sleep impact analysis utilizing the previous standard (ANSI/ASA 2008; DNWG 2009b) for environmental impact disclosure purposes. The reader is cautioned that the PA metric provides only a crude estimate because it cannot truly account for all variables that could affect a person's sleep. A comparison of the existing conditions and various Proposed Action scenario awakening percentages showing large changes to PA could provide some insight on whether a particular action would be likely to increase or decrease sleep impacts. However, any additional conclusions may not be supportable.

3.0 EXISTING CONDITIONS

The following subsections detail the modeling data and the resultant noise exposure for the existing conditions at the airfield as well as within the SUA associated with 159 FW operations.

3.1 159 FW INSTALLATION/NAS JRB NEW ORLEANS

3.1.1 Modeling Data

3.1.1.1 159 FW

The 159 FW maintain a flight hour program of approximately 2,550 hours annually, or about 1,850 sorties, averaging about 1.37 hours per sortie. This includes the 159 FW scheduled Alert scramble flights and typical training activity flown at any airfield. Although much of the flying by the 159 FW occurs at their home location at NAS JRB New Orleans, nearly every year for a couple of weeks to several months annually, the 159 FW aircraft will leave NAS JRB New Orleans to train with other units at different airfields resulting in fewer flying operations at NAS JRB New Orleans than stated above. For the purposes of impact analysis, all modeled scenarios consider the potential for impact of the greatest potential impact, or 'worst' case (that is, if all flying activity were to occur at NAS JRB New Orleans during the year). Although the 159 FW's aging F-15C/D aircraft face maintenance issues, the baseline for which the proposed action is compared to, referred as 'existing conditions,' assumes the current aircraft would continue to be maintained sufficiently to be flown at a similar rate as recent years with an average of 1,850 sorties per year.

Each sortie generates one departure and one arrival operation. Additionally, an average of one closed pattern event (each closed pattern event counts as two airfield operations) occurred 50 weeks per year. This activity results in 1,850 departures, 1,850 arrivals, and 234 closed pattern operations per year or 3,934 total airfield operations, as detailed in Table 3-1. Overall, the 159 FW accounts for approximately 19 percent of the NAS JRB New Orleans annual operations. Other users based at NAS JRB New Orleans include the Department of the Navy (DON), U.S. Marine Corps, and U.S. Coast Guard, generating more than half of all airfield operations. Transient aircraft (including fighter, helicopter, jet, and turboprop aircraft) account for the remaining operations at NAS JRB New Orleans.

The 159 FW based F-15C/D aircraft use Runway 4 for 74 percent of operations and Runway 22 for the remaining 26 percent. Closed patterns are flown on either runway but nearly all (approximately 99 percent) of Visual Flight Rules patterns occur to the north side of the airfield. Operations are also broken down by runway (or helipad) used, and percentage occurring during "acoustic night," which is the period after 10 p.m. and before 7 a.m. (2200 and 0700) local time. The night periods referenced here refer to specific 'acoustic periods' applicable to the DNL metric used for airfield noise impact analysis.

Table 3-1 Average Annual Operations at NAS JRB New Orleans

Group	Aircraft	Departures		Arrivals		Closed Patterns[1]		Total		
		Day	Night	Day	Night	Day	Night	Day	Night	Total
159 FW	F-15C/D	1,832	19	1,832	19	234	0	3,897	37	3,934
DON	C-130	245	3	245	3	0	0	490	6	496
USMC	AH-1/UH-1	480	20	480	20	2,148	90	3,108	130	3,238
USCG	H-60	808	43	808	43	3,404	180	5,019	265	5,284
DON	F-5E/F	1,200	0	1,200	0	240	0	2,640	0	2,640
Transient Aircraft	Fighter1	403	4	403	4	0	0	806	8	814
	Fighter2	806	8	806	8	0	0	1,611	16	1,627
	Heavy Helicopter	242	2	242	2	0	0	484	4	488
	Helicopter	38	1	38	1	0	0	76	2	78
	Heavy Jet	184	2	184	2	0	0	367	4	371
	Light Jet	324	3	324	3	0	0	648	6	654
	Heavy Turboprop	63	1	63	1	0	0	125	2	127
	Light Propeller	682	14	682	14	0	0	1,364	28	1,392
Grand Total		**7,305**	**119**	**7,305**	**119**	**6,026**	**270**	**20,635**	**508**	**21,143**

Notes: [1]Closed Patterns counted as two operations.
Legend: 159 FW = 159th Fighter Wing; DON = Department of the Navy; USCG = United States Coast Guard; USMC = United States Marine Corps.

3.1.1.2 Other Based Aircraft

The Navy's Strike Fighter Squadron (VFA)-204 is a Reserve Squadron, flying the FA-18C/D. This unit is transitioning to the F-5E/F/N aircraft and may be re-designated as a Fighter Squadron Composite (VFC). The intent is to equip VFA/VFC-204 with 12 F-5s, and that action will occur without regard to the ANG's decision on transition of the 159 FW. Therefore, both the existing conditions and the action alternatives modeled in this ANG action include the F-5 for this Navy squadron, vice the FA-18. This unit plans to have a flight hour program of about 2,200 hours annually for the F-5s. With a 1.1-hour average sortie duration, this equates to about 2,000 annual sorties. Since the unit's major mission will be supporting other Fleet assets training from NAS Key West, Florida, this unit is planning to generate about 40 percent of its hours there, and only 60 percent when at NAS JRB New Orleans. The No Action and Proposed Action scenarios in the noise model include 2,640 F-5 airfield operations, to cover 1,200 local sorties and a 10 percent overhead for additional closed patterns. All F-5 operations are modeled to Runways 4 and 22 at NAS JRB New Orleans, since the 14-32 runway is too short for normal F-5 operations.

The Navy's Fleet Logistics Support Squadron 54 (VR-54) operates the C-130 out of NAS JRB New Orleans. This squadron has a Fleet Logistics mission that requires it to mostly operate elsewhere in the world, supporting deployed Navy assets with cargo delivery. This demand on their aircraft results in less than one local training sortie per day. They rarely conduct closed patterns locally, other than ground-controlled approach (GCA) patterns. Both the No Action and Proposed Action scenarios include three sorties per week locally, plus approximately 100 GCA patterns per year.

The U.S. Coast Guard operates out of NAS JRB New Orleans as well, with a detachment of HH-65s that are being transitioned to HH-60s. Because this transition will occur regardless of the ANG action to consider replacement of the F-15C/D at NAS JRB New Orleans, the U.S. Coast Guard activity is modeled in the No Action and Proposed Action alternatives with flight operations conducted by the HH-60 aircraft. The U.S. Coast Guard will fly approximately 4,896 annual airfield operations from NAS JRB New Orleans. Between calls for assistance and other responsibilities, this unit maintains proficiency of its crews by flying about 40 percent of its sorties as pure training sorties, practicing landing patterns, and half of these are conducted at the home station NAS JRB New Orleans. The U.S. Coast Guard detachment is the highest user of the airfield during acoustic night – with about 5 percent of their operations occurring after 10 p.m. (2200) local. Almost all of these are recoveries, and these are mostly complete by 11 p.m. (2300) local.

The U.S. Marine Corps has a light attack helicopter squadron stationed at NAS JRB New Orleans, with 10 aircraft, split with six AH-1 and four UH-1 aircraft. This unit flies about 1,000 hours per year, with about 500 annual local sorties. About 4 percent of their total airfield operations occur during acoustic night hours (after 10 p.m. [2200] local).

3.1.1.3 Transient Aircraft

The Air Traffic Activity Analyzer, a part of the Visual Information Display System in the ATCT, compiles details on aircraft operations at Navy airfields. This data obtained from the Operations Department at NAS JRB New Orleans for 2019 is used as the basis for determining existing operations for noise modeling. The data shows that there are only a handful of operations from civil traffic noted in the system, which is normally due to civil flights close to the NAS JRB New Orleans Class D airspace, mischaracterizations (sometimes a somewhat unfamiliar military aircraft is logged in as the civil version when that is easier to find in the system [e.g., a Navy P-8 aircraft could be logged as a civilian version Boeing 737]), charter aircraft contracted by the DoD to move gear and people, or an error in data entry. These inputs were categorized by similar aircraft type. Rather than modeling 50 or more different aircraft that might have single-digit occurrences for a year, operations have been grouped and totaled as detailed in Table 3-2, with a surrogate aircraft selected for modeling to represent the whole group of similar type of aircraft. The surrogate selections were based upon the dominant aircraft by number of operations, or because it is the loudest of the group. Modeling for transient operations utilizes the same runway use percentages drawn from the full year of operations in calendar year 2019, which is the last full pre-COVID-19 year.

Table 3-2 Annual Transient Operations at NAS JRB New Orleans 2019

Transient Category	*Annual Airfield Operations*	*Mostly*	*Significant Others*	*Model*
Fighter	2,441	F-16C	F-18D, T-38	2/3 F-16C, 1/3 F-18C/D
Heavy Helicopter	488	CH-53	V-22	CH-53E
Helicopter	78	H-60		H-60
Heavy Jet	371	P-8	V737, C-17	B-737-700
Light Jet	654	C-560		Citation X
Heavy TP	127	C-130		C-130H
Light Prop	1,392	B-350	BE-40	C-12

Legend: TP = Turboprop.

For all aircraft operating at NAS JRB New Orleans, Table 3-3 includes the time-of-day runway and helipad utilization, and Table 3-4 depicts the time-of-day runway and helipad heading utilization. Appendix A includes detailed military flight tracks grouped by type of operation and aircraft engine type and flight track utilization at NAS JRB New Orleans. The NAS JRB New Orleans air traffic controllers and base military aircraft operators confirmed that the data presented within this report and the current scenario represents the best available data with regards to the following parameters: (1) operations frequency; (2) time-of-day operations; (3) fleet-mix; (4) runway/helipad distribution and utilization; and (5) flight track locations.

Table 3-3 Time of Day Runway and Helipad Utilization

Aircraft Category	*Sub-Category*	*Modeled Aircraft ID*	*Runway Pair*	*Departures*		*Arrivals*		*Closed Patterns*	
				Day	*Night*	*Day*	*Night*	*Day*	*Night*
Based Military	159 FW	F-15C/D	04/22	100%	100%	100%	100%	100%	
			14/32						
	DON	C-130J	04/22						
			14/32						
	USMC	AH-1/UH-1	C-A Pad	100%	100%	100%	100%		
			04/22					10%	10%
			V1/V2					90%	90%
	USCG	H-60	K-M Pad	100%	100%	100%	100%	67%	67%
			04/22						
			V3/V4					33%	33%
	DON	F-5E/F	04/22	100%		100%		100%	
			14/32						
Transient Military	Transient Aircraft	F-16C	04/22	100%	100%	100%	100%		
			14/32						
		F-18C/D	04/22	100%	100%	100%	100%		
			14/32						
		CH-53E	04/22	36%	36%	36%	36%		
			14/32	64%	64%	64%	64%		
		H-60	04/22	82%	82%	82%	82%		
			14/32	18%	18%	18%	18%		
		B737-700	04/22	100%	100%	100%	100%		
			14/32						
		Citation X	04/22	94%	94%	94%	94%		
			14/32	6%	6%	6%	6%		
		C-130H	04/22	95%	95%	95%	95%		
			14/32	5%	5%	5%	5%		
		C-12	04/22	96%	96%	96%	96%		
			14/32	4%	4%	4%	4%		

Legend: % = percent, 159 FW = 159th Fighter Wing; DON = Department of the Navy; USCG = United States Coast Guard; USMC = United States Marine Corps.

Table 3-4 Time of Day Runway and Helipad Heading Utilization

Aircraft Category	*Sub-Category*	*Modeled Aircraft ID*	*Runway Heading*	*Departures*		*Arrivals*		*Closed Patterns*	
				Day	*Night*	*Day*	*Night*	*Day*	*Night*
Based Military	159 FW	F-15C/D	04	74%	74%	74%	74%	74%	
			22	26%	26%	26%	26%	26%	
	DON	C-130J	04						
			14						
			22						
			32						
	USMC	AH-1/UH-1	C-A Pad	100%	100%	100%	100%		
			04					8%	8%
			22					3%	3%
			V1					67%	67%
			V2					22%	22%
	USCG	H-60	K-M Pad	100%	100%	100%	100%	66%	66%
			V3					17%	17%
			V4					17%	17%
	DON	F-5E/F	04	74%		74%		74%	
			22	26%		26%		26%	
Transient Military	Transient Aircraft	F-16C	04	79%	79%	79%	79%		
			22	21%	21%	21%	21%		
		F-18C/D	04	79%	79%	79%	79%		
			22	21%	21%	21%	21%		
		CH-53E	04	24%	24%	24%	24%		
			14	54%	54%	54%	54%		
			22	12%	12%	12%	12%		
			32	10%	10%	10%	10%		
		H-60	04	76%	76%	76%	76%		
			14	2%	2%	2%	2%		
			22	7%	7%	7%	7%		
			32	15%	15%	15%	15%		
		B737-700	04	84%	84%	84%	84%		
			22	16%	16%	16%	16%		
		Citation X	04	70%	70%	70%	70%		
			14	5%	5%	5%	5%		
			22	24%	24%	24%	24%		
			32	1%	1%	1%	1%		
		C-130H	04	76%	76%	76%	76%		
			14	3%	3%	3%	3%		
			22	19%	19%	19%	19%		
			32	2%	2%	2%	2%		
		C-12	04	73%	73%	73%	73%		
			14	3%	3%	3%	3%		
			22	23%	23%	23%	23%		
			32	1%	1%	1%	1%		

Legend: % = percent, 159 FW = 159th Fighter Wing; DON = Department of the Navy; USCG = United States Coast Guard; USMC = United States Marine Corps.

Figure 3-1 represents the modeled static run-up profile locations. Consistent with the flight operations, maintenance run-up activities were modeled on an AAD basis. Table 3-5 presents the static run-up operations profiles for based aircraft at NAS JRB New Orleans.

Table 3-5 Ground and Maintenance Engine Operations for Based Military Aircraft at NAS JRB New Orleans

Aircraft	*Description*	*Pad*	*Heading*	*Power (%NC)*	*Num Engines*	*Duration*	*Annual Events*	*Day/Night Split[1]*
F-15C/D (modeled with F-15E PW220)	Ramp Engine run	RampN / RampS	090/270	63% (idle)	1	9 mins	456	90% / 10%
			090/270	77%	1	7 seconds	456	90% / 10%
			090/270	80%	1	10 mins	46	90% / 10%
	Arm/De-Arm, Rwy 04	ARM-04	040	63% (idle)	2	5 mins	200	99% / 1%
	Arm/De-Arm, Rwy 22	ARM-22	220	63% (idle)	2	5 mins	200	99% / 1%
AH-1	Hover Check	Pad O	Proportional to relative runway winds	HIGE	2	20 mins	18	100% / 0%
AH-1	Hover Check	Pad C	Proportional to relative runway winds	HIGE	2	20 mins	6	100% / 0%
HH-60	Hover Check	Pad O	Proportional to relative runway winds	HIGE	2	20 mins	32	100% / 0%
F-5/F/N	In Frame Trim	HH	220	50% (idle)	2	45 mins	18	100% / 0%
				100 Mil		30 mins		
				AB		15 mins		
				50% (idle)	1	30 mins		
				100 Mil		15 mins		
				AB		5 mins		

Notes: [1]Day = 0700–2200, Night = 2200–0700.
Legend: % = percent; %NC = percent speed of the compressor stage; AB = afterburner; MIL = 'Military power,' the greatest power setting without afterburner; Rwy = Runway.

Figure 3-1 Modeled Static Run-Up Locations at NAS JRB New Orleans

3.1.2 Noise Exposure

The following sections describe DNL noise exposure levels and the resulting acreage, households, and population that would be exposed to noise above 65 dB DNL. The supplemental metric analysis presented in Sections 3.1.2.3 through 3.1.2.6 conform with DoD policy requirements described by DNWG (DNWG 2009a).

3.1.2.1 DNL Contours and POI Levels

Figure 3-2 shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the existing at NAS JRB New Orleans overlaid on gradient mapping of DNL by color shading. Noise generated from aircraft operations at NAS JRB New Orleans occurs within and outside the airfield. Portions of the 65 dB DNL contour extend northwest of the airfield by 0.4 mile, to the northeast 0.8 mile, and to the southwest 1.8 miles. The gradient shading shows how DNL noise exposure does not end at the plotted 65 dB DNL contour line, but instead continues beyond at reduced levels.

Table 3-6 shows the DNL values at each of the POIs under the current conditions and Figure 3-2 presents the POI locations. Values range from 34 to 67 dB DNL. One POI, LA-R-05 Good News Avenue and Gravolet Street, is currently exposed to 65 dB DNL or greater, the DoD threshold for land use recommendations for noise sensitive land uses. The second greatest DNL of 60 dB DNL occurs at four POIs: LA-H-03 Belle Chasse Community Health Center, LA-R-08 Lake Lynn Drive, LA-S-11 Our Lady of Perpetual Help School, and LA-S-12 Belle Chasse Academy.

3.1.2.2 Acreage, Housing, and Population

Table 3-7 shows the acreage (excluding water bodies) by noise contour band resulting in a total of 918 acres off NAS JRB New Orleans exposed to 65 dB DNL or greater for existing. That off-NAS JRB New Orleans acreage is comprised of 845 acres exposed to 65 to 70 dB DNL, 72 acres to 70 to 75 dB DNL, 1 acre to 75 to 80 dB DNL, and no acres exposed to 80 to 85 or greater than 85 dB DNL.

The population and household analysis reviewed census block groups and included all households and population for each block group completely within each DNL contour band. Across all airfields analyzed, for block groups partially within a DNL contour band, the number of households and population were scaled based upon the proportion of block group area within each DNL contour band from 65 to 80 dB because households in these areas are generally equally distributed throughout each block group. Although not applicable here, households would be counted manually for DNL bands of 80 dB and above because populations in these high noise areas are often not evenly distributed. Table 3-8 lists estimated households and population off NAS JRB New Orleans that are currently exposed to each DNL contour band under existing conditions. Currently, 381 and 4 households are within the 65 to 70 dB and 70 to 75 dB DNL contour bands, respectively. Based on the average household sizes in these census block groups, an estimated 972 people residing near NAS JRB New Orleans are exposed to 65 to 70 dB DNL and 13 people to 70 to 70 dB DNL.

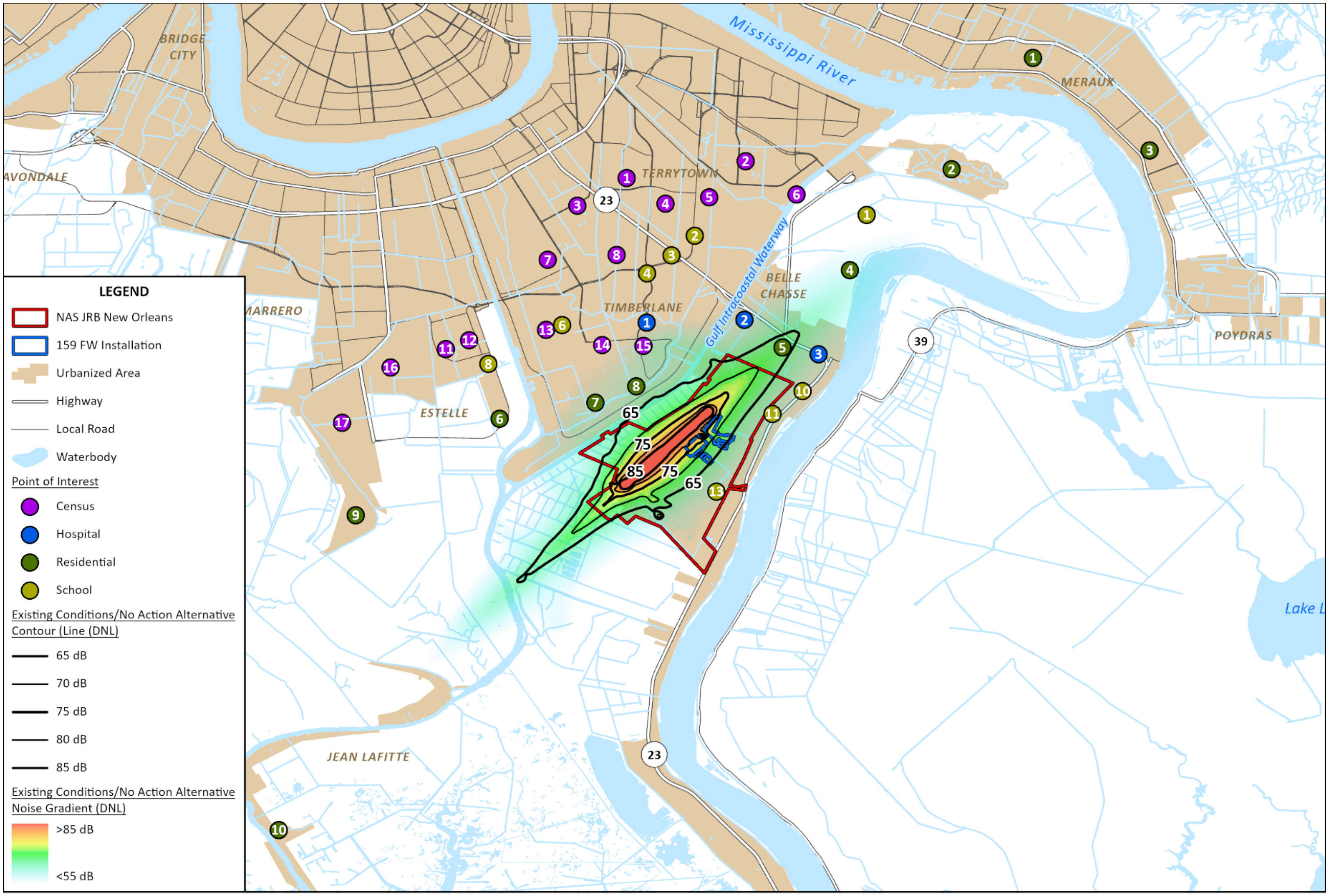


Figure 3-2 Existing DNL Contours and Noise Gradient in the Vicinity of NAS JRB New Orleans

Source: ESRI 2022, NAVFAC SE 2022

Table 3-6 Current DNL at POIs in the Vicinity of NAS JRB New Orleans

Map ID	*Point Type*	*Named POI*[1]	*Current DNL*[2] *(dB)*
LA-C-01	Census Tract Centroid	Census Tract 252.02	36
LA-C-02	Census Tract Centroid	Census Tract 6.18	43
LA-C-03	Census Tract Centroid	Census Tract 254	36
LA-C-04	Census Tract Centroid	Census Tract 250.03	40
LA-C-05	Census Tract Centroid	Census Tract 250.05	42
LA-C-06	Census Tract Centroid	Census Tract 6.17	48
LA-C-07	Census Tract Centroid	Census Tract 278.03	43
LA-C-08	Census Tract Centroid	Census Tract 251.02	42
LA-C-09	Census Tract Centroid	Census Tract 251.03	45
LA-C-10	Census Tract Centroid	Census Tract 251.04	50
LA-C-11	Census Tract Centroid	Census Tract 278.10	39
LA-C-12	Census Tract Centroid	Census Tract 278.11	41
LA-C-13	Census Tract Centroid	Census Tract 278.16	44
LA-C-14	Census Tract Centroid	Census Tract 278.14	53
LA-C-15	Census Tract Centroid	Census Tract 278.13	59
LA-C-16	Census Tract Centroid	Census Tract 278.17	40
LA-C-17	Census Tract Centroid	Census Tract 278.20	34
LA-H-01	Healthcare Facility	Bayside Healthcare Center	55
LA-H-02	Healthcare Facility	Padua Community Services Pediatric Residential Program	58
LA-H-03	Healthcare Facility	Belle Chasse Community Health Center	60
LA-R-01	Residential Area	Emily Oaks Drive near E. St Bernard Highway	40
LA-R-02	Residential Area	Clubhouse Drive near Harbour Town Court	49
LA-R-03	Residential Area	Highland Drive near E. St Bernard Highway	44
LA-R-04	Residential Area	Parc Riverwood Drive and Main Street	59
LA-R-05	Residential Area	Good News Avenue and Gravolet Street	**67**
LA-R-06	Residential Area	Census Tract 278.12	48
LA-R-07	Residential Area	Lac du Bay Drive and Lac Saint Pierre Drive	58
LA-R-08	Residential Area	Lake Lynn Drive	60
LA-R-09	Residential Area	Grand Tierre Drive	40
LA-R-10	Residential Area	Jean Lafitte Boulevard	42
LA-S-01	School	Belle Chasse Elementary School and Belle Chasse Primary School	52
LA-S-02	School	Athlos Academy of Jefferson Parish and GB Elementary School	45
LA-S-03	School	George Cox Elementary School	45
LA-S-04	School	Jefferson Rise Charter School	45
LA-S-05	School	Paul J. Solis Elementary School	49
LA-S-06	School	Woodland West Elementary School	45
LA-S-07	School	Brighter Horizons	58
LA-S-08	School	Woodmere Elementary	45
LA-S-09	School	Belle Chasse High School	58
LA-S-10	School	Jacob’s Ladder Learning Academy	58
LA-S-11	School	Our Lady of Perpetual Help School	60
LA-S-12	School	Belle Chasse Academy	60
LA-S-13	School	Christian Fellowship Daycare	58

Notes: [1]The census tract POIs are located at the centroid point to represent neighborhoods surrounding NAS JRB New Orleans where noise sensitive locations (such as residences, schools, places of worship, etc.) are likely to occur.
[2]Bold represents points exposed to DNL of 65 dB or greater.

Legend: dB = decibel; DNL = Day Night Average Sound Level; ID = Identification; POI = Point of Interest.

Table 3-7 Noise Exposure Acreage in the Vicinity of NAS JRB New Orleans

DNL Band (dB)	*Existing Conditions Acreage*		
	On NAS JRB New Orleans	*Off NAS JRB New Orleans*	*Total*
65–70	795	845	1,640
70–75	641	72	713
75–80	291	1	292
80–85	179	0	179
85+	224	0	224
Total >65 dB	**2,130**	**918**	**3,048**

Legend: dB = decibel; DNL = Day Night Average Sound Level.

Table 3-8 Estimated Households and Population in the Vicinity of NAS JRB New Orleans

DNL Band (dB)	*Existing Conditions*	
	Households	*Population*
65–70	381	972
70–75	4	13
75–80	0	0
80–85	0	0
85+	0	0
Totals	**385**	**985**

Legend: dB = decibel; DNL = Day Night Average Sound Level.

3.1.2.3 Classroom Learning Interference

Table 3-9 presents the classroom learning interference for schools S-01 through S-13 experienced under existing conditions. The table provides the same school metrics computed for all other POIs to cover any daycare facilities that could occur near other POIs, such as a daycare operated out of a personal residence. The school screening threshold of 60 dB $L_{eq(8hr)}$ equates to an interior level of 45 dB $L_{eq(8hr)}$ with windows open and represents the point at which studies have found classroom learning impacts (DNWG 2009a, 2013a). Current operations at NAS JRB New Orleans results in six school POIs that are exposed to exterior $L_{eq(8hr)}$ greater than or equal to 60 dB, with the greatest of 64 dB occurring at LA-S-11 Our Lady of Perpetual Help School and LA-S-12 Belle Chasse Academy. Additional school impact analysis involves determining the number of noise-generated speech interfering events per school day hour that exceed an interior L_{max} of 50 dB (equivalent to an exterior L_{max} of 65 dB for windows open). The number of classroom interfering events is estimated at an average of 1 per school day hour at 11 schools and 2 per hour at 2 schools (LA-S-12 Belle Chasse Academy and LA-S-13 Christian Fellowship Daycare), as presented in Table 3-9. Time above an interior level of 50 dB (equivalent to an exterior of 65 dB for windows open) varies from 4 minutes at 7 schools and 6 to 8 minutes at 6 schools.

Table 3-9 Current Classroom Learning Interference in the Vicinity of NAS JRB New Orleans

ID	*Location*[1]	*Outdoor $L_{eq(8hr)}$ (dB)*[2]	*Number of Speech Interfering Events per School Day Hour*[3]	*Time above 50 dB per 8-hour school day (minutes)*[3]
LA-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	56	1	4
LA-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	48	1	4
LA-S-03	George Cox Elementary School	49	1	4
LA-S-04	Jefferson Rise Charter School	49	1	4
LA-S-05	Paul J. Solis Elementary School	53	1	4
LA-S-06	Woodland West Elementary School	49	1	4
LA-S-07	Brighter Horizons	**62**	1	6
LA-S-08	Woodmere Elementary	48	1	4
LA-S-09	Belle Chasse High School	**62**	1	6
LA-S-10	Jacob's Ladder Learning Academy	**62**	1	6
LA-S-11	Our Lady of Perpetual Help School	**64**	1	8
LA-S-12	Belle Chasse Academy	**64**	2	7
LA-S-13	Christian Fellowship Daycare	**62**	2	7

Notes: [1]Table presents the analysis for the school POIs, but results are provided for all POIs within the noise study because populated areas may include additional educational facilities (such as daycare operated out of a personal residence).
[2]Bold text represent schools exposed to exterior $L_{eq(8hr)}$ of greater than 60 dB, equivalent to the recommended interior threshold of 45 dB with windows open.
[3]Assumes 90 percent of ANG daytime operations occur during the school day; windows open condition with Noise Level Reduction of 15 dB due to building attenuation.
Legend: dB = decibel; ID = Identification; $L_{eq(8hr)}$ = 8-hour Equivalent Sound Level.

3.1.2.4 Non-school Speech Interference

In addition to speech interference analysis, this study considers the potential for aircraft noise to interfere with non-school speech at all POIs during the DNL daytime period. Table 3-10 presents the existing speech interference (non-school) results based upon the numbers of events per average hour (or NA) during the DNL daytime period for both a windows open and windows closed conditions. The number of speech interfering events with windows open ranges from none at 14 POIs, 1 per average hour at 28 POIs, and up to 2 events per average hour at 1 POI (LA-R-07 Lac du Bay Drive and Lac Saint Pierre Drive). With windows closed, existing conditions results in no interfering events per average hour at 26 POIs and 1 event per average hour at 17 POIs.

Table 3-10 Current Non-school Speech Interference Events per Average Hour in the Vicinity of NAS JRB New Orleans (Daytime)

Map ID[1]	*Named POI*	*Windows Open*[2]	*Windows Closed*[3]
LA-C-01	Census Tract 252.02	0	0
LA-C-02	Census Tract 6.18	0	0
LA-C-03	Census Tract 254	0	0
LA-C-04	Census Tract 250.03	0	0
LA-C-05	Census Tract 250.05	0	0
LA-C-06	Census Tract 6.17	1	0
LA-C-07	Census Tract 278.03	1	0
LA-C-08	Census Tract 251.02	0	0
LA-C-09	Census Tract 251.03	1	0
LA-C-10	Census Tract 251.04	1	0
LA-C-11	Census Tract 278.10	0	0
LA-C-12	Census Tract 278.11	0	0
LA-C-13	Census Tract 278.16	1	0
LA-C-14	Census Tract 278.14	1	1
LA-C-15	Census Tract 278.13	1	1
LA-C-16	Census Tract 278.17	1	0
LA-C-17	Census Tract 278.20	0	0
LA-H-01	Bayside Healthcare Center	1	1
LA-H-02	Padua Community Services Pediatric Residential Program	1	1
LA-H-03	Belle Chasse Community Health Center	1	1
LA-R-01	Emily Oaks Drive near E. St Bernard Highway	0	0
LA-R-02	Clubhouse Drive near Harbour Town Court	1	0
LA-R-03	Highland Drive near E. St Bernard Highway	0	0
LA-R-04	Parc Riverwood Drive and Main Street	1	1
LA-R-05	Good News Avenue and Gravolet Street	1	1
LA-R-06	Census Tract 278.12	1	1
LA-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	2	1
LA-R-08	Lake Lynn Drive	1	1
LA-R-09	Grand Tierre Drive	0	0
LA-R-10	Jean Lafitte Boulevard	0	0
LA-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	1	1
LA-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	0	0
LA-S-03	George Cox Elementary School	1	0
LA-S-04	Jefferson Rise Charter School	1	0
LA-S-05	Paul J. Solis Elementary School	1	0
LA-S-06	Woodland West Elementary School	1	0
LA-S-07	Brighter Horizons	1	1
LA-S-08	Woodmere Elementary	1	0
LA-S-09	Belle Chasse High School	1	1
LA-S-10	Jacob's Ladder Learning Academy	1	1
LA-S-11	Our Lady of Perpetual Help School	1	1
LA-S-12	Belle Chasse Academy	1	1
LA-S-13	Christian Fellowship Daycare	1	1

Notes: [1]School POIs included because residential areas or other noise sensitive uses are often located nearby schools for which these results would apply.
[2]Assumes 15 dB Noise Level Reduction.
[3]Assumes 25 dB Noise Level Reduction.

Legend: ID = Identification; POI = Point of Interest.

3.1.2.5 Probability for Awakening

Analysis of the potential for sleep disturbance involves determining the number and SEL of DNL nighttime aircraft events to estimate the PA metric. As detailed in Table 3-11, PA with windows open or windows closed is negligible at all POIs for existing conditions at NAS JRB New Orleans. This is due to low total DNL nighttime operations at NAS JRB New Orleans and of those DNL nighttime operations, the majority result from helicopter operations, which typically produce a lower SEL when compared with jet aircraft in most situations.

Table 3-11 Current Estimated Probability of Awakening in the Vicinity of NAS JRB New Orleans

Map ID	*Named POI[1]*	*Windows Open[2]*	*Windows Closed[3]*
LA-C-01	Census Tract 252.02	<1%	<1%
LA-C-02	Census Tract 6.18	<1%	<1%
LA-C-03	Census Tract 254	<1%	<1%
LA-C-04	Census Tract 250.03	<1%	<1%
LA-C-05	Census Tract 250.05	<1%	<1%
LA-C-06	Census Tract 6.17	<1%	<1%
LA-C-07	Census Tract 278.03	<1%	<1%
LA-C-08	Census Tract 251.02	<1%	<1%
LA-C-09	Census Tract 251.03	<1%	<1%
LA-C-10	Census Tract 251.04	<1%	<1%
LA-C-11	Census Tract 278.10	<1%	<1%
LA-C-12	Census Tract 278.11	<1%	<1%
LA-C-13	Census Tract 278.16	<1%	<1%
LA-C-14	Census Tract 278.14	<1%	<1%
LA-C-15	Census Tract 278.13	<1%	<1%
LA-C-16	Census Tract 278.17	<1%	<1%
LA-C-17	Census Tract 278.20	<1%	<1%
LA-H-01	Bayside Healthcare Center	<1%	<1%
LA-H-02	Padua Community Services Pediatric Residential Program	<1%	<1%
LA-H-03	Belle Chasse Community Health Center	<1%	<1%
LA-R-01	Emily Oaks Drive near E. St Bernard Highway	<1%	<1%
LA-R-02	Clubhouse Drive near Harbour Town Court	<1%	<1%
LA-R-03	Highland Drive near E. St Bernard Highway	<1%	<1%
LA-R-04	Parc Riverwood Drive and Main Street	<1%	<1%
LA-R-05	Good News Avenue and Gravolet Street	<1%	<1%
LA-R-06	Census Tract 278.12	<1%	<1%
LA-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	<1%	<1%
LA-R-08	Lake Lynn Drive	<1%	<1%
LA-R-09	Grand Tierre Drive	<1%	<1%
LA-R-10	Jean Lafitte Boulevard	<1%	<1%
LA-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	<1%	<1%
LA-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	<1%	<1%
LA-S-03	George Cox Elementary School	<1%	<1%
LA-S-04	Jefferson Rise Charter School	<1%	<1%
LA-S-05	Paul J. Solis Elementary School	<1%	<1%
LA-S-06	Woodland West Elementary School	<1%	<1%
LA-S-07	Brighter Horizons	<1%	<1%
LA-S-08	Woodmere Elementary	<1%	<1%
LA-S-09	Belle Chasse High School	<1%	<1%

Map ID	*Named POI*[1]	*Windows Open*[2]	*Windows Closed*[3]
LA-S-10	Jacob's Ladder Learning Academy	<1%	<1%
LA-S-11	Our Lady of Perpetual Help School	<1%	<1%
LA-S-12	Belle Chasse Academy	<1%	<1%
LA-S-13	Christian Fellowship Daycare	<1%	<1%

Notes: [1]Non-residential POIs included because residential areas are often located nearby other noise sensitive areas for which these results would apply.
[2]Assumes 15 dB Noise Level Reduction.
[3]Assumes 25 dB Noise Level Reduction.
Legend: % = percent; ID = Identification; POI = Point of Interest.

3.1.2.6 Potential for Hearing Loss

DoD guidance prescribes analysis of the potential for hearing loss (PHL) due to elevated aircraft noise levels. The screening process begins by identifying residential areas exposed to DNL of 80 dB or greater (DNWG 2013b)[1]. As presented in Table 3-7, no acres outside of NAS JRB New Orleans are exposed to 80 dB DNL or greater, so no people are at risk of the PHL for the existing conditions. For reference, Figure 3-3 depicts the 80 dB DNL contour and relevant $L_{eq(24hr)}$ contour lines that would be utilized if people resided in these areas.

3.2 Special Use Airspace

As presented in Figure 1-2, the airspace utilized by the 159 FW occurs both over-land and over-water. The following section describes the modeling data and resulting noise exposure for both subsonic and supersonic operations in these areas.

3.2.1 Modeling Data (Subsonic)

The 159 FW F-15C/D currently utilize the "Whodat" airspace (Snake Military Operations Areas [MOAs], with Warning Area [W-] 453, W-4148, and Eagle "Zulu 3 and 4") as the primary training area for 85 percent of operations and principal air-to-air training area due to its size and configuration, which allows supersonic flight. Some infrared and electromagnetic countermeasures are allowed. The airspace is located very close to NAS JRB New Orleans (approximately 50 nautical miles to entry point) from home station. This airspace is suitable for Offensive Counter Air-Suppression of Enemy Air Defenses (simulated), Offensive Counter Air-Escort, Defensive Counter Air 4-ship, Tactical Intercepts 4-ship, Air Combat Maneuvering 4-ship, Basic Fighter Maneuvers 2-ship, and Aircraft Handling Characteristics single-ship missions.

The "Warrior" Complex (including Warrior and Claiborne MOAs, Restricted Areas [R-] 3801, R-3803, and R-3804 and the Caddo Air Traffic Control Assigned Airspace) provides secondary (and overland) airspace for the 159 FW, accounting for approximately 10 percent of training. Also located approximately 90 nautical miles from home station is the W-59. Supersonic flight is allowed, infrared and electromagnetic countermeasures are allowed, and electronic attack and protection techniques may be employed.

[1]DNWG 2013b. Noise-Induced Hearing Impairment Technical Bulletin. As part of the noise analysis in all future environmental impact statements, DoD components will use the 80 Day-Night A-Weighted (DNL) noise contour to identify populations at the most risk of potential hearing loss (PHL). DoD components will use as part of the analysis, as appropriate, a calculation of the PHL of the at risk population.

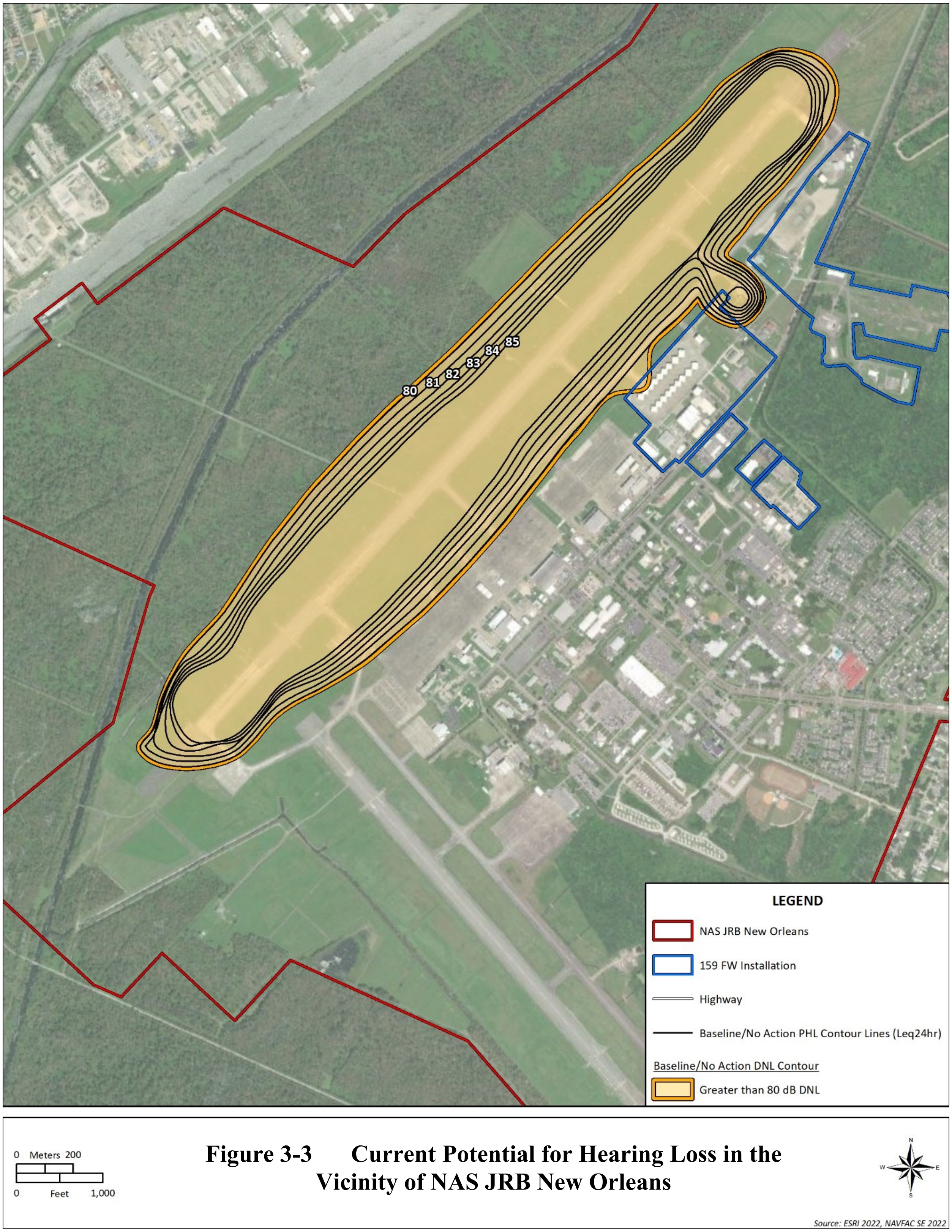


Figure 3-3 Current Potential for Hearing Loss in the Vicinity of NAS JRB New Orleans

3.2.2 Noise Exposure (Subsonic)

The 159 FW currently flies 1,850 sorties annually divided across SUA that is shared with other units, including other services. The 159 FW currently flies 1,850 sorties annually divided across SUA, with 93 percent of time spent above 10,000 feet MSL. In most of the areas, the 159 FW sorties contribute L_{dnmr} less than 35 dB on the ground below the SUA for subsonic operations, with 35 dB being the lower noise level limit of the noise modeling software. For reference, an L_{dnmr} of 35 dB is consistent with ambient noise levels typically found in rural or remote areas with minimal or no human sources of noise (vehicle traffic, regular or low altitude aircraft flights, etc.). The corresponding DNL would be 33 dB.

Flying activity would occur in overland airspace under existing conditions. Because the overwater training areas, Warning Areas W-59, W-148, W-155, and W-453, are far from land, no amount of training there generates significant noise impacts on land. Given these assumptions, noise levels generated by existing operations in overland SUA are 35 dB L_{dnmr} for subsonic operations. The actual distribution of operations across multiple training areas makes the resulting noise much lower than this. However, those levels are too low to accurately assess given the lower noise limit of the modeling software. The corresponding DNL would be 38 dB.

3.2.3 Modeling Data (Supersonic)

To train with the full capabilities, the F-15C/D aircraft employ supersonic flight (flights that exceed the speed of sound) during a small portion of their sorties that occur at the 159 FW overwater ranges at a minimum altitude of 10,000 feet MSL. The current operating areas for the supersonic operations by the 159 FW occur in the overwater W-105 ranges. The fuel demand when flying supersonic limits the amount of time the aircraft could travel at supersonic speeds before having to return to the base to refuel. In general, an aircraft would only travel supersonic for approximately 30 seconds.

3.2.4 Noise Exposure (Supersonic)

The overpressures of booms that reach the ground due to supersonic activity at these altitudes are well below those that would begin to cause physical injury to humans or animals (National Aeronautics and Space Administration 2015). With Warning Area airspace located 15 miles from land and supersonic flights limited to a minimum altitude of 10,000 feet MSL, human receptors are sufficiently far away to not be impacted by current supersonic fighter activity by 159 FW.

4.0 PROPOSED ACTION ALTERNATIVES AND AFTERBURNER SCENARIOS

The following section details the modeling data and the resultant noise exposure for five afterburner scenarios, in which either the F-15EX or F-35A aircraft would replace the F-15C/D aircraft of the 159 FW at NAS JRB New Orleans, as described in Section 1.1. All other aircraft operations (other than the 159 FW) are assumed to remain unchanged from those described in Section 3.0, *Existing Conditions* for this analysis.

4.1 INSTALLATION

4.1.1 Modeling Data

Under this proposal, the 18 F-15C/D aircraft based at NAS JRB New Orleans would be replaced with either 21 F-15EX aircraft or 21 F-35A aircraft. For this analysis, two F-15EX afterburner scenarios and three

F-35A afterburner scenarios have been modeled. Should either of these aircraft be based at NAS JRB New Orleans, it is most likely that the F-15EX would fly approximately 90 percent of the time using afterburner on takeoff and the F-35A would fly approximately 5 percent of the time using afterburner on takeoff. Though for the sake of a robust analysis, these varied afterburner scenarios have been analyzed. With a planned annual flying hour program of 5,250 for either F-15EX or F-35A and an assumed sortie duration matching current F-15C/D at 1.37 hours, the result would be 3,823 annual proposed sorties that would occur under all five analyzed proposed afterburner scenarios. Consistent with the existing conditions, some of these sorties would occur at other airfields but for a conservative analysis, it has been assumed that all sorties would occur at NAS JRB New Orleans.

Each F-15EX or F-35A sortie would generate a departure and arrival operation and the number of closed patterns is assumed to proportionally match the current F-15C/D closed patterns. Currently, F-15C/D generate 117 closed pattern events (or 234 operations) and F-15EX or F-35A would be assumed to perform at a similar rate, as summarized below:

- Annual Flying hours = 5,250
- Average Sortie Duration = 1.37 hours (to match average F-15C/D)
- Annual Sorties = 3,823
- Annual Operations = 8,148
  - Departures = 3,182
  - Arrivals = 3,182
  - Closed Patterns = 484 (proportional to existing F-15C/D rate)
- Day/night operations = Assumed same as existing F-15C/D (night = 10 p.m.–7 a.m. [2200–0700])
  - Depart at night = 0.9 percent (approximately 34 times per year)
  - Arrive at night = 0.9 percent (approximately 34 times per year)
  - Closed pattern at night = 0 percent

Table 4-1 details the modeled annual flight operations at NAS JRB New Orleans that would occur under any of the five proposed afterburner scenarios. Should either the F-15EX or the F-35A be based at NAS JRB New Orleans, which would eliminate all F-15C/D operations and would add 8,148 F-15EX or F-35A flight operations per year. All other aircraft operations would remain the same as described under the current conditions.

Table 4-1 Proposed Aircraft Operations at NAS JRB New Orleans

Group	*Aircraft*	*Departures*		*Arrivals*		*Closed Patterns*[1]		*Totals*		
		Day	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*	*Totals*
159 FW	F-15EX or F-35A	3,794	38	3,794	38	484	0	8,072	76	8,148
DON	C-130	245	3	245	3	0	0	490	6	496
USMC	AH-1/UH-1	480	20	480	20	2,148	90	3,108	130	3,238
USCG	H-60	808	43	808	43	3,404	180	5,019	265	5,284
DON	F-5E/F	1,200	0	1,200	0	240	0	2,640	0	2,640
Transient Aircraft	Fighter1	403	4	403	4	0	0	806	8	814
	Fighter2	806	8	806	8	0	0	1,611	16	1,627
	Heavy Helo	242	2	242	2	0	0	484	4	488
	Helo	38	1	38	1	0	0	76	2	78
	Heavy Jet	184	2	184	2	0	0	367	4	371
	Light Jet	324	3	324	3	0	0	648	6	654
	Heavy Turboprop	63	1	63	1	0	0	125	2	127
	Light propeller	682	14	682	14	0	0	1,364	28	1,392
Grand Total*		**9,267**	**139**	**9,267**	**139**	**6,276**	**270**	**24,810**	**547**	**25,357**

Notes: *Numbers may not add up due to rounding.
[1]Closed Patterns counted as two operations.
Legend: 159 FW = 159th Fighter Wing; DON = Department of the Navy; USCG = United States Coast Guard; USMC = United States Marine Corps.

4.1.1.1 Departures

The principal difference between the proposed aircraft afterburner scenarios involves the use of afterburner for departure operations. The following describes the five scenarios considered in this analysis:

- F-15EX Scenario B = F-15EX afterburner use on 50 percent of departures
- F-15EX Scenario A = F-15EX afterburner use on 90 percent of departures (most likely)
- F-35A Scenario A = F-35A afterburner use on 5 percent of departures (most likely)
- F-35A Scenario B = F-35A afterburner use on 50 percent of departures
- F-35A Scenario C = F-35A afterburner use on 95 percent of departures

4.1.1.2 Arrivals and Closed Patterns

The F-15EX and F-35A proposed alternatives would follow the same arrival types at similar rates proportional to the existing F-15C/D, and would perform closed patterns at NAS JRB New Orleans as required, primarily for Functional Check Flights.

4.1.1.3 DNL Nighttime (10 p.m.–7 a.m. [2200-0700]) Operations

DNL Nighttime operations at NAS JRB New Orleans would remain low for either F-15EX or F-35A proposed alternatives with night operations comprising 0.9 percent of departures and arrivals. All closed patterns would occur during the daytime period.

4.1.1.4 Runway Use

The proposed F-15EX and F-35A aircraft would utilize NAS JRB New Orleans runways at the same proportion as the existing conditions as the F-15C/D with 74 percent of operations on Runway 4 and the remaining 26 percent on Runway 22.

4.1.1.5 Maintenance or Static Operations

Tables 4-2 and 4-3 present the representative run-up operations profiles for the F-15EX and F-35A alternatives, respectively, that would replace the current F-15C/D run-ups. Note that the run-up type operations for either F-15EX or F-35A would not change for the analyzed 'afterburner scenarios,' which only apply to departure flight operations. The other current run-ups, such as Navy aircraft, would continue as described under the existing conditions. Figure 3-1 identifies the locations modeled for current run-up operations, which would be utilized under the proposed alternatives.

Table 4-2 F-15EX Annual Maintenance and Ground Engine Runs

Aircraft	*Description*	*Pad*	*Heading*	*Power (%NC)*	*Num Engines*	*Duration*	*Annual Events*	*Day/Night Split[1]*
F-15EX (modeled with F-15EX GE-129)	Ramp Engine run	RampN / RampS	090/270	63% (idle)	1	9 mins	944	90% / 10%
			090/270	77%	1	7 seconds	944	90% / 10%
			090/270	80%	1	10 mins	95	90% / 10%
	Arm/De-Arm, Rwy 04	ARM-04	040	63% (idle)	2	5 mins	414	99% / 1%
	Arm/De-Arm, Rwy 22	ARM-22	220	63% (idle)	2	5 mins	414	99% / 1%

Notes: [1]Day = 0700–2200, Night = 2200–0700.
Legend: % = percent; %NC = percent speed of the compressor stage; AB = afterburner; MIL = 'Military power', the greatest power setting without afterburner; ARNG = Army National Guard; Rwy = Runway.

Table 4-3 F-35A Annual Maintenance and Ground Engine Runs

Aircraft	*Description*	*Pad*	*Heading*	*Power (%ETR)*	*Num Engines*	*Duration*	*Annual Events[3]*	*Day/Night Split[1]*
F-35A	BIT	RampN / RampS	110	10	1	5 mins	150	90% / 10%
			110	31	1	3 mins		
			110	10	1	5 mins		
	High Speed, Low Thrust	RampN / RampS	110	10	1	5 mins	50	90% / 10%
			110	10	1	3 mins		
			110	10	1	5 mins		
	Arm/De-Arm, Runway 20	ARM-20	55	15% (idle)	2	5 mins	200	90% / 10%
	Arm/De-Arm, Runway 20	ARM-02	110	15% (idle)	2	5 mins	200	90% / 10%
	Hush House Engine Runs	HH	270	15	1	32 mins	2	100% / 0%
				80	1	13 mins		
				90	1	7 mins		

Notes: [1]Day = 0700–2200, Night = 2200–0700.
[2]ETR = Engine Thrust Request.
[3]Maintenance and ground run-ups would be the same for all modeled F-35A 'Afterburner' take-off scenarios.
Legend: % = percent; %ETR = percent engine thrust request; BIT = Built in Test.

4.1.2 Noise Exposure

4.1.2.1 Day-Night Average Sound Level Contours and POI Levels

Figure 4-1 shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the F-15EX 50 percent afterburner scenario at NAS JRB New Orleans. As with current operations, noise generated from aircraft operations at NAS JRB New Orleans would occur within and outside of the airfield. Figure 4-2 presents a comparison of the F-15EX 50 percent afterburner scenario compared with existing conditions. Compared to existing conditions, the F-15EX alternative at NAS JRB New Orleans would result in noise contours that reduce in length along the runway axis (both to the northeast and the southwest), while growing in the directions perpendicular to the main runway (increasing to the northwest and southeast). The growth in width would be due to the growth in numbers of F-15EX sorties and increased F-15EX engine noise, while the shortening in length would mainly be due to the F-15EX's rate of climb, getting further from the ground more quickly.

Figure 4-3 shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the F-15EX 90 percent afterburner scenario at NAS JRB New Orleans. As with current operations, noise generated from aircraft operations at NAS JRB New Orleans would occur within and outside of the airfield. Figure 4-4 presents a comparison of the F-15EX alternative compared with existing conditions. Compared to existing conditions, the F-15EX alternative at NAS JRB New Orleans would result in noise contours that reduce in length along the runway axis (both to the northeast and the southwest), while growing in the directions perpendicular to the main runway (increasing to the northwest and southeast). The growth in width would be due to the growth in numbers of F-15EX sorties and increased F-15EX engine noise, while the shortening in length would mainly be due to the F-15EX's rate of climb, getting further from the ground more quickly.

Although the two F-15EX afterburner scenarios would result in similar sizes and shapes of DNL contours, when compared with non-afterburner departures, afterburner departures create greater noise levels adjacent to the primary runway that would result in wider contours to the east and west of NAS JRB New Orleans. On the other hand, afterburner departures allow the aircraft to gain speed and altitude quicker which would result in a greater distance between the aircraft and the ground in areas along most departure corridors. This is the cause for the shorter length of the 65 dB DNL contour to the northeast of NAS JRB New Orleans for the 90 percent afterburner scenario when compared with the 50 percent afterburner scenario.

Figure 4-5 shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the F-35A 5 percent afterburner scenario at NAS JRB New Orleans. As with current operations, noise generated from aircraft operations at NAS JRB New Orleans would occur within and outside of the airfield. Figure 4-6 presents a comparison of the F-35A alternative compared with existing conditions, and the F-35A alternative at NAS JRB New Orleans would result in an increase in the size of the DNL contours in all directions. The F-35A aircraft is typically louder than the F-15C/D in most situations, which combined with the increase in operations would be the primary reasons for this increase in the size of DNL noise contours.

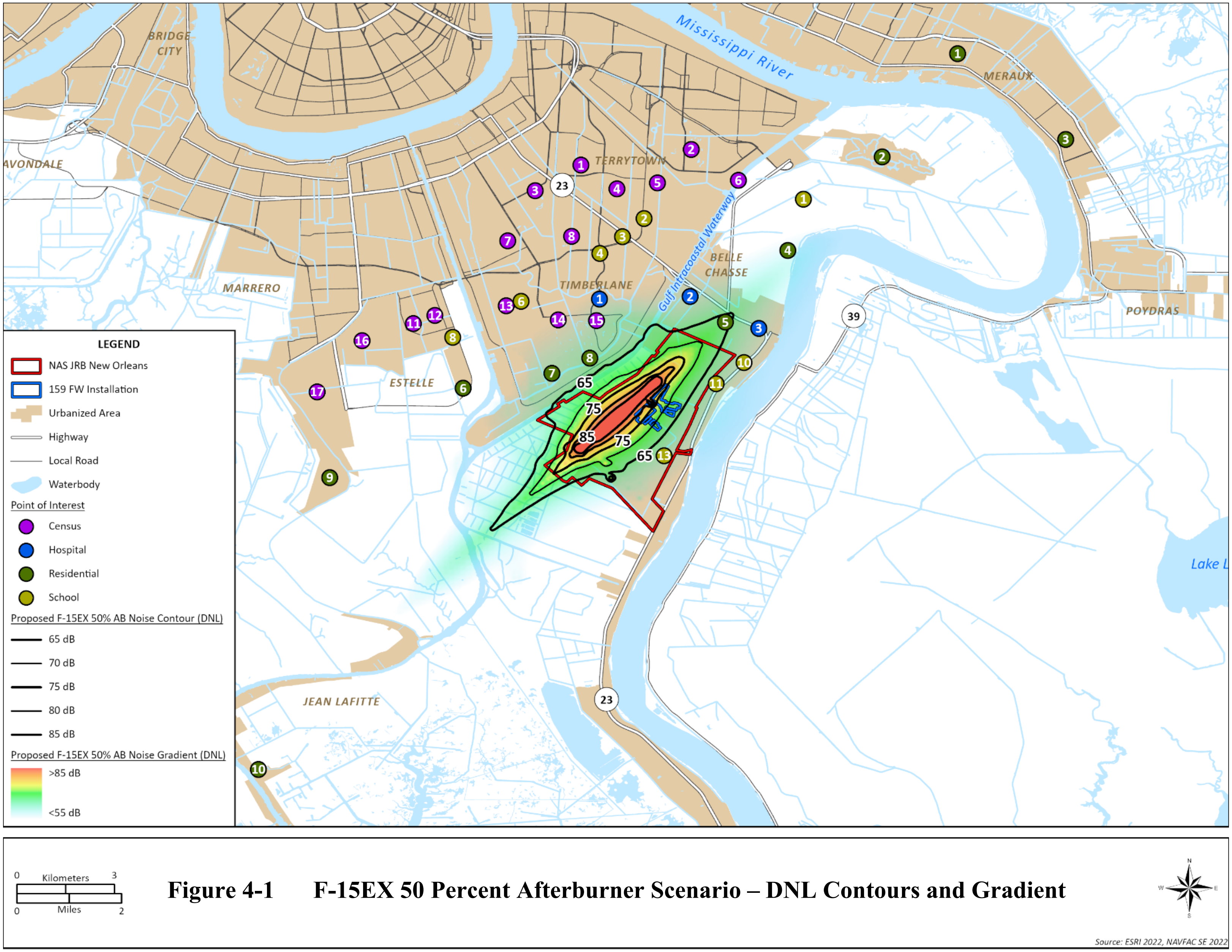


Figure 4-1 F-15EX 50 Percent Afterburner Scenario – DNL Contours and Gradient

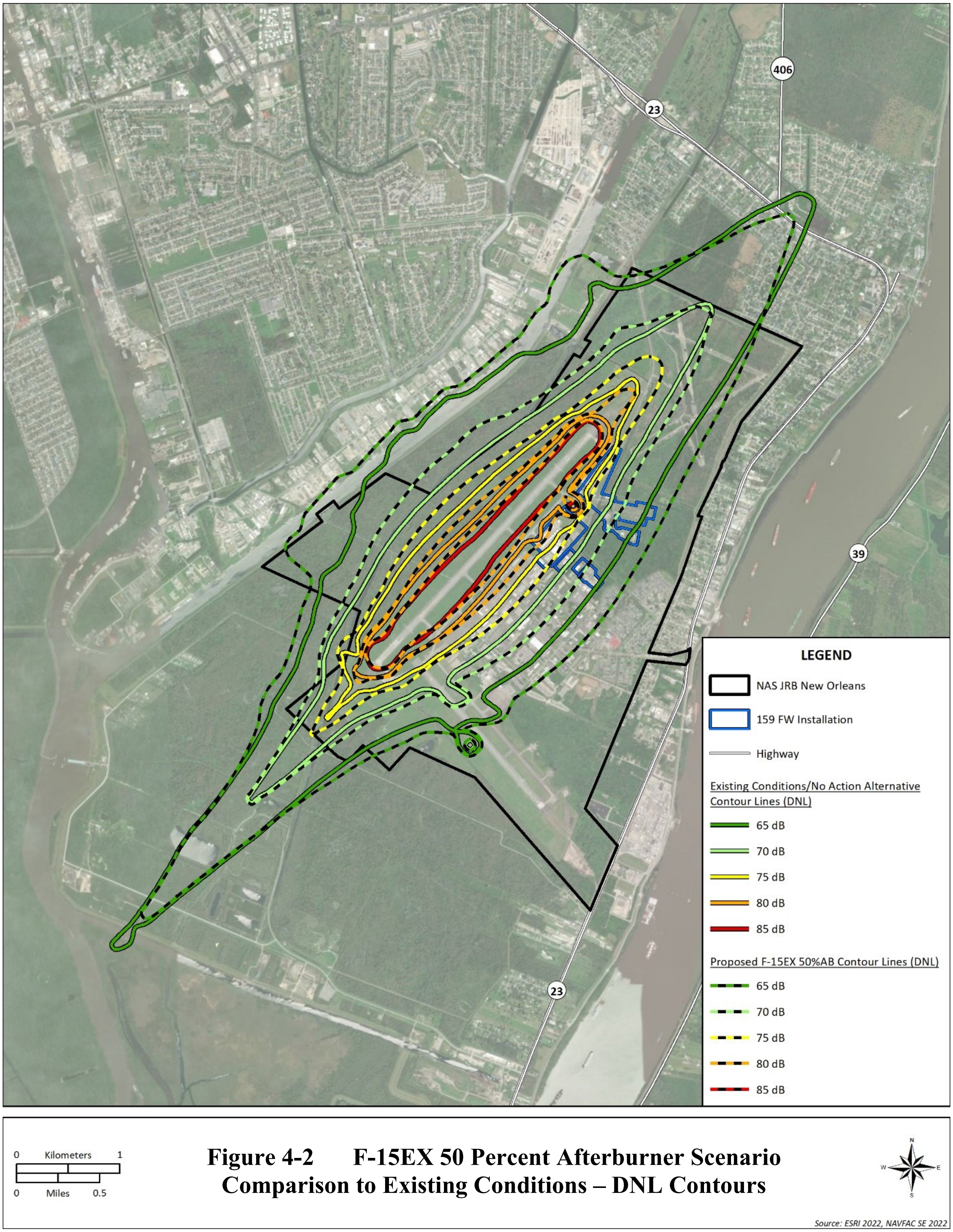
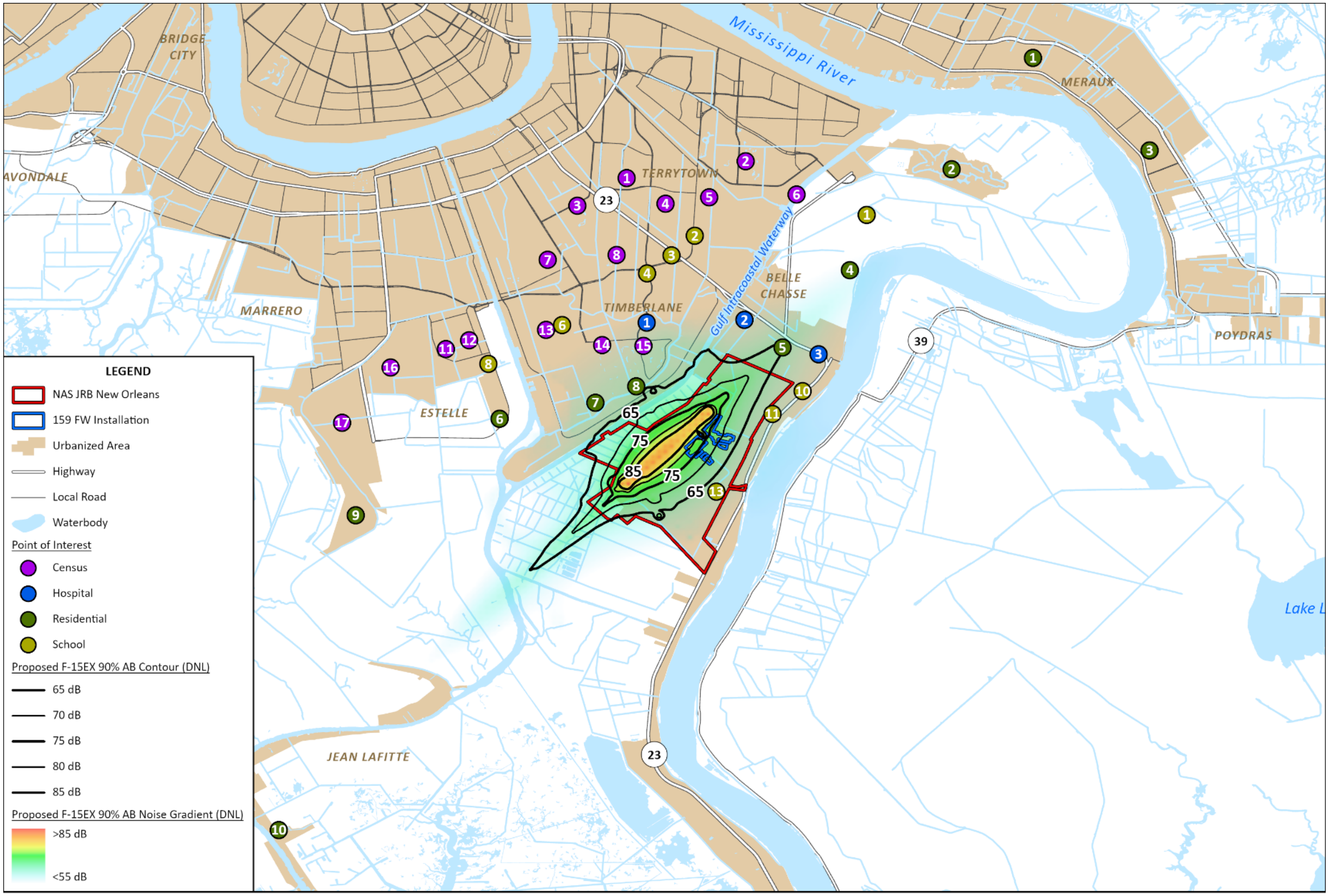


Figure 4-2 F-15EX 50 Percent Afterburner Scenario Comparison to Existing Conditions – DNL Contours



0 Kilometers 3

0 Miles 2

Figure 4-3 F-15EX 90 Percent Afterburner Scenario – DNL Contours and Gradient

N W E S

Source: ESRI 2022, NAVFAC SE 2022

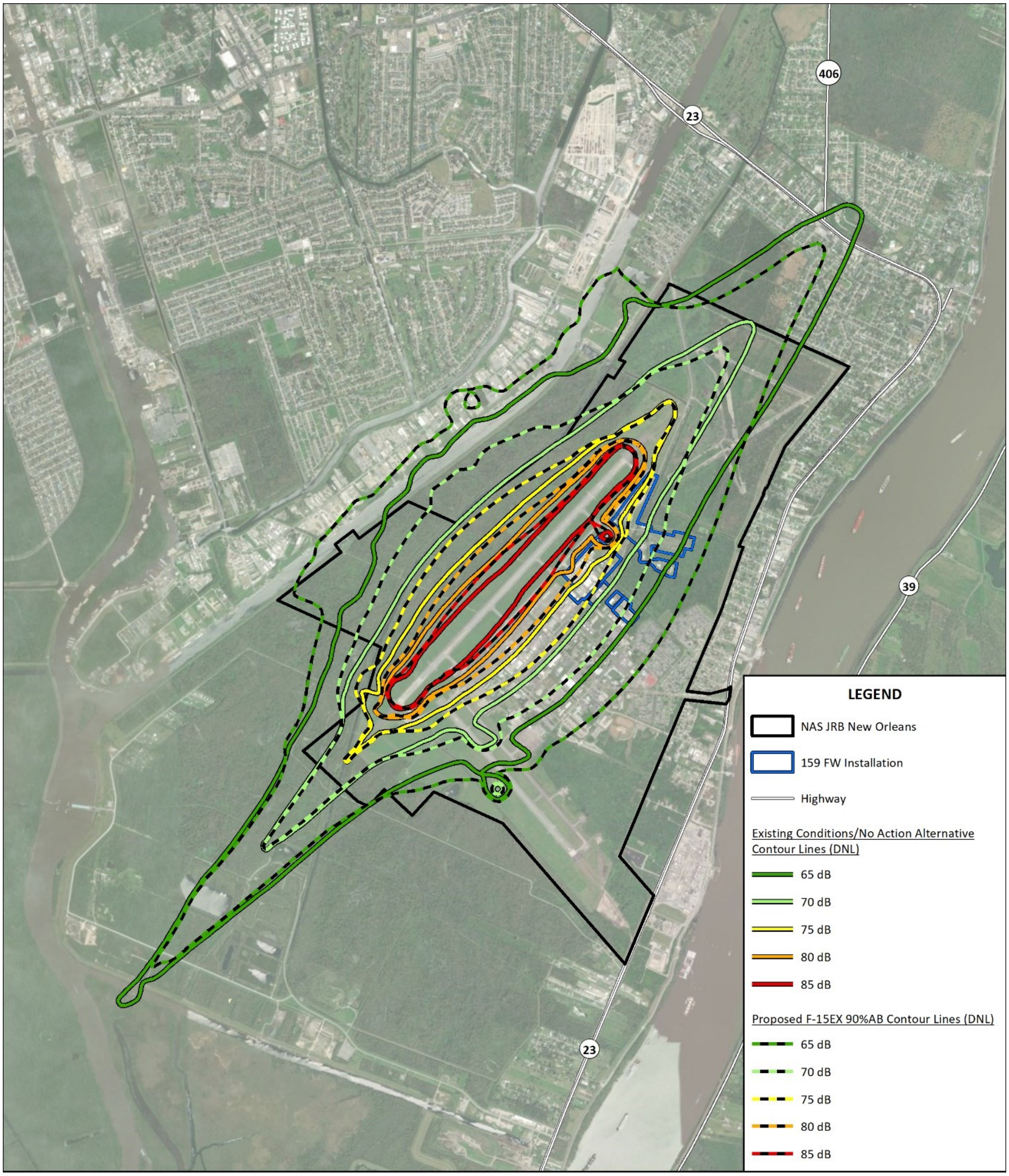


Figure 4-4 F-15EX 90 Percent Afterburner Scenario Comparison to Existing Conditions – DNL Contours

Source: ESRI 2022, NAVFAC SE 2022

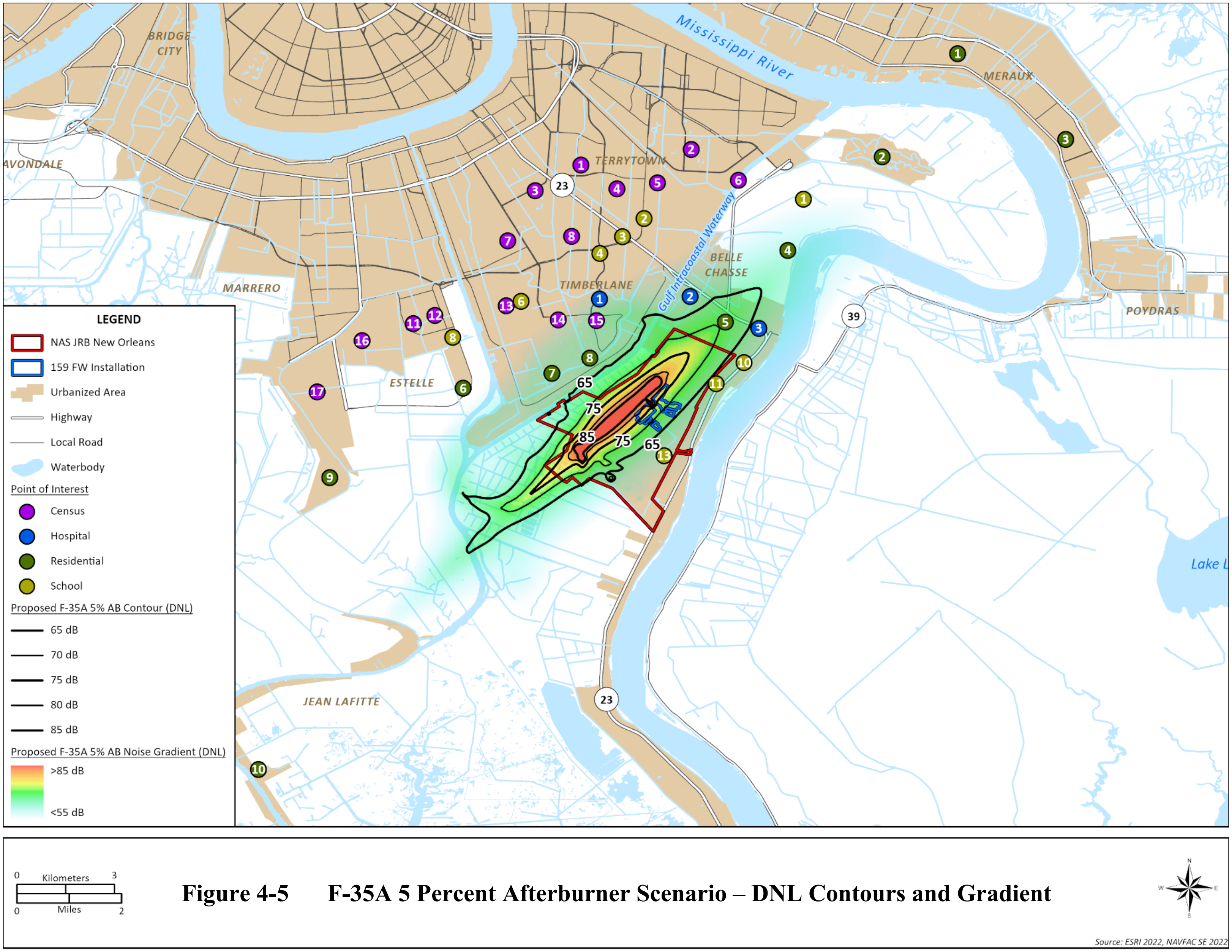


Figure 4-5 F-35A 5 Percent Afterburner Scenario – DNL Contours and Gradient

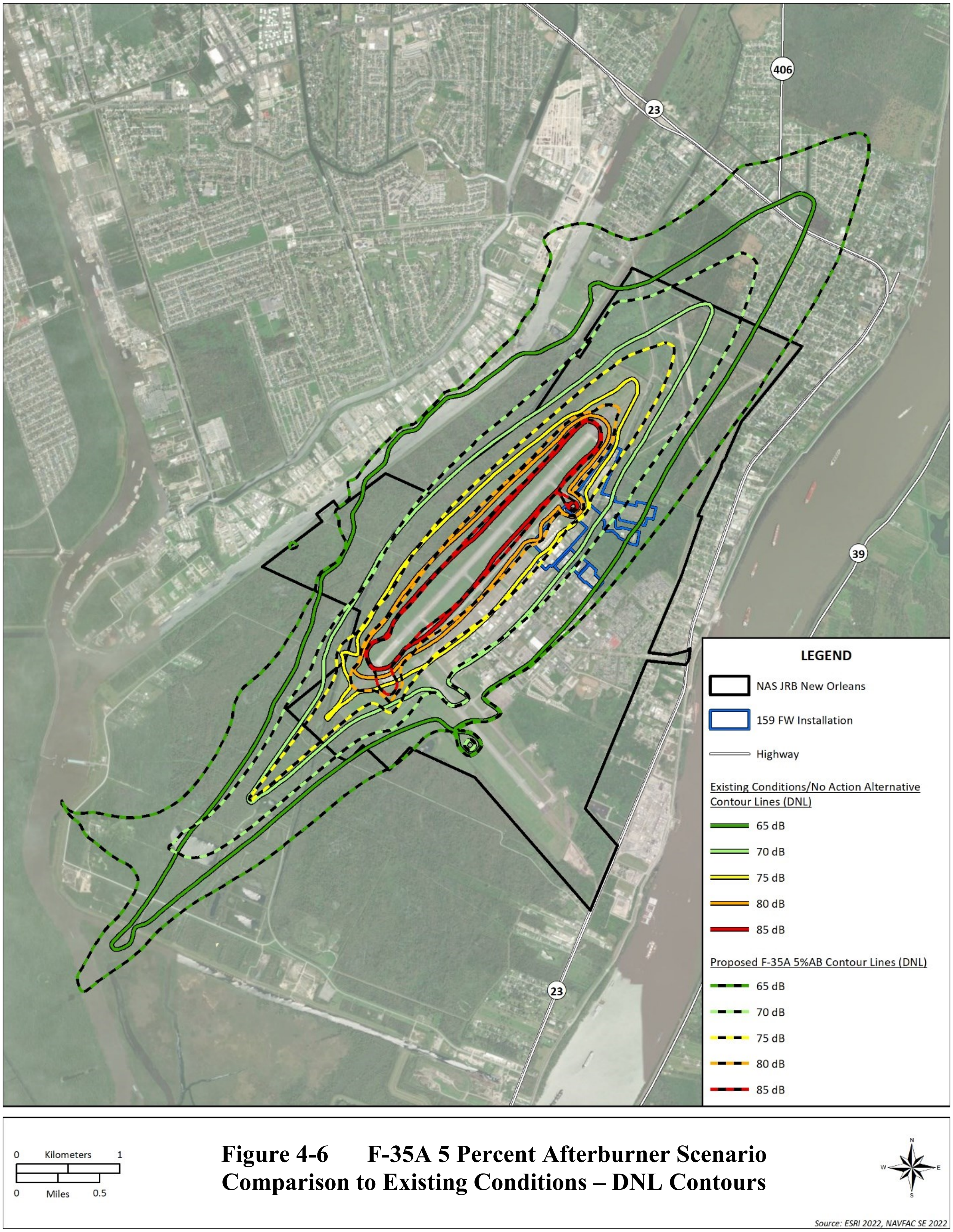


Figure 4-6 F-35A 5 Percent Afterburner Scenario Comparison to Existing Conditions – DNL Contours

Figure 4-7 shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the F-35A 50 percent afterburner scenario at NAS JRB New Orleans. As with current operations, noise generated from aircraft operations at NAS JRB New Orleans would occur within and outside of the airfield. Figure 4-8 presents a comparison of the F-35A alternative compared with existing conditions, and the F-35A alternative at NAS JRB New Orleans would result in an increase in the size of the DNL contours in all directions. The F-35A aircraft is typically louder than the F-15C/D in most situations, which combined with the increase in operations would be the primary reasons for this increase in the size of DNL noise contours.

Figure 4-9 shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the F-35A 95 percent afterburner scenario at NAS JRB New Orleans. As with current operations, noise generated from aircraft operations at NAS JRB New Orleans would occur within and outside of the airfield. Figure 4-10 presents a comparison of the F-35A alternative compared with existing conditions, and the F-35A alternative at NAS JRB New Orleans would result in an increase in the size of the DNL contours in all directions. The F-35A aircraft is typically louder than the F-15C/D in most situations, which combined with the increase in operations would be the primary reasons for this increase in the size of DNL noise contours.

Although the three F-35A afterburner scenarios would result in similar sizes and shapes of DNL contours, when compared with non-afterburner departures, afterburner departures create greater noise levels adjacent to the primary runway that would result in wider contours to the east and west of NAS JRB New Orleans. On the other hand, afterburner departures allow the aircraft to gain speed and altitude quicker, which would result in a greater distance between the aircraft and the ground in areas along most departure corridors. This is the cause for the shorter length of the 65 dB DNL contour to the northeast of NAS JRB New Orleans for the 95 percent afterburner F-35A scenario when compared with the 50 or 5 percent afterburner F-35A scenarios.

Figure 4-11 presents a comparison of the 65 dB DNL contour that result from each of the five proposed scenarios to existing conditions. The three F-35A afterburner scenarios would result in very similar 65 dB DNL contours and would be larger to the north and south than either of the F-15EX scenarios. However, noise exposure due to F-35A would cover a similar area to the west and slight less area to the southeast when compared to the F-15EX. The following discussion analyzes representative POIs to compare noise levels between each of these scenarios in more detail.

Table 4-4 details the calculated DNL and relative change at all POIs for existing conditions and the five proposed alternatives and the numbers of POIs that would be exposed to relevant DNL thresholds of 65, 70, and 75 dB. Table 4-5 presents a summary of changes to DNL at POIs across the analyzed scenarios. All scenarios (existing conditions, two F-15EX, and three F-35A) would result in 1 POI exposed to DNL of 65 dB or greater, and none exposed to DNL of 70 or 75 dB.

As summarized in Table 4-5, the F-15EX 50 percent scenario would result in 12 POIs that would experience either a decrease or no change to DNL, 17 POIs that would increase 1 dB DNL, 14 POIs that would increase 2 to 4 dB DNL, and no POIs that would increase 5 dB DNL or greater. The F-15EX 90 percent scenario would result in 14 POIs that would experience either a decrease or no change to DNL, 10 POIs that would increase 1 dB DNL, 19 POIs that would increase 2 to 4 dB DNL, and no POIs that would increase 5 dB DNL or greater.

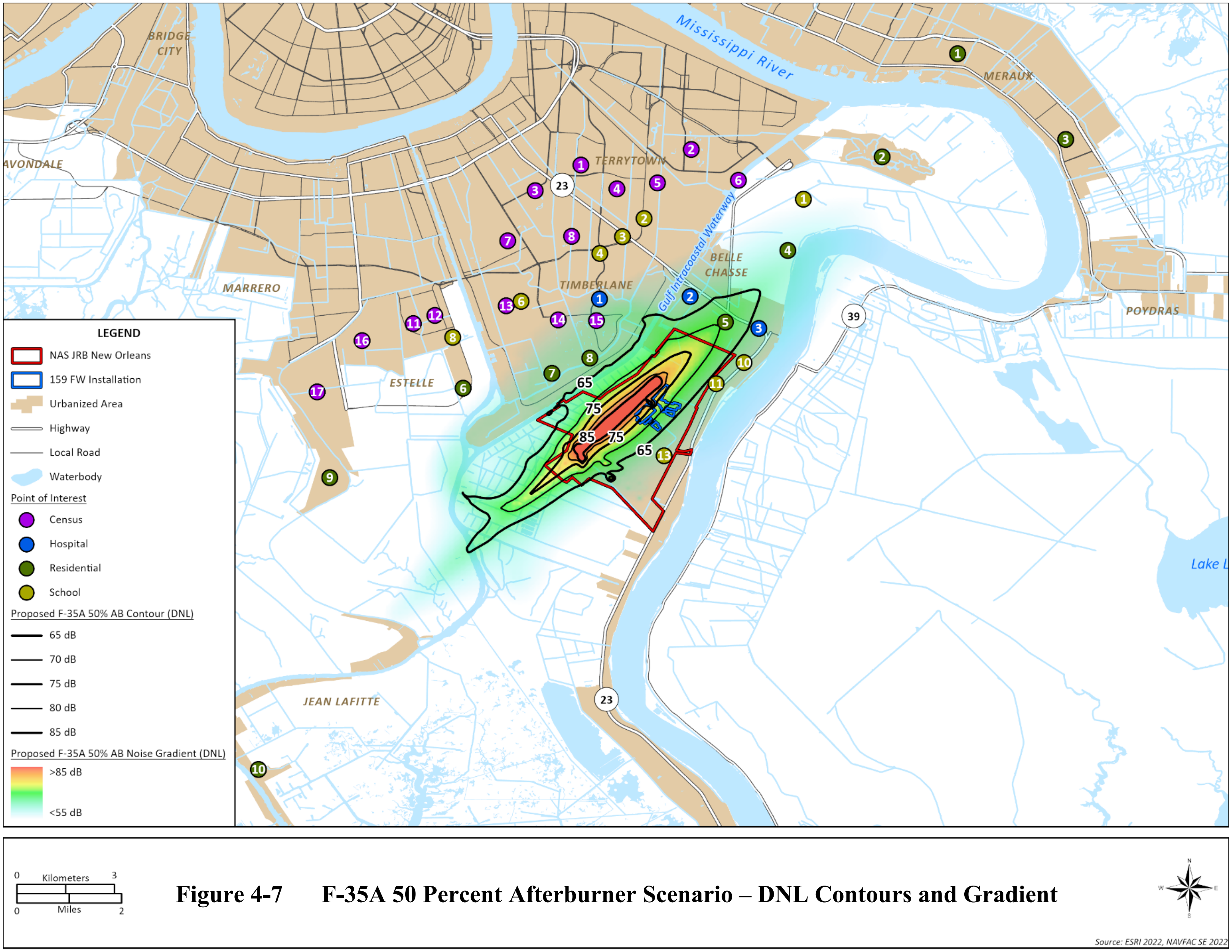


Figure 4-7 F-35A 50 Percent Afterburner Scenario – DNL Contours and Gradient

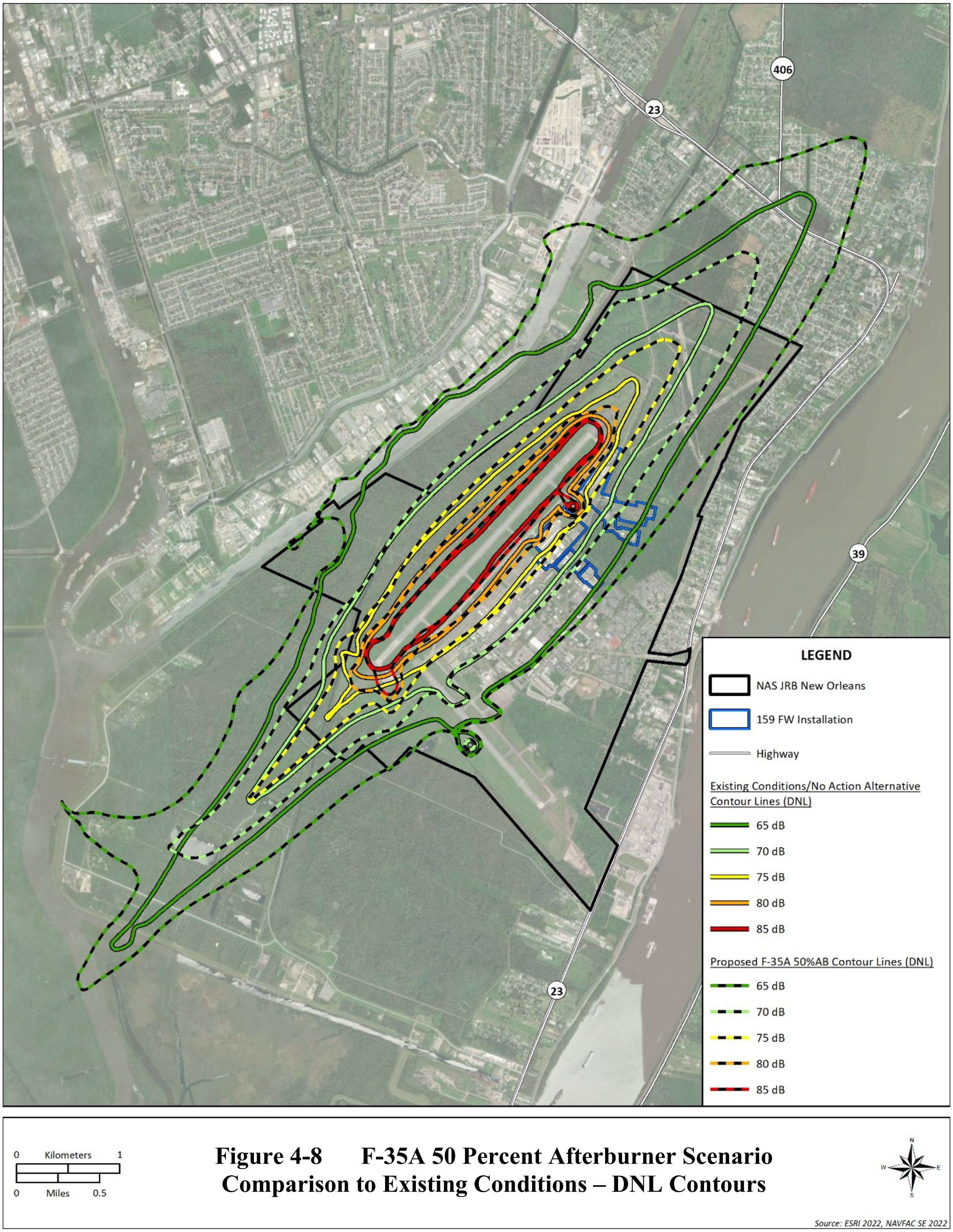
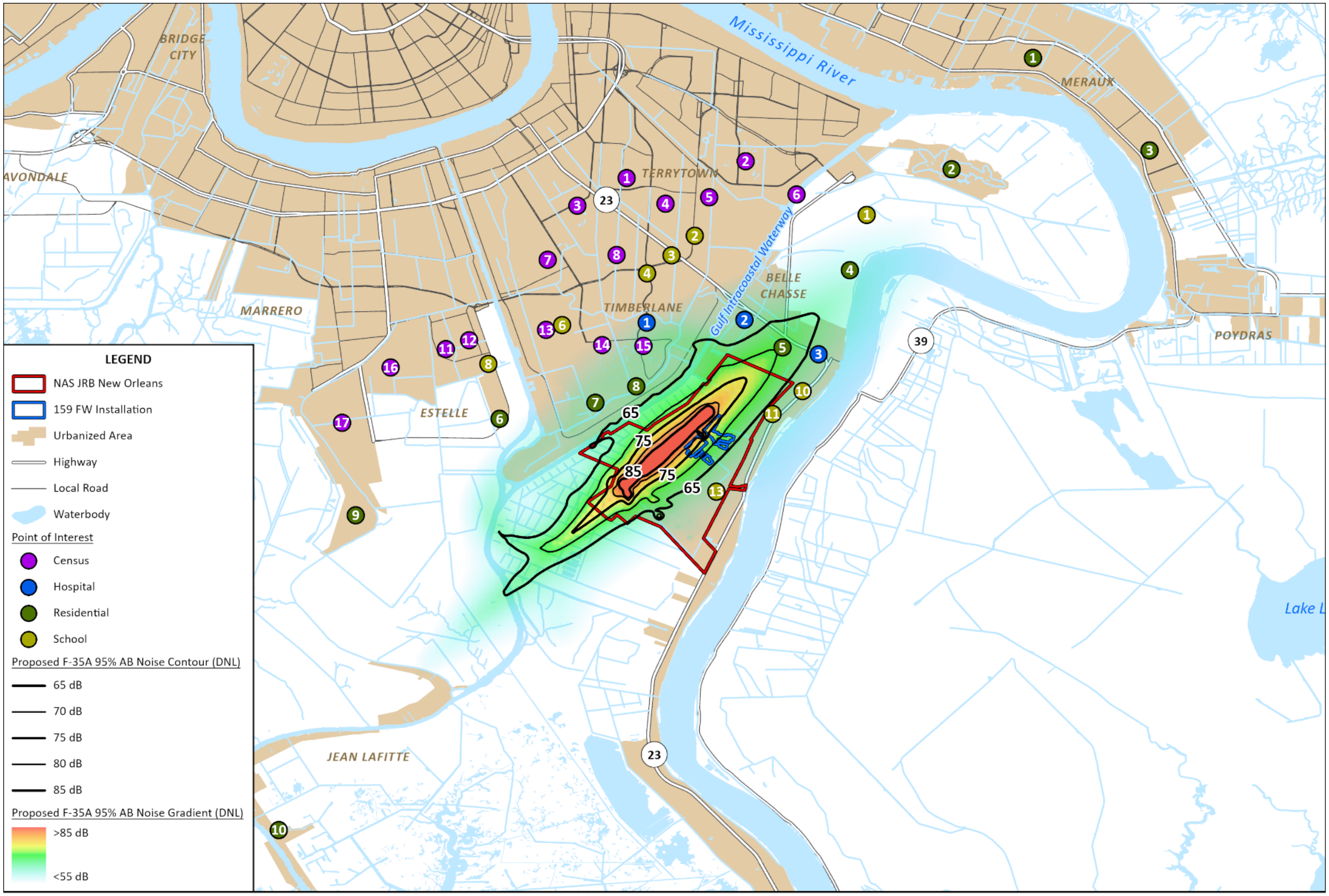


Figure 4-8 F-35A 50 Percent Afterburner Scenario Comparison to Existing Conditions – DNL Contours

Source: ESRI 2022, NAVFAC SE 2022



0 Kilometers 3
0 Miles 2

Figure 4-9 F-35A 95 Percent Afterburner Scenario – DNL Contours and Gradient

Source: ESRI 2022, NAVFAC SE 2022

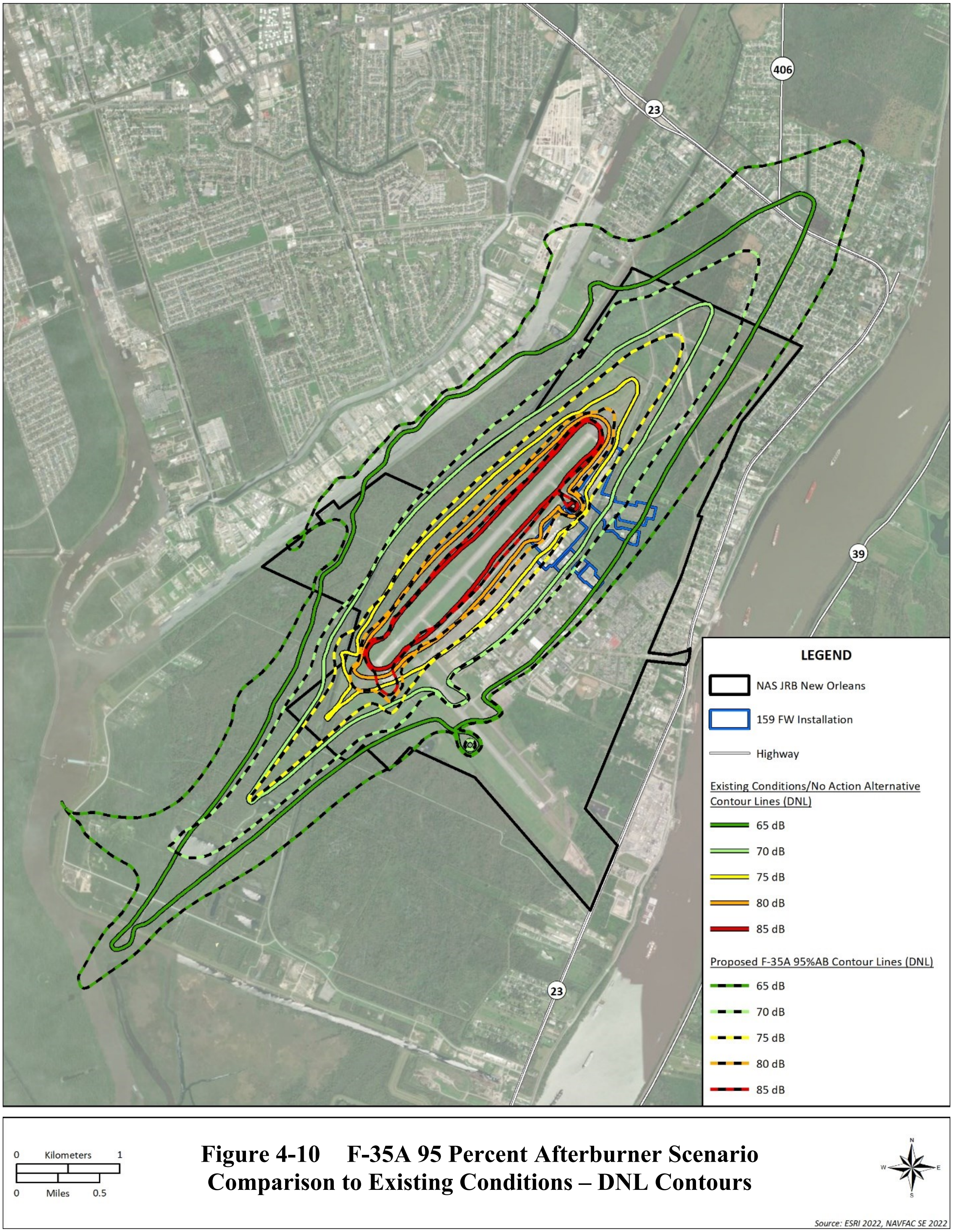


Figure 4-10 F-35A 95 Percent Afterburner Scenario Comparison to Existing Conditions – DNL Contours

Source: ESRI 2022, NAVFAC SE 2022

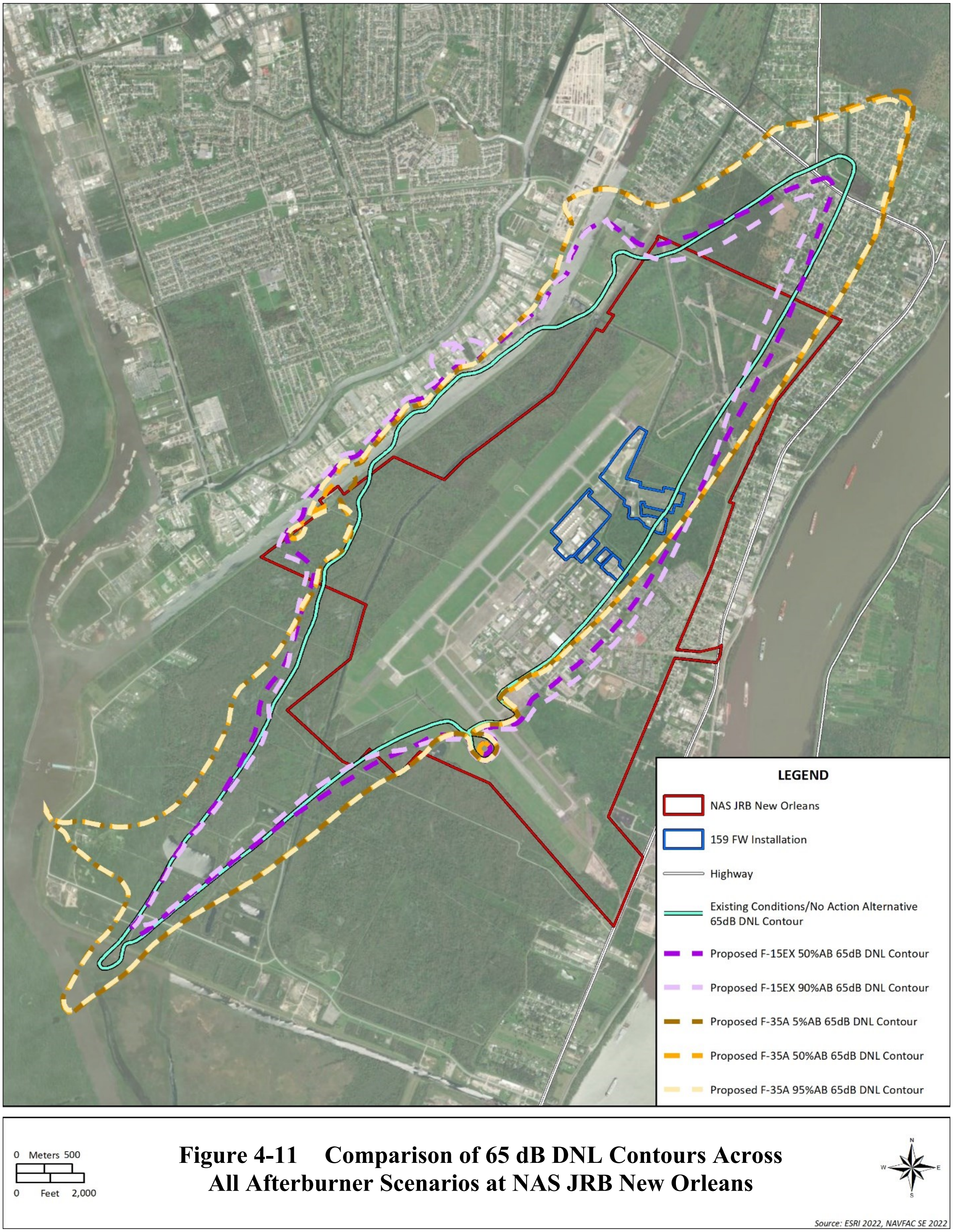


Figure 4-11 Comparison of 65 dB DNL Contours Across All Afterburner Scenarios at NAS JRB New Orleans

Source: ESRI 2022, NAVFAC SE 2022

Table 4-4 DNL at POIs for all Afterburner Scenarios in the Vicinity of NAS JRB New Orleans

Map ID	*Named POI*[1]	*Existing Conditions/ No Action*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-C-01	Census Tract 252.02	36	38 (+2)	38 (+2)	39 (+3)	39 (+3)	39 (+3)
NO-C-02	Census Tract 6.18	43	43 (0)	43 (0)	45 (+2)	45 (+2)	45 (+2)
NO-C-03	Census Tract 254	36	38 (+2)	39 (+3)	39 (+3)	39 (+3)	39 (+3)
NO-C-04	Census Tract 250.03	40	41 (+1)	42 (+2)	43 (+3)	43 (+3)	43 (+3)
NO-C-05	Census Tract 250.05	42	43 (+1)	43 (+1)	45 (+3)	45 (+3)	45 (+3)
NO-C-06	Census Tract 6.17	48	49 (+1)	49 (+1)	51 (+3)	51 (+3)	51 (+3)
NO-C-07	Census Tract 278.03	43	45 (+2)	46 (+3)	44 (+1)	45 (+2)	45 (+2)
NO-C-08	Census Tract 251.02	42	43 (+1)	44 (+2)	45 (+3)	45 (+3)	45 (+3)
NO-C-09	Census Tract 251.03	45	46 (+1)	46 (+1)	48 (+3)	48 (+3)	48 (+3)
NO-C-10	Census Tract 251.04	50	51 (+1)	51 (+1)	53 (+3)	53 (+3)	53 (+3)
NO-C-11	Census Tract 278.10	39	40 (+1)	40 (+1)	41 (+2)	42 (+3)	42 (+3)
NO-C-12	Census Tract 278.11	41	42 (+1)	42 (+1)	43 (+2)	43 (+2)	44 (+3)
NO-C-13	Census Tract 278.16	44	45 (+1)	46 (+2)	47 (+3)	47 (+3)	47 (+3)
NO-C-14	Census Tract 278.14	53	56 (+3)	57 (+4)	56 (+3)	57 (+4)	57 (+4)
NO-C-15	Census Tract 278.13	59	60 (+1)	61 (+2)	62 (+3)	62 (+3)	63 (+4)
NO-C-16	Census Tract 278.17	40	42 (+2)	43 (+3)	41 (+1)	41 (+1)	41 (+1)
NO-C-17	Census Tract 278.20	34	36 (+2)	37 (+3)	38 (+4)	38 (+4)	38 (+4)
NO-H-01	Bayside Healthcare Center	55	57 (+2)	57 (+2)	59 (+4)	59 (+4)	59 (+4)
NO-H-02	Padua Community Services Pediatric Residential Program	58	58 (0)	58 (0)	62 (+4)	62 (+4)	62 (+4)
NO-H-03	Belle Chasse Community Health Center	60	59 (-1)	58 (-2)	63 (+3)	63 (+3)	63 (+3)
NO-R-01	Emily Oaks Drive near E. St Bernard Highway	40	38 (-2)	38 (-2)	40 (0)	40 (0)	40 (0)
NO-R-02	Clubhouse Drive near Harbour Town Court	49	47 (-2)	47 (-2)	51 (+2)	51 (+2)	50 (+1)
NO-R-03	Highland Drive near E. St Bernard Highway	44	41 (-3)	40 (-4)	43 (-1)	43 (-1)	42 (-2)
NO-R-04	Parc Riverwood Drive and Main Street	59	57 (-2)	57 (-2)	61 (+2)	61 (+2)	61 (+2)
NO-R-05	Good News Avenue and Gravolet Street	**67**	**66 (-1)**	**65 (-2)**	**69 (+2)**	**69 (+2)**	**69 (+2)**
NO-R-06	Census Tract 278.12	48	51 (+3)	52 (+4)	52 (+4)	52 (+4)	52 (+4)
NO-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	58	60 (+2)	61 (+3)	61 (+3)	61 (+3)	61 (+3)
NO-R-08	Lake Lynn Drive	60	62 (+2)	63 (+3)	62 (+2)	62 (+2)	62 (+2)
NO-R-09	Grand Tierre Drive	40	40 (0)	40 (0)	43 (+3)	43 (+3)	43 (+3)
NO-R-10	Jean Lafitte Boulevard	42	41 (-1)	41 (-1)	43 (+1)	43 (+1)	43 (+1)
NO-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	52	50 (-2)	50 (-2)	55 (+3)	55 (+3)	55 (+3)
NO-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	45	46 (+1)	46 (+1)	48 (+3)	48 (+3)	48 (+3)
NO-S-03	George Cox Elementary School	45	46 (+1)	46 (+1)	48 (+3)	48 (+3)	48 (+3)
NO-S-04	Jefferson Rise Charter School	45	47 (+2)	47 (+2)	49 (+4)	49 (+4)	49 (+4)
NO-S-05	Paul J. Solis Elementary School	49	50 (+1)	50 (+1)	53 (+4)	53 (+4)	53 (+4)
NO-S-06	Woodland West Elementary School	45	46 (+1)	47 (+2)	48 (+3)	48 (+3)	48 (+3)

Map ID	*Named POI*[1]	*Existing Conditions/ No Action*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-S-07	Brighter Horizons	58	59 (+1)	58 (0)	62 (+4)	62 (+4)	62 (+4)
NO-S-08	Woodmere Elementary	45	47 (+2)	48 (+3)	47 (+2)	47 (+2)	47 (+2)
NO-S-09	Belle Chasse High School	58	58 (0)	57 (-1)	62 (+4)	62 (+4)	61 (+3)
NO-S-10	Jacob's Ladder Learning Academy	58	59 (+1)	58 (0)	61 (+3)	61 (+3)	61 (+3)
NO-S-11	Our Lady of Perpetual Help School	60	61 (+1)	61 (+1)	63 (+3)	63 (+3)	63 (+3)
NO-S-12	Belle Chasse Academy	60	62 (+2)	63 (+3)	61 (+1)	61 (+1)	61 (+1)
NO-S-13	Christian Fellowship Daycare	58	61 (+3)	62 (+4)	60 (+2)	60 (+2)	60 (+2)

Notes: [1]The census tract POIs located at the centroid point represent neighborhoods surrounding NAS JRB New Orleans where noise sensitive locations (such as residences, schools, place of worship, etc. are likely to occur)
Bolded represents locations above 65 dB DNL.

Legend: % = percent; AB = afterburner; ID = Identification; POI = Point of Interest.

Table 4-5 Change to DNL at POIs for all Afterburner Scenarios in the vicinity of NAS JRB New Orleans

Condition	*Existing Conditions/ No Action*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
Number of POIs exposed to 65 dB DNL or greater	1	1	1	1	1	1
Number of POIs exposed to 70 dB DNL or greater	0	0	0	0	0	0
Number of POIs exposed to 75 dB DNL or greater	0	0	0	0	0	0
Change to number of POIs exposed to 65 dB DNL		+0	+0	+0	+0	+0
Change to number of POIs exposed to 70 dB DNL		+0	+0	+0	+0	+0
Change to number of POIs exposed to 75 dB DNL		+0	+0	+0	+0	+0
Number of POIs with decrease of 1 dB or greater		8	9	1	1	1
Number of POIs with no change		4	5	1	1	1
Number of POIs with increase of 1 dB		17	10	4	3	4
Number of POIs with increase of 2 to 4 dB		14	19	37	38	37
Number of POIs with increase of 5 dB or greater		0	0	0	0	0

Legend: % = percent; AB = afterburner; dB = decibel; DNL = Day-Night Average Sound Level; POI = Point of Interest.

As summarized in Table 4-5, the F-35A 5 percent scenario would result in 2 POIs that would experience either a decrease or no change to DNL, 4 POIs that would increase 1 dB DNL, 37 POIs that would increase 2 to 4 dB DNL, and no POIs that would increase 5 dB DNL or greater. The F-35A 50 percent scenario would result in 2 POIs that would experience either a decrease or no change to DNL, 3 POIs that would increase 1 dB DNL, 38 POIs that would increase 2 to 4 dB DNL, and no POIs that would increase 5 dB DNL or greater. The F-35A 95 percent scenario would result in 2 POIs that would experience either a decrease or no change to DNL, 4 POIs that would increase 1 dB DNL, 37 POIs that would increase 2 to 4 dB DNL, and no POIs that would increase 5 dB DNL or greater.

4.1.2.2 Acreage, Housing, and Population

Table 4-6 presents acreage for both on- and off-NAS JRB New Orleans for all proposed alternatives and the change in acreage relative to existing conditions. Under the F-15EX 50 percent scenario, a total of 1,112 off-NAS JRB New Orleans acres would be exposed to 65 dB DNL or greater, an increase of 194 acres from the existing conditions. The off-NAS JRB New Orleans acreage would be composed of 951 acres exposed to 65 to 70 dB DNL (an increase of 106 acres), 155 acres exposed to 70 to 75 dB DNL (an increase of 83 acres), 5 acres exposed to 75 to 80 dB DNL (an increase of 4 acres), no acres exposed to 80 to 85 or greater than 85 dB DNL under the F-15EX 50 percent scenario.

Table 4-6 Acreage within DNL for all Afterburner Scenarios in the Vicinity of NAS JRB New Orleans

Scenario	*DNL (dB)*	*On NAS JRB New Orleans*	*Off NAS JRB New Orleans*	*Total*	*Change Relative to Existing Conditions/No Action*		
					On NAS JRB New Orleans	*Off NAS JRB New Orleans*	*Total*
F-15EX 50% AB	65-70	855	951	1,806	+60	+106	+166
	70-75	681	155	836	+40	+83	+123
	75-80	405	5	410	+113	+4	+118
	80-85	229	-	229	+49	0	+49
	85+	267	-	267	+44	0	+44
	Total >65 dB	2,437	1,112	3,549	+307	+194	+501
F-15EX 90% AB	65-70	912	824	1,736	+117	-21	+96
	70-75	641	178	819	+1	+106	+107
	75-80	370	7	377	+78	+7	+85
	80-85	223	-	223	+43	0	+43
	85+	293	-	293	+70	0	+70
	Total >65 dB	2,439	1,010	3,449	+309	+92	+401
F-35A 5% AB	65-70	747	1,695	2,443	-48	+851	+803
	70-75	747	317	1,064	+107	+245	+352
	75-80	439	32	471	+147	+31	+179
	80-85	212	-	212	+33	0	+33
	85+	257	-	257	+33	0	+33
	Total >65 dB	2,402	2,045	4,447	+272	+1127	+1399
F-35A 50% AB	65-70	746	1,684	2,430	-49	+839	+790
	70-75	738	323	1,061	+97	+251	+348
	75-80	445	36	481	+153	+35	+188
	80-85	214	-	214	+34	0	+34
	85+	267	-	267	+44	0	+44
	Total >65 dB	2,410	2,043	4,452	+280	+1125	+1405
F-35A 95% AB	65-70	741	1,669	2,410	-54	+824	+770
	70-75	729	328	1,057	+88	+256	+344
	75-80	451	39	490	+159	+38	+197
	80-85	215	-	215	+36	0	+36
	85+	278	-	278	+55	0	+55
	Total >65 dB	2,414	2,036	4,450	+284	+1119	+1402

Legend: % = percent; AB = afterburner; dB = decibel; DNL = Day-Night Average Sound Level

Under the F-15EX 90 percent scenario, off-NAS JRB New Orleans acreage would be similar to the F-15EX 50 percent scenario with 1,010 acres exposed to greater than 65 dB DNL, an increase of 92 acres from the existing conditions. The off-NAS JRB New Orleans acreage would be composed of 824 acres exposed to 65 to 70 dB DNL (a decrease of 21 acres), 178 acres exposed to 70 to 75 dB DNL (an increase of 106 acres), 7 acres exposed to 75 to 80 dB DNL (an increase of 7 acres), no acres exposed to 80 to 85 or greater than 85 dB DNL under the F-15EX 90 percent scenario.

Under the F-35A 5 percent scenario, off-NAS JRB New Orleans acreage exposed to greater than 65 dB DNL would be 2,045, an increase of 1,127 from the existing conditions. The off-NAS JRB New Orleans acreage would be composed of 1,695 acres exposed to 65 to 70 dB DNL (an increase of 851 acres), 317 acres exposed to 70 to 75 dB DNL (an increase of 245 acres), 32 acres exposed to 75 to 80 dB DNL (an increase of 31 acres), no acres exposed to 80 to 85 or 85 dB DNL under the F-35A 5 percent scenario.

Under the F-35A 50 percent scenario, off-NAS JRB New Orleans acreage exposed to greater than 65 dB DNL would be 2,043, an increase of 1,125 from the existing conditions. The off-NAS JRB New Orleans acreage would be composed of 1,684 acres exposed to 65 to 70 dB DNL (an increase of 839 acres), 323 acres exposed to 70 to 75 dB DNL (an increase of 251 acres), 36 acres exposed to 75 to 80 dB DNL (an increase of 35 acres), no acres exposed to 80 to 85 or greater than 85 dB DNL under the F-35A 50 percent scenario.

Under the F-35A 95 percent scenario, off-NAS JRB New Orleans acreage exposed to greater than 65 dB DNL would be 2,036 an increase of 1,119 from the existing conditions. The off-NAS JRB New Orleans acreage would be composed of 1,669 acres exposed to 65 to 70 dB DNL (an increase of 824 acres), 328 acres exposed to 70 to 75 dB DNL (an increase of 256 acres), 39 acres exposed to 75 to 80 dB DNL (an increase of 38 acres), no acres exposed to 80 to 85 or greater than 85 dB DNL under the F-35A 95 percent scenario.

Table 4-7 presents the acreage, households, and population estimations by DNL contour for each proposed scenario at NAS JRB New Orleans for areas outside of the airport.

Table 4-7 Acreage, Households, and Estimated Population by DNL Contour in the Vicinity of NAS JRB New Orleans

Scenario	*DNL (dB)*	*Acreage*	*Households*	*Estimated Population*	*Change from Existing Conditions/No Action Alternative*		
					Acreage	*Households*	*Estimated Population*
F-15EX 50% AB	65–70	951	371	958	+106	-10	-14
	70–75	155	9	26	+83	+5	+13
	75–80	5	0	1	+4	0	+1
	80–85	0	0	0	0	0	0
	85+	0	0	0	0	0	0
	Total	**1,112**	**380**	**985**	**+193**	**-5**	**0**
F-15EX 90% AB	65–70	824	240	628	-21	-141	-344
	70–75	178	10	28	+106	+5	+15
	75–80	7	0	2	+6	0	+2
	80–85	0	0	0	0	0	0
	85+	0	0	0	0	0	0
	Total	**1,010**	**250**	**658**	**+91**	**-136**	**-327**
F-35A 5% AB	65–70	1,695	765	1977	+850	+384	+1,005
	70–75	317	126	322	+245	+122	+309
	75–80	32	2	5	+31	+2	+5
	80–85	0	0	0	0	0	0
	85+	0	0	0	0	0	0
	Total	**2,045**	**893**	**2,304**	**+1,126**	**+508**	**+1,319**
F-35A 50% AB	65–70	1,684	752	1,945	+839	+371	+973
	70–75	323	132	337	+251	+128	+324
	75–80	36	2	5	+35	+2	+5
	80–85	0	0	0	0	0	0
	85+	0	0	0	0	0	0

Scenario	*DNL (dB)*	*Acreage*	*Households*	*Estimated Population*	*Change from Existing Conditions/No Action Alternative*		
					Acreage	*Households*	*Estimated Population*
	Total	**2,043**	**886**	**2,287**	**+1,125**	**+501**	**+1,302**
F-35A 95% AB	65–70	1,669	739	1912	+824	+358	+940
	70–75	328	138	351	+256	+134	+338
	75–80	39	2	6	+38	+2	+6
	80–85	0	0	0	0	0	0
	85+	0	0	0	0	0	0
	Total	**2,036**	**879**	**2,269**	**+1,118**	**+494**	**+1284**

Legend: % = percent; AB = afterburner; dB = decibel; DNL = Day-Night Average Sound Level.

Under the F-15EX 50 percent scenario, a total of 380 households and 985 people would be exposed to DNL greater than 65 dB, a decrease of 5 fewer households and no change to numbers of people. This decrease would be due to the general reduction in length of the 65 dB DNL contour caused by the steeper climb rate of the F-15EX. As detailed in Table 4-7, the change in exposure would be comprised of 371 households and 958 people exposed to DNL of 65 to 70 dB (a decrease of 10 households and 14 fewer people), 9 households and 26 people exposed to DNL of 70 to 75 dB (an increase of 5 households and 13 people), and one person exposed to DNL of 75 to 80 dB (an increase of one person) from existing conditions.

Under the F-15EX 90 percent scenario, a total of 250 households and 658 people would be exposed to DNL greater than 65 dB, a decrease of 136 fewer households and 327 fewer people. This decrease would be due to the general reduction in length of the 65 dB DNL contour caused by the steeper climb rate of the F-15EX. As detailed in Table 4-7, the change in exposure would be comprised of 240 households and 628 people exposed to DNL of 65 to 70 dB (a decrease of 141 households and 344 fewer people), 10 households and 28 people exposed to DNL of 70 to 75 dB (an increase of 5 households and 15 people), and 2 people exposed to DNL of 75 to 80 dB (an increase of two people) from existing conditions.

Under the F-35A 5 percent scenario, a total of 893 households and 2,304 people would be exposed to DNL greater than 65 dB, an increase of 508 households and 1,319 people. This increase would be due to the general increase in length of the 65 dB DNL contour caused by the increase in operations and the greater noise generated by the F-35A on departures. As detailed in Table 4-7, the change in exposure would be comprised of 765 households and 1,977 people exposed to DNL of 65 to 70 dB (an increase of 384 households and 1,005 people), 126 households and 322 people exposed to DNL of 70 to 75 dB (an increase of 122 households and 309 people), and 2 households and 5 people exposed to DNL of 75 to 80 dB (an increase of 2 households and 5 people) from existing conditions.

Under the F-35A 50 percent scenario, a total of 886 households and 2,287 people would be exposed to DNL greater than 65 dB, an increase of 501 households and 1,302 people. This increase would be due to the general increase in length of the 65 dB DNL contour caused by the increase in operations and the greater noise generated by the F-35A on departures. As detailed in Table 4-7, the change in exposure would be comprised of 752 households and 1,945 people exposed to DNL of 65 to 70 dB (an increase of 371 households and 973 people), 132 households and 337 people exposed to DNL of 70 to 75 dB (an increase of 128 households and 324 people), and 2 households and 5 people exposed to DNL of 75 to 80 dB (an increase of 2 households and 5 people) from existing conditions.

Under the F-35A 95 percent scenario, a total of 879 households and 2,269 people would be exposed to DNL greater than 65 dB, an increase of 494 households and 1,284 people. This increase would be due to the general increase in length of the 65 dB DNL contour caused by the increase in operations and the greater noise generated by the F-35A on departures. As detailed in Table 4-7, the change in exposure would be comprised of 739 households and 1,912 people exposed to DNL of 65 to 70 dB (an increase of 358 households and 940 people), 138 households and 351 people exposed to DNL of 70 to 75 dB (an increase of 134 households and 338 people), and 2 households and 6 people exposed to DNL of 75 to 80 dB (an increase of 2 households and 6 people) from existing conditions.

4.1.2.3 Classroom Learning Interference

Although classroom learning interference analysis only applies to the 13 school POIs, Table 4-8 presents $L_{eq(8hr)}$ for all 43 POIs because smaller daycare centers and learning facilities may exist at or near residential areas that may find the information useful. Under all F-15EX and F-35A scenarios, the number of school type POIs exposed to greater than 60 dB $L_{eq(8hr)}$ would be 8, no change from existing conditions.

Table 4-8 Classroom Screening Criteria ($L_{eq[8hr]}$) for POIs in the Vicinity of NAS JRB New Orleans

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-C-01	Census Tract 252.02	40	42 (+2)	42 (+2)	43 (+3)	43 (+3)	43 (+3)
NO-C-02	Census Tract 6.18	46	46 (0)	46 (0)	49 (+3)	49 (+3)	49 (+3)
NO-C-03	Census Tract 254	40	42 (+2)	42 (+2)	43 (+3)	43 (+3)	43 (+3)
NO-C-04	Census Tract 250.03	44	45 (+1)	46 (+2)	47 (+3)	47 (+3)	47 (+3)
NO-C-05	Census Tract 250.05	46	47 (+1)	47 (+1)	49 (+3)	49 (+3)	49 (+3)
NO-C-06	Census Tract 6.17	52	52 (0)	52 (0)	55 (+3)	55 (+3)	54 (+2)
NO-C-07	Census Tract 278.03	46	49 (+3)	50 (+4)	48 (+2)	48 (+2)	49 (+3)
NO-C-08	Census Tract 251.02	46	47 (+1)	48 (+2)	49 (+3)	49 (+3)	49 (+3)
NO-C-09	Census Tract 251.03	49	50 (+1)	50 (+1)	52 (+3)	52 (+3)	52 (+3)
NO-C-10	Census Tract 251.04	53	55 (+2)	55 (+2)	57 (+4)	57 (+4)	57 (+4)
NO-C-11	Census Tract 278.10	42	43 (+1)	44 (+2)	45 (+3)	45 (+3)	46 (+4)
NO-C-12	Census Tract 278.11	44	45 (+1)	46 (+2)	47 (+3)	47 (+3)	47 (+3)
NO-C-13	Census Tract 278.16	48	49 (+1)	50 (+2)	51 (+3)	51 (+3)	51 (+3)
NO-C-14	Census Tract 278.14	57	59 (+2)	**61 (+4)**	**60 (+3)**	**61 (+4)**	**61 (+4)**
NO-C-15	Census Tract 278.13	**63**	**64 (+1)**	**65 (+2)**	**67 (+4)**	**67 (+4)**	**67 (+4)**
NO-C-16	Census Tract 278.17	44	46 (+2)	47 (+3)	45 (+1)	45 (+1)	45 (+1)
NO-C-17	Census Tract 278.20	38	40 (+2)	40 (+2)	42 (+4)	42 (+4)	42 (+4)
NO-H-01	Bayside Healthcare Center	59	**61 (+2)**	**61 (+2)**	**63 (+4)**	**63 (+4)**	**63 (+4)**
NO-H-02	Padua Community Services Pediatric Residential Program	**62**	**62 (0)**	**62 (0)**	**66 (+4)**	**66 (+4)**	**66 (+4)**
NO-H-03	Belle Chasse Community Health Center	**64**	**63 (-1)**	**62 (-2)**	**67 (+3)**	**67 (+3)**	**67 (+3)**
NO-R-01	Emily Oaks Drive near E. St Bernard Highway	44	42 (-2)	42 (-2)	44 (0)	44 (0)	44 (0)
NO-R-02	Clubhouse Drive near Harbour Town Court	53	51 (-2)	51 (-2)	55 (+2)	54 (+1)	54 (+1)
NO-R-03	Highland Drive near E. St Bernard Highway	47	44 (-3)	44 (-3)	46 (-1)	46 (-1)	46 (-1)
NO-R-04	Parc Riverwood Drive and Main Street	**63**	**61 (-2)**	**61 (-2)**	**65 (+2)**	**65 (+2)**	**65 (+2)**
NO-R-05	Good News Avenue and Gravolet Street	**71**	**70 (-1)**	**69 (-2)**	**73 (+2)**	**73 (+2)**	**73 (+2)**
NO-R-06	Census Tract 278.12	52	55 (+3)	56 (+4)	56 (+4)	56 (+4)	56 (+4)

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	**62**	**64 (+2)**	**65 (+3)**	**65 (+3)**	**65 (+3)**	**66 (+4)**
NO-R-08	Lake Lynn Drive	**64**	**66 (+2)**	**67 (+3)**	**66 (+2)**	**66 (+2)**	**66 (+2)**
NO-R-09	Grand Tierre Drive	44	44 (0)	44 (0)	47 (+3)	47 (+3)	47 (+3)
NO-R-10	Jean Lafitte Boulevard	45	44 (-1)	44 (-1)	46 (+1)	46 (+1)	46 (+1)
NO-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	56	54 (-2)	54 (-2)	59 (+3)	59 (+3)	58 (+2)
NO-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	48	49 (+1)	50 (+2)	51 (+3)	51 (+3)	51 (+3)
NO-S-03	George Cox Elementary School	49	50 (+1)	50 (+1)	52 (+3)	52 (+3)	52 (+3)
NO-S-04	Jefferson Rise Charter School	49	51 (+2)	51 (+2)	53 (+4)	53 (+4)	53 (+4)
NO-S-05	Paul J. Solis Elementary School	53	54 (+1)	54 (+1)	57 (+4)	57 (+4)	57 (+4)
NO-S-06	Woodland West Elementary School	49	50 (+1)	51 (+2)	52 (+3)	52 (+3)	52 (+3)
NO-S-07	Brighter Horizons	**62**	**62 (0)**	**62 (0)**	**66 (+4)**	**66 (+4)**	**66 (+4)**
NO-S-08	Woodmere Elementary	48	50 (+2)	51 (+3)	50 (+2)	50 (+2)	50 (+2)
NO-S-09	Belle Chasse High School	**62**	**62 (0)**	**61 (-1)**	**65 (+3)**	**65 (+3)**	**65 (+3)**
NO-S-10	Jacob's Ladder Learning Academy	**62**	**63 (+1)**	**62 (0)**	**65 (+3)**	**65 (+3)**	**65 (+3)**
NO-S-11	Our Lady of Perpetual Help School	**64**	**65 (+1)**	**65 (+1)**	**67 (+3)**	**67 (+3)**	**67 (+3)**
NO-S-12	Belle Chasse Academy	**64**	**66 (+2)**	**67 (+3)**	**65 (+1)**	**65 (+1)**	**65 (+1)**
NO-S-13	Christian Fellowship Daycare	**62**	**65 (+3)**	**66 (+4)**	**63 (+1)**	**64 (+2)**	**64 (+2)**
Number of School POI greater than 60 dB $L_{eq(8hr)}$		8	8	8	8	8	8

Note: [1]Assumes 90 percent of ANG daytime operations occur during the school day; Windows open condition with Noise Level Reduction of 15 dB due to building attenuation.
[2]Parenthetical number represents the change to $L_{eq(8hr)}$ relative to existing conditions.
Legend: % = percent; AB = afterburner; ID = Identification.

Table 4-9 presents the average number of speech interfering events per school day hour from NAS JRB New Orleans aircraft operations. Both F-15EX scenarios would result in 1 additional event per hour at 6 school POIs and no change at the remaining 7 school POIs. The F-35A 5 percent afterburner scenario would result in 1 additional event per hour at 9 school POIs and no change at the remaining 4 school POIs. Both the F-35A 50 and 95 percent afterburner scenarios would result in 1 additional event per hour at 10 school POIs and no change at the remaining 3 school POIs.

Table 4-9 Classroom Speech Interfering Events per School Day Hour in the Vicinity of NAS JRB New Orleans

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-C-01	Census Tract 252.02	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-C-02	Census Tract 6.18	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-C-03	Census Tract 254	0	0 (0)	0 (0)	1 (+1)	1 (+1)	1 (+1)
NO-C-04	Census Tract 250.03	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-C-05	Census Tract 250.05	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-C-06	Census Tract 6.17	1	1 (0)	1 (0)	2 (+1)	2 (+1)	2 (+1)
NO-C-07	Census Tract 278.03	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-C-08	Census Tract 251.02	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-C-09	Census Tract 251.03	1	1 (0)	1 (0)	1 (0)	2 (+1)	2 (+1)
NO-C-10	Census Tract 251.04	1	1 (0)	1 (0)	2 (+1)	2 (+1)	2 (+1)
NO-C-11	Census Tract 278.10	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-C-12	Census Tract 278.11	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-C-13	Census Tract 278.16	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-C-14	Census Tract 278.14	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)

ID	Location	Existing Conditions	F-15EX 50% AB	F-15EX 90% AB	F-35A 5% AB	F-35A 50% AB	F-35A 95% AB
NO-C-15	Census Tract 278.13	2	2 (0)	2 (0)	2 (0)	2 (0)	2 (0)
NO-C-16	Census Tract 278.17	1	1 (0)	1 (0)	1 (0)	1 (0)	2 (+1)
NO-C-17	Census Tract 278.20	0	0 (0)	0 (0)	1 (+1)	1 (+1)	1 (+1)
NO-H-01	Bayside Healthcare Center	2	2 (0)	2 (0)	2 (0)	2 (0)	2 (0)
NO-H-02	Padua Community Services Pediatric Residential Program	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-H-03	Belle Chasse Community Health Center	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-R-01	Emily Oaks Drive near E. St Bernard Highway	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-R-02	Clubhouse Drive near Harbour Town Court	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-R-03	Highland Drive near E. St Bernard Highway	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-R-04	Parc Riverwood Drive and Main Street	1	1 (0)	1 (0)	2 (+1)	2 (+1)	2 (+1)
NO-R-05	Good News Avenue and Gravolet Street	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-R-06	Census Tract 278.12	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	2	3 (+1)	3 (+1)	3 (+1)	3 (+1)	3 (+1)
NO-R-08	Lake Lynn Drive	2	3 (+1)	3 (+1)	3 (+1)	3 (+1)	3 (+1)
NO-R-09	Grand Tierre Drive	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-R-10	Jean Lafitte Boulevard	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
NO-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-S-03	George Cox Elementary School	1	1 (0)	1 (0)	1 (0)	2 (+1)	2 (+1)
NO-S-04	Jefferson Rise Charter School	1	1 (0)	1 (0)	2 (+1)	2 (+1)	2 (+1)
NO-S-05	Paul J. Solis Elementary School	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-S-06	Woodland West Elementary School	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
NO-S-07	Brighter Horizons	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-S-08	Woodmere Elementary	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-S-09	Belle Chasse High School	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-S-10	Jacob's Ladder Learning Academy	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-S-11	Our Lady of Perpetual Help School	1	2 (+1)	2 (+1)	2 (+1)	2 (+1)	2 (+1)
NO-S-12	Belle Chasse Academy	2	2 (0)	2 (0)	3 (+1)	3 (+1)	3 (+1)
NO-S-13	Christian Fellowship Daycare	2	2 (0)	2 (0)	3 (+1)	3 (+1)	3 (+1)

Notes: [1]Assumes 90 percent of ANG daytime operations occur during the school day;
Windows open condition with Noise Level Reduction of 15 dB due to building attenuation.
[2]Parenthetical number represents the change to average number of classroom speech interfering events per hour relative to existing conditions.

Legend: % = percent; AB = afterburner; ID = Identification.

Table 4-10 presents the estimated time in minutes during an average school day that interior noise levels would be above an interior level of 50 dB, assuming windows open. Under the F-15EX 50 percent scenario, 1 school POI would experience no change to time above and 12 would experience an increase ranging from 1 to 4 additional minutes per average day. Under the F-15EX 90 percent scenario, 1 school POI would experience no change to time above and 12 would experience an increase ranging from 1 to 7 additional minutes per average day. Under the F-35A 5 percent scenario, all schools would experience an increase in time above, which would range from 1 to 6 additional minutes. Under the F-35A 50 percent scenario, all schools would experience an increase in time above, which would range from 2 to 5 additional minutes. Under the F-35A 95 percent scenario, all schools would experience an increase in time above, which would range from 2 to 4 additional minutes.

Table 4-10 Classroom Time Above Interior 50 dB during 8-hour School Day in the Vicinity of NAS JRB New Orleans

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-C-01	Census Tract 252.02	1	2 (+1)	2 (+1)	5 (+4)	5 (+4)	5 (+4)
NO-C-02	Census Tract 6.18	3	3 (0)	3 (0)	6 (+3)	6 (+3)	5 (+2)
NO-C-03	Census Tract 254	1	1 (0)	1 (0)	5 (+4)	5 (+4)	4 (+3)
NO-C-04	Census Tract 250.03	3	4 (+1)	5 (+2)	6 (+3)	6 (+3)	6 (+3)
NO-C-05	Census Tract 250.05	3	4 (+1)	5 (+2)	6 (+3)	6 (+3)	6 (+3)
NO-C-06	Census Tract 6.17	4	5 (+1)	5 (+1)	6 (+2)	6 (+2)	6 (+2)
NO-C-07	Census Tract 278.03	4	7 (+3)	9 (+5)	7 (+3)	6 (+2)	5 (+1)
NO-C-08	Census Tract 251.02	3	4 (+1)	5 (+2)	6 (+3)	6 (+3)	6 (+3)
NO-C-09	Census Tract 251.03	4	5 (+1)	5 (+1)	7 (+3)	7 (+3)	7 (+3)
NO-C-10	Census Tract 251.04	4	7 (+3)	9 (+5)	8 (+4)	8 (+4)	9 (+5)
NO-C-11	Census Tract 278.10	1	2 (+1)	2 (+1)	2 (+1)	3 (+2)	4 (+3)
NO-C-12	Census Tract 278.11	1	3 (+2)	5 (+4)	3 (+2)	3 (+2)	4 (+3)
NO-C-13	Census Tract 278.16	4	7 (+3)	9 (+5)	7 (+3)	6 (+2)	5 (+1)
NO-C-14	Census Tract 278.14	6	9 (+3)	11 (+5)	11 (+5)	10 (+4)	9 (+3)
NO-C-15	Census Tract 278.13	8	11 (+3)	13 (+5)	11 (+3)	10 (+2)	9 (+1)
NO-C-16	Census Tract 278.17	2	4 (+2)	5 (+3)	2 (0)	2 (0)	3 (+1)
NO-C-17	Census Tract 278.20	0	1 (+1)	1 (+1)	1 (+1)	1 (+1)	1 (+1)
NO-H-01	Bayside Healthcare Center	8	10 (+2)	12 (+4)	10 (+2)	10 (+2)	9 (+1)
NO-H-02	Padua Community Services Pediatric Residential Program	6	7 (+1)	7 (+1)	9 (+3)	9 (+3)	9 (+3)
NO-H-03	Belle Chasse Community Health Center	6	6 (0)	7 (+1)	9 (+3)	9 (+3)	8 (+2)
NO-R-01	Emily Oaks Drive near E. St Bernard Highway	2	3 (+1)	3 (+1)	3 (+1)	3 (+1)	3 (+1)
NO-R-02	Clubhouse Drive near Harbour Town Court	4	6 (+2)	5 (+1)	5 (+1)	5 (+1)	5 (+1)
NO-R-03	Highland Drive near E. St Bernard Highway	4	5 (+1)	4 (0)	4 (0)	4 (0)	4 (0)
NO-R-04	Parc Riverwood Drive and Main Street	5	5 (0)	5 (0)	8 (+3)	8 (+3)	8 (+3)
NO-R-05	Good News Avenue and Gravolet Street	6	6 (0)	7 (+1)	9 (+3)	8 (+2)	8 (+2)
NO-R-06	Census Tract 278.12	5	8 (+3)	9 (+4)	7 (+2)	8 (+3)	9 (+4)
NO-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	7	11 (+4)	12 (+5)	8 (+1)	9 (+2)	9 (+2)
NO-R-08	Lake Lynn Drive	6	10 (+4)	12 (+6)	12 (+6)	10 (+4)	9 (+3)
NO-R-09	Grand Tierre Drive	1	1 (0)	1 (0)	2 (+1)	1 (0)	1 (0)
NO-R-10	Jean Lafitte Boulevard	1	1 (0)	1 (0)	2 (+1)	2 (+1)	2 (+1)
NO-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	4	4 (0)	4 (0)	7 (+3)	7 (+3)	6 (+2)

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	4	5 (+1)	5 (+1)	7 (+3)	7 (+3)	6 (+2)
NO-S-03	George Cox Elementary School	4	5 (+1)	5 (+1)	7 (+3)	7 (+3)	7 (+3)
NO-S-04	Jefferson Rise Charter School	4	5 (+1)	5 (+1)	8 (+4)	7 (+3)	7 (+3)
NO-S-05	Paul J. Solis Elementary School	4	6 (+2)	7 (+3)	8 (+4)	8 (+4)	8 (+4)
NO-S-06	Woodland West Elementary School	4	7 (+3)	9 (+5)	8 (+4)	7 (+3)	6 (+2)
NO-S-07	Brighter Horizons	6	7 (+1)	7 (+1)	9 (+3)	9 (+3)	9 (+3)
NO-S-08	Woodmere Elementary	4	8 (+4)	9 (+5)	5 (+1)	6 (+2)	6 (+2)
NO-S-09	Belle Chasse High School	6	7 (+1)	7 (+1)	9 (+3)	9 (+3)	9 (+3)
NO-S-10	Jacob's Ladder Learning Academy	6	7 (+1)	8 (+2)	10 (+4)	10 (+4)	10 (+4)
NO-S-11	Our Lady of Perpetual Help School	8	12 (+4)	15 (+7)	12 (+4)	12 (+4)	12 (+4)
NO-S-12	Belle Chasse Academy	7	10 (+3)	12 (+5)	8 (+1)	9 (+2)	10 (+3)
NO-S-13	Christian Fellowship Daycare	7	10 (+3)	12 (+5)	13 (+6)	12 (+5)	10 (+3)

Note: [1]Assumes 90 percent of ANG daytime operations occur during the school day;
Windows open condition with Noise Level Reduction of 15 dB due to building attenuation.
[2]Parenthetical number represents the change to time above 50 dB, in minutes, relative to existing conditions.
Legend: % = percent; AB = afterburner; ID = Identification.

4.1.2.4 Non-school Speech Interference

Table 4-11 details the number of speech interfering events during the DNL daytime (7 a.m. [0700] to 10 p.m. [2200]) per average day for both windows open and windows closed conditions. Under the F-15EX 50 percent scenario, the number of daytime events would be none at 4 POIs for windows open and none at 23 POIs for windows closed. Events would range from 1 to 2 at the remaining POIs for either condition. Under the F-15EX 90 percent scenario, the number of daytime events would be none at 4 POIs for windows open and none at 20 POIs for windows closed. Events would range from 1 to 2 at the remaining POIs for either condition. Under the F-35A 5 percent scenario, the number of daytime events would be none at 3 POIs for windows open and none at 18 POIs for windows closed. Events would range from 1 to 2 at the remaining POIs for either condition. Under the F-35A 50 percent scenario, the number of daytime events would be none at 3 POIs for windows open and none at 17 POIs for windows closed. Events would range from 1 to 2 at the remaining POIs for either condition. Under the F-35A 95 percent scenario, the number of daytime events would be none at 3 POIs for windows open and none at 16 POIs for windows closed. Events would range from 1 to 2 at the remaining POIs for either condition.

Table 4-11 Non-School Speech Interfering Events per Day During DNL Daytime in the Vicinity of NAS JRB New Orleans

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-C-01	Census Tract 252.02	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-02	Census Tract 6.18	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-03	Census Tract 254	0 / 0	0 / 0	0 / 0	1 / 0	1 / 0	1 / 0
NO-C-04	Census Tract 250.03	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-05	Census Tract 250.05	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-06	Census Tract 6.17	1 / 0	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1

ID	*Location*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
NO-C-07	Census Tract 278.03	1 / 0	1 / 0	1 / 1	1 / 0	1 / 0	1 / 1
NO-C-08	Census Tract 251.02	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-09	Census Tract 251.03	1 / 0	1 / 0	1 / 0	1 / 1	1 / 1	1 / 1
NO-C-10	Census Tract 251.04	1 / 0	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
NO-C-11	Census Tract 278.10	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-12	Census Tract 278.11	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-13	Census Tract 278.16	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-C-14	Census Tract 278.14	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-C-15	Census Tract 278.13	1 / 1	2 / 1	2 / 1	2 / 2	2 / 2	2 / 2
NO-C-16	Census Tract 278.17	1 / 0	1 / 0	1 / 1	1 / 0	1 / 0	1 / 0
NO-C-17	Census Tract 278.20	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-H-01	Bayside Healthcare Center	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2
NO-H-02	Padua Community Services Pediatric Residential Program	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-H-03	Belle Chasse Community Health Center	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1
NO-R-01	Emily Oaks Drive near E. St Bernard Highway	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-R-02	Clubhouse Drive near Harbour Town Court	1 / 0	1 / 0	1 / 0	1 / 1	1 / 1	1 / 1
NO-R-03	Highland Drive near E. St Bernard Highway	0 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-R-04	Parc Riverwood Drive and Main Street	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
NO-R-05	Good News Avenue and Gravolet Street	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-R-06	Census Tract 278.12	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	2 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
NO-R-08	Lake Lynn Drive	1 / 1	2 / 1	2 / 1	2 / 2	2 / 2	2 / 2
NO-R-09	Grand Tierre Drive	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-10	Jean Lafitte Boulevard	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
NO-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	0 / 0	1 / 0	1 / 0	1 / 1	1 / 1	1 / 1
NO-S-03	George Cox Elementary School	1 / 0	1 / 0	1 / 0	1 / 1	1 / 1	1 / 1
NO-S-04	Jefferson Rise Charter School	1 / 0	1 / 0	1 / 0	1 / 1	1 / 1	1 / 1
NO-S-05	Paul J. Solis Elementary School	1 / 0	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
NO-S-06	Woodland West Elementary School	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
NO-S-07	Brighter Horizons	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-S-08	Woodmere Elementary	1 / 0	1 / 0	1 / 1	1 / 0	1 / 1	1 / 1
NO-S-09	Belle Chasse High School	1 / 1	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1
NO-S-10	Jacob’s Ladder Learning Academy	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-S-11	Our Lady of Perpetual Help School	1 / 1	1 / 1	1 / 1	2 / 1	2 / 1	2 / 1
NO-S-12	Belle Chasse Academy	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2
NO-S-13	Christian Fellowship Daycare	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2

Note: [1]Values represent events for conditions with windows open / windows closed.
Legend: % = percent; AB = afterburner; ID = Identification.

4.1.2.5 Probability for Awakening

Table 4-12 presents the current estimated potential for awakening and the change that would occur under each of the proposed scenarios. Both the F-15EX 50 and 90 percent scenarios would result in a 1 percent increase in PA at 7 POIs for windows open and no change at any POI for windows closed. The F-35A 5 percent scenario would result in a 1 percent increase in PA at 8 POIs for windows open and no change at any POI for windows closed. Both the F-35A 50 and 95 percent scenarios would result in a 1 percent increase in PA at 9 POIs for windows open and no change at any POI for windows closed. The generally small increase in PA would be due to the small percent of 159 FW aircraft that would operate during the DNL nighttime.

Table 4-12 Estimated Change to Probability of Awakening Relative to Existing Conditions in the Vicinity of NAS JRB New Orleans

ID	Location	Existing Conditions PA	Change Relative to Existing Conditions				
			F-15EX 50% AB	F-15EX 90% AB	F-35A 5% AB	F-35A 50% AB	F-35A 95% AB
NO-C-01	Census Tract 252.02	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-02	Census Tract 6.18	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-03	Census Tract 254	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-04	Census Tract 250.03	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-05	Census Tract 250.05	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-06	Census Tract 6.17	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-07	Census Tract 278.03	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-08	Census Tract 251.02	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-09	Census Tract 251.03	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-10	Census Tract 251.04	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-11	Census Tract 278.10	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-12	Census Tract 278.11	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-13	Census Tract 278.16	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-14	Census Tract 278.14	<1% / <1%	0 / 0	0 / 0	0 / 0	+1% / 0	+1% / 0
NO-C-15	Census Tract 278.13	<1% / <1%	+1% / 0	+1% / 0	+1% / 0	+1% / 0	+1% / 0
NO-C-16	Census Tract 278.17	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-C-17	Census Tract 278.20	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-H-01	Bayside Healthcare Center	<1% / <1%	0 / 0	0 / 0	+1% / 0	+1% / 0	+1% / 0
NO-H-02	Padua Community Services Pediatric Residential Program	<1% / <1%	0 / 0	0 / 0	+1% / 0	+1% / 0	+1% / 0
NO-H-03	Belle Chasse Community Health Center	<1% / <1%	0 / 0	0 / 0	+1% / 0	+1% / 0	+1% / 0
NO-R-01	Emily Oaks Drive near E. St Bernard Highway	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-02	Clubhouse Drive near Harbour Town Court	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-03	Highland Drive near E. St Bernard Highway	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-04	Parc Riverwood Drive and Main Street	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-05	Good News Avenue and Gravolet Street	<1% / <1%	+1% / 0	+1% / 0	+1% / 0	+1% / 0	+1% / 0
NO-R-06	Census Tract 278.12	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-07	Lac du Bay Drive and Lac Saint Pierre Drive	<1% / <1%	+1% / 0	+1% / 0	+1% / 0	+1% / 0	+1% / 0
NO-R-08	Lake Lynn Drive	<1% / <1%	+1% / 0	+1% / 0	+1% / 0	+1% / 0	+1% / 0

ID	Location	Existing Conditions PA	Change Relative to Existing Conditions				
			F-15EX 50% AB	F-15EX 90% AB	F-35A 5% AB	F-35A 50% AB	F-35A 95% AB
NO-R-09	Grand Tierre Drive	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-R-10	Jean Lafitte Boulevard	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-01	Belle Chasse Elementary School and Belle Chasse Primary School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-02	Athlos Academy of Jefferson Parish and GB Elementary School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-03	George Cox Elementary School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-04	Jefferson Rise Charter School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-05	Paul J. Solis Elementary School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-06	Woodland West Elementary School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-07	Brighter Horizons	<1% / <1%	0 / 0	0 / 0	+1% / 0	+1% / 0	+1% / 0
NO-S-08	Woodmere Elementary	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-09	Belle Chasse High School	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-10	Jacob's Ladder Learning Academy	<1% / <1%	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
NO-S-11	Our Lady of Perpetual Help School	<1% / <1%	+1% / 0	+1% / 0	0 / 0	0 / 0	0 / 0
NO-S-12	Belle Chasse Academy	<1% / <1%	+1% / 0	+1% / 0	0 / 0	0 / 0	0 / 0
NO-S-13	Christian Fellowship Daycare	<1% / <1%	+1% / 0	+1% / 0	0 / 0	0 / 0	0 / 0
POIs with no change			36 / 43	36 / 43	35 / 43	34 / 43	34 / 43
POIs with increase of 1 percent or greater			7 / 0	7 / 0	8 / 0	9 / 0	9 / 0

Legend: % = percent; AB = afterburner; ID = Identification; PA = Probability of Awakening; POI = Point of Interest.

4.1.2.6 Potential for Hearing Loss

Figures 4-12 through 4-16 depict the 80 dB DNL contour line for each of the five proposed scenarios, which identifies the areas where the analysis for the PHL begins (DNWG 2012). As shown, the 80 dB DNL would not extend beyond the NAS JRB New Orleans base boundary under any of the proposed scenarios so there would be no PHL. The PHL figures include the applicable $L_{eq(24hr)}$ contour lines within the 80 dB DNL contours that would be utilized for PHL impact analysis if people did reside in these areas.

4.2 SPECIAL USE AIRSPACE

The following section details the modeling data and the resultant noise exposure for the five proposed afterburner scenarios for aircraft training activity in the 159 FW associated airspace. Under the Proposed Action, either F-15EX or F-35A aircraft would replace the F-15C/D aircraft of the 159 FW. Because the two F-15EX and the three F-35A afterburner scenarios only differ by afterburner usage rates at NAS JRB New Orleans, the airspace conditions would be the same for each scenario of the same aircraft types so only one F-15EX and one F-35A condition has been analyzed for airspace noise. Other aircraft type operations would remain unchanged from those described in Section 3.0, *Existing Conditions.*

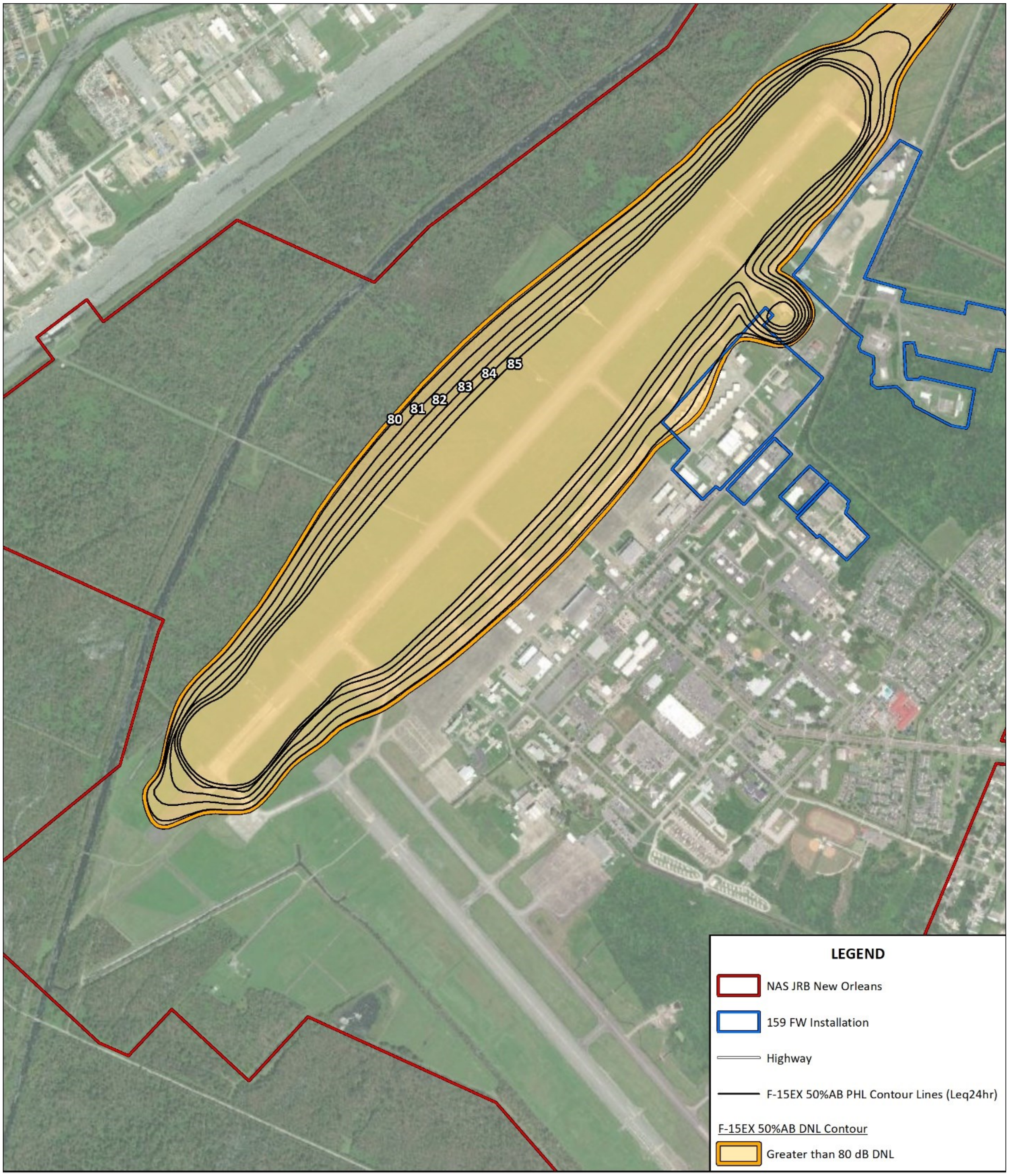


Figure 4-12 F-15EX 50 Percent Afterburner Scenario – Potential for Hearing Loss

Source: ESRI 2022, NAVFAC SE 2022

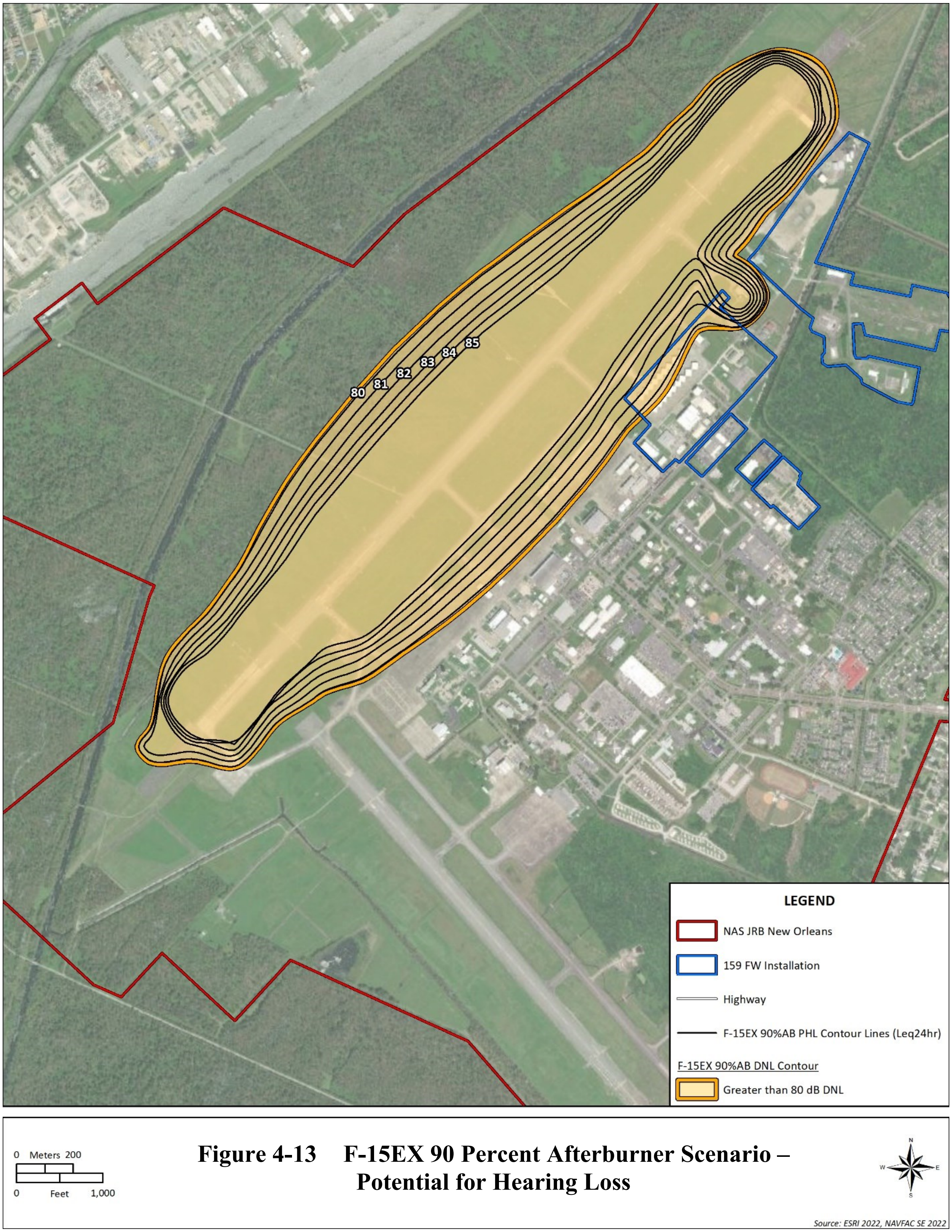


Figure 4-13 F-15EX 90 Percent Afterburner Scenario – Potential for Hearing Loss

Source: ESRI 2022, NAVFAC SE 2022

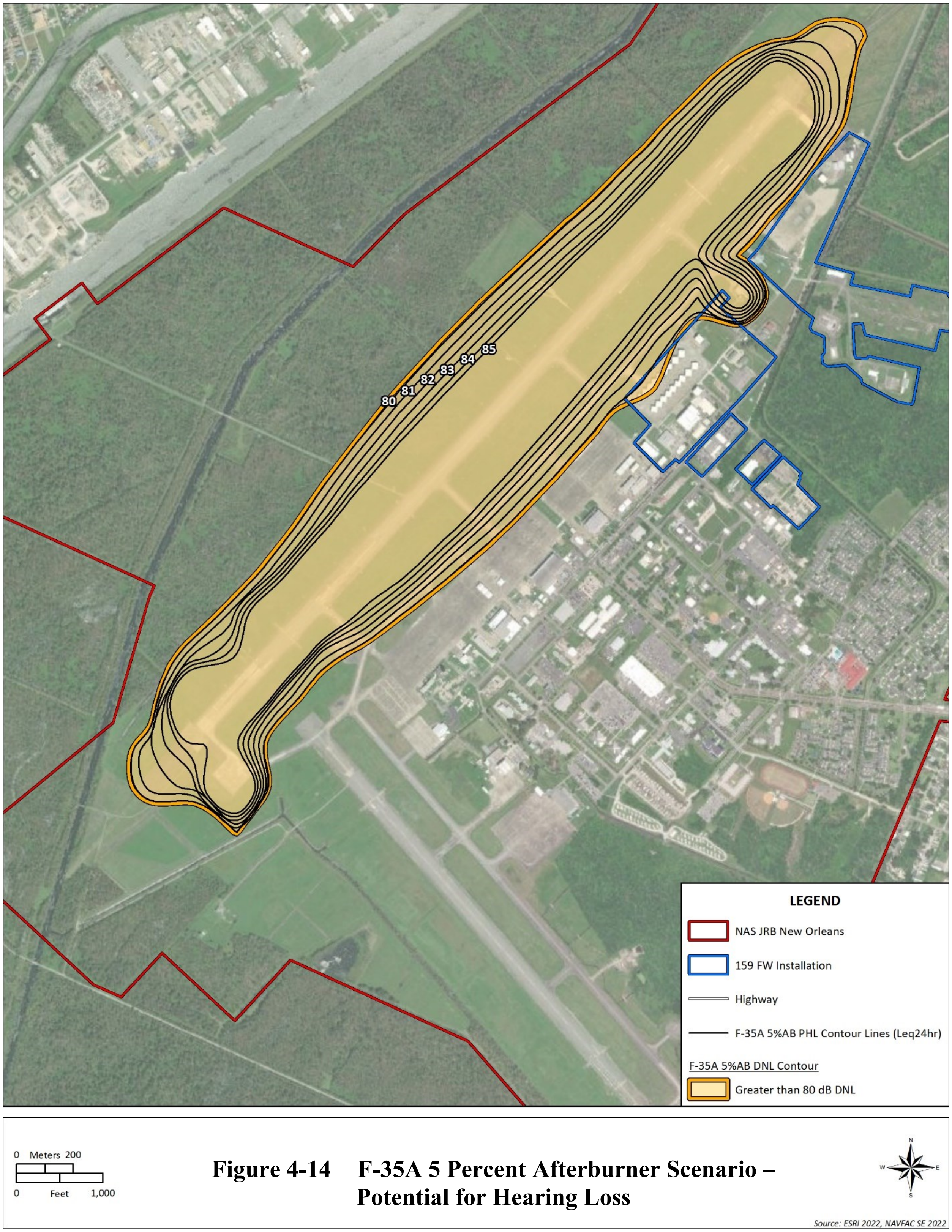


Figure 4-14 F-35A 5 Percent Afterburner Scenario – Potential for Hearing Loss

Source: ESRI 2022, NAVFAC SE 2022

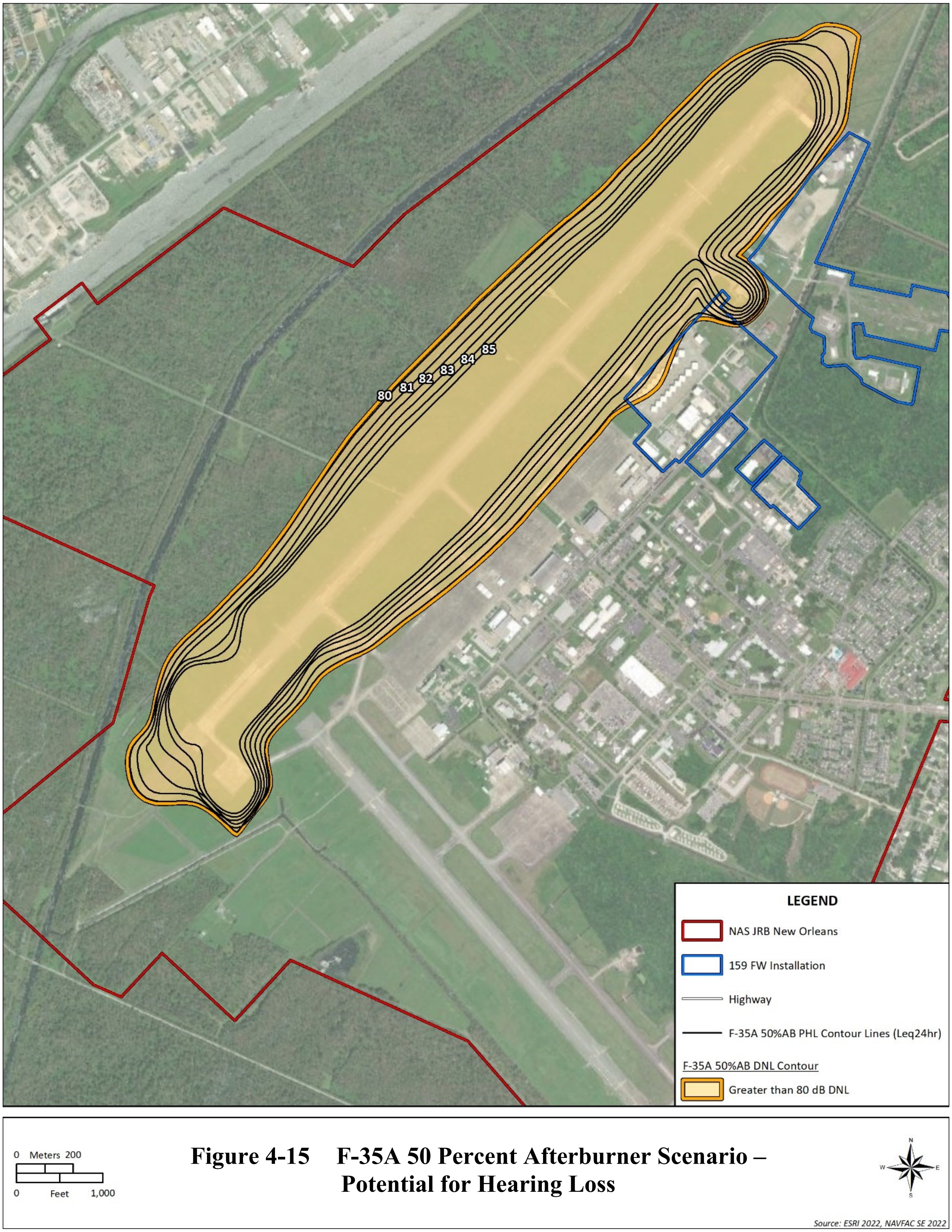


Figure 4-15 F-35A 50 Percent Afterburner Scenario – Potential for Hearing Loss

Figure 4-16 F-35A 95 Percent Afterburner Scenario – Potential for Hearing Loss

Source: ESRI 2022, NAVFAC SE 2022

4.2.1 Modeling Data (Subsonic)

The proposed F-15EX or F-35A aircraft would not require any changes to the current lateral or vertical configurations of any MOA, Restricted Area, Warning Area, or Air Traffic Control Assigned Airspace, nor would it alter their normal scheduled times of use. Since SUA scheduled activation times would not change from existing conditions, the impacts to the National Airspace System would be unaffected. Visual Flight Rules aircraft would still be allowed to exercise their right to transition through MOAs and Instrument Flight Rules aircraft would not experience any extra flight plan deviations because the SUA activation times would remain the same. Air Traffic Control would continue to provide the required separation pertaining to specific aircraft and type in the SUA.

Under the F-15EX and F-35A scenarios, aircraft would conduct up to 3,832 annual sorties, an increase of 107 percent above the 1,850 currently flown by the F-15C/D. Since air-to-ground ordnance delivery would be impractical when operating from NAS JRB New Orleans, it is likely that some portion of the training syllabus would have to be flown from other bases. This analysis presents a 'worst-case' for noise impacts, assuming that the entire year of training would occur in the SUA currently used by the 159 FW, with no training deployments elsewhere to achieve training requirements.

The proportion of time for each sortie in the MOA spent between 500 feet AGL and 10,000 feet MSL would not change for either the F-15EX or F-35A aircraft when compared with the current F-15C/D. Table 4-13 details the anticipated changes to altitude usage with the largest difference occurring above 18,000 feet MSL where aircraft noise reaching the ground would be negligible.

Table 4-13 Current and Proposed MOA Use by Altitude

Altitude (feet)	*Current Percentage Use F-15C/D*	*Proposed Percentage Use F-15EX*	*F-15EX Change from Current*	*Proposed Percentage Use F-35A*	*F-35A Change from Current*
500–3,000 AGL	1	1	0	1	0
3,000–5,000 AGL	1	1	0	1	0
5,000–10,000 MSL	5	5	0	5	0
10,000 MSL–18,000 MSL	36	38	+2	24	-12
18,000 MSL–30,000 MSL	17	30	+13	58	+41
Above 30,000	40	25	-15	11	-29

Legend: AGL = above ground level; MSL = mean sea level.

4.2.2 Noise Exposure (Subsonic)

Aircraft altitudes, speeds, and power settings vary while operating within the airspace based upon the training exercise. For comparison, Table 4-14 presents single-event noise levels in terms of SEL and L_{max} for the F-15C/D, F-15EX, and F-35A. In general, the F-15EX would be 2 to 3 dB greater in terms of SEL and 4 to 5 dB greater in L_{max} when compared to the F-15C/D at times when both aircraft would operate at military power and 400 knots. The F-35A would be 3 to 5 dB greater in terms of SEL and 6 to 8 dB greater in L_{max} when compared to the F-15C/D at times when both aircraft would operate at military power and 400 knots.

Table 4-14 SEL and L_{max} Comparison for Typical Military Airspace Profiles

Altitude (feet AGL)	*F-15C/D (PW-220)*		*F-15EX (GE-129)*		*F-35A (PW-100)*	
Metric	*SEL*	*L_{max}*	*SEL*	*L_{max}*	*SEL*	*L_{max}*
500	116	111	119	116	121	119
1,000	111	104	113	109	115	111
2,000	105	97	107	101	108	103
5,000	95	85	98	89	99	91
10,000	86	75	88	79	89	81

Note: All aircraft modeled at military power and 400 knots for comparison.
Legend: AGL = above ground level; L_{max} = Maximum Sound Level; SEL = Sound Exposure Level.
Source: NOISEMAP version 7.3.

Under the two F-15EX scenarios, the F-15EX would replace the existing F-15C/D. Based on the increase in sorties of 107 percent along with the greater SEL of the F-15EX, L_{dnmr} in each airspace that would be used by the F-15EX could increase up to 6 dB from the existing conditions. The result would be L_{dnmr} ranging from 46 dB on the upper end down to levels below the software's lower limit of prediction where predicted noise levels would typically be less than ambient noise from other noise sources. Therefore, L_{dnmr} would remain relatively low. Additionally, the 159 FW airspace training would remain primarily at higher altitudes (about 93 percent of time above 10,000 feet MSL), and most aircraft sorties within the SUA would likely not be noticed by any casual observer. The DNL would remain below 44 dB at ground level under 159 FW airspace.

Under the three F-35A scenarios, the F-35A would replace the existing F-15C/D. Based on the increase in sorties of 107 percent along with the greater SEL of the F-35A, L_{dnmr} in each airspace that would be used by the F-35A could increase up to 8 dB above the existing conditions. The result would be L_{dnmr} ranging from 48 dB down to levels below the software's lower limit of prediction. Therefore, L_{dnmr} would remain relatively low. Additionally, the 159 FW airspace training would remain primarily at higher altitudes (about 93 percent of time above 10,000 feet MSL), and most aircraft sorties within the SUA would likely not be noticed by any casual observer. The DNL would remain below 46 dB at ground level under 159 FW airspace.

4.2.3 Modeling Data (Supersonic)

Supersonic flight would primarily be associated with air combat training. Some of these training sorties require aircraft to exceed Mach 1.0 (supersonic) for brief periods of time, which creates a shock wave. Depending on the aircraft's altitude and the local atmospheric conditions, this shock wave can reach the ground, causing a "sonic boom." Higher altitudes and warmer surface temperatures can result in the sonic boom not reaching the surface of the earth. Lower altitudes for supersonic flight and higher speeds (higher Mach numbers) increase the likelihood and intensity of sonic booms.

Supersonic operations for both the F-15EX and F-35A would be in the same airspace as the existing F-15C/D, but the frequency of supersonic events would increase proportional to the overall increase in sorties. The altitudes and duration for each individual supersonic flight, for either the F-15EX or F-35A scenarios, is expected to remain similar to existing conditions.

4.2.4 Noise Exposure (Supersonic)

BOOMAP96 was developed to analyze supersonic aircraft activity within airspace with little to no limitations on minimum altitudes, which would not be applicable to airspace analyzed in this study with supersonic minimums of 10,000 feet MSL. However, the software can provide an accurate calculation of the relative or change to CDNL that would occur under a proposed action compared to existing conditions, as described below.

Under the F-15EX scenarios, the F-15EX would replace the F-15C/D for supersonic activity in both of the W-105 overwater ranges. The frequency of supersonic activity in these areas would increase by 107 percent from the existing conditions, which would equate to an increase in CDNL of 3 dB. Although the magnitude of noise generated by each sonic boom depends upon the shape and size of the aircraft, the F-15EX and F-15C/D aircraft both share the same airframe and would operate similarly during supersonic operations so each supersonic noise event for the F-15EX would be the same as the existing F-15C/D. Therefore, the overall change to CDNL in W-105 would be up to 3 dB greater than existing conditions due to the increase in supersonic sorties.

Under the F-35A scenarios, the F-35A would replace the F-15C/D for supersonic activity in both of the W-105A/B overwater ranges. The frequency of supersonic activity in these areas would increase by 107 percent from the existing conditions, which would equate to an increase in CDNL of 3 dB. The magnitude of noise generated by each sonic boom depends upon the shape and size of the aircraft. Although BOOMAP96 does not include supersonic noise modeling data for the F-35A, noise data for a similar fifth generation fighter, the F-22, suggests that fifth generation fighters generate greater noise levels during supersonic activities than legacy aircraft, like F-15. Given that the dimensions of the F-35A are approximately 20 percent smaller than the F-22, noise levels due to the F-35A are estimated to fall between the F-22 and legacy aircraft like F-15. Using BOOMAP96, a midpoint value between the F-15 and F-22 would result in CDNL for the F-35A estimated to be approximately 4 to 5 dB greater than the F-15C/D under existing conditions. Therefore, the overall change to CDNL in W-105A/B and Viper Complex under the F-35A scenarios would be up to 8 dB greater than existing conditions due to a combination of the increase in supersonic sorties and different aircraft characteristics of the F-35A.

5.0 NO-ACTION ALTERNATIVE

Under the No Action Alternative, noise levels and exposure would be identical as described within Section 3.0, *Existing Conditions* for both NAS JRB and SUA training. F-15C aircraft operations would remain at approximately 3,934 at NAS JRB and 1,850 sorties would occur within SUA. Further, based military DON, U.S. Marine Corps, U.S. Coast Guard, and military transient operations would remain constant as they have through all scenarios at 17,209.

6.0 CONCLUSION

Table 6-1 presents a quantitative summary of the potential noise impacts as identified by DoD criteria associated with either the F-15EX or F-35A aircraft beddown as compared to the existing conditions. Noise analysis results summarized in the table includes acreage and households/population impacted, number of POIs affected, number of school POIs affected, and PA by the two aircraft beddowns and their various potential afterburner usage, which the DoD takes into account when determining significant impacts.

Table 6-1 Summary of Potential Noise Impact Associated with the F-15EX and F-35A Alternatives at NAS JRB New Orleans

Category	*Condition*	*Existing Conditions*	*F-15EX 50% AB*	*F-15EX 90% AB*	*F-35A 5% AB*	*F-35A 50% AB*	*F-35A 95% AB*
DNL: Number of POIs	Exposed to >65 dB DNL	1	1 (0)	1 (0)	1 (0)	1 (0)	1 (0)
	Exposed to >70 dB DNL	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Exposed to >75 dB DNL	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Decrease of 1 dB or greater		8	9	1	1	1
	No change		4	5	1	1	1
	Increase of 1 dB		17	10	4	3	4
	Increase of 2 to 4 dB		14	19	37	38	37
	Increase of 5 dB or greater		0	0	0	0	0
Off Base Exposure	Acreage	918	1,112 (+193)	1,010 (+91)	2,045 (+1,126)	2,043 (+1,125)	2,036 (+1,118)
	Households	385	380 (-5)	250 (-136)	893 (+508)	886 (+501)	879 (+494)
	Estimated Population	985	985 (0)	658 (-327)	2,304 (+1,319)	2,287 (+1,302)	2,269 (+1284)
School, $L_{eq(8hr)}$: Number of School POIs	Greater than 60 dB $L_{eq(8hr)}$	8	8 (0)	8 (0)	8 (0)	8 (0)	8 (0)
School, Numbers of Events per Average School Day Hour: Number of School POIs	With No Interfering Events	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	With 1 Interfering Event	11	5 (-6)	5 (-6)	4 (-7)	3 (-8)	3 (-8)
	With >1 Interfering Events	2	8 (+6)	8 (+6)	9 (+7)	10 (+8)	10 (+8)
School, Time Above Interior 50 dB for 8 Hour School Day: Number of School POIs	Duration of 5 min or less	7	4 (-3)	4 (-3)	1 (-6)	0 (-7)	0 (-7)
	Duration of >5-10 minutes	6	8 (+2)	6 (0)	10 (+4)	11 (+5)	12 (+6)
	Duration of >10 minutes	0	1 (+1)	3 (+3)	2 (+2)	2 (+2)	1 (+1)
Speech Interfering Events per Average Hour, Windows Open: Number of POIs	With No Events	14	4 (-10)	4 (-10)	3 (-11)	3 (-11)	3 (-11)
	With 1-2 Events	29	39 (+10)	39 (+10)	40 (+11)	40 (+11)	40 (+11)
	With >2 Events	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Speech Interfering Events per Average Hour, Windows Closed: Number of POIs	With No Events	26	23 (-3)	20 (-6)	18 (-8)	17 (-9)	16 (-10)
	With 1-2 Events	17	20 (+3)	23 (+6)	25 (+8)	26 (+9)	27 (+10)
	With >2 Events	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Probability of Awakening with Windows Open: Number of POIs	With <1% PA	43	36 (-7)	36 (-7)	35 (-8)	34 (-9)	34 (-9)
	With 1% to 10% PA	0	7 (+7)	7 (+7)	8 (+8)	9 (+9)	9 (+9)
Probability of Awakening with Windows Open: Number of POIs	With <1% PA	43	43 (0)	43 (0)	43 (0)	43 (0)	43 (0)
	With 1% to 10% PA	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Notes: Parenthetical represents change from existing conditions.

Legend: % = percent; < = less than; > = greater than; AB = afterburner; dB = decibel; DNL = Day-Night Average Sound Level.

7.0 REFERENCES

American National Standards Institute (ANSI). 1988. Quantities and Procedures for Description and Measurement of Environmental Sound. Part 1.

American National Standards Institute (ANSI)/Acoustical Society of America (ASA). 2008. Quantities and Procedures for Description and Measurement Of Environmental Sound S12.9-2008/Part 6.

American National Standards Institute (ANSI)/Acoustical Society of America (ASA). 2018. Rationale for Withdrawing ANSI/ASA S12.9-2008/Part 6 (A Technical Report prepared by ANSI-Accredited Standards Committee S12 and registered with ANSI). July.

Blue Ridge Research and Consulting. 2023. Technical Memorandum BRRC 23 03 Draft NoiseFile Processing for F-15EX Measurements and Analysis 13 February.

Department of the Navy. 2021. Real-Time Aircraft Sound Monitoring Final Report, Report to Congress. November 30. https://www.navfac.navy.mil/Business-Lines/Asset-Management/Products-and-Services/Aircraft-Sound-Monitoring/

Department of Defense Noise Working Group (DNWG). 2009a. *Technical Bulletin, Using Supplemental Noise Metrics and Analysis Tools*. March.

Department of Defense Noise Working Group (DNWG). 2009b. *Technical Bulletin: Sleep Disturbance from Aviation Noise*, December.

Department of Defense Noise Working Group (DNWG). 2012. *Technical Bulletin, Noise-Induced Hearing Impairment, Defense Noise Working Group*. December.

Department of Defense Noise Working Group (DNWG). 2013a. *Technical Bulletin: Speech Interference from Aviation Noise*. December.

Department of Defense Noise Working Group (DNWG). 2013b. *Noise – Induced Hearing Impairment Technical Bulletin.* December.

Federal Interagency Committee on Noise (FICON). 1978. Environmental Protection – Planning the Noise Environment. 15 June.

National Aeronautics and Space Administration. 2015. NASA Armstrong Fact Sheet: Sonic Booms. Accessed 13 July 2023 at: https://www.nasa.gov/centers/armstrong/news/FactSheets/FS-016-DFRC.html.

National Guard Bureau (NGB). 2022. Air National Guard F-15EX Eagle II & F-35A Operational Beddowns Environmental Impact Statement Final Noise Data Validation Package for the 159th Fighter Wing at NAS JRB New Orleans. August.

Wasmer Consulting. 2006. *BaseOps 7.3 User's Guide*, Fred Wasmer and Fiona Maunsell, Wasmer Consulting.

Wyle. 1998. *NMAP 7.0 User's Manual. Wyle Research Report WR98-13*, Czech and Plotkin. November.

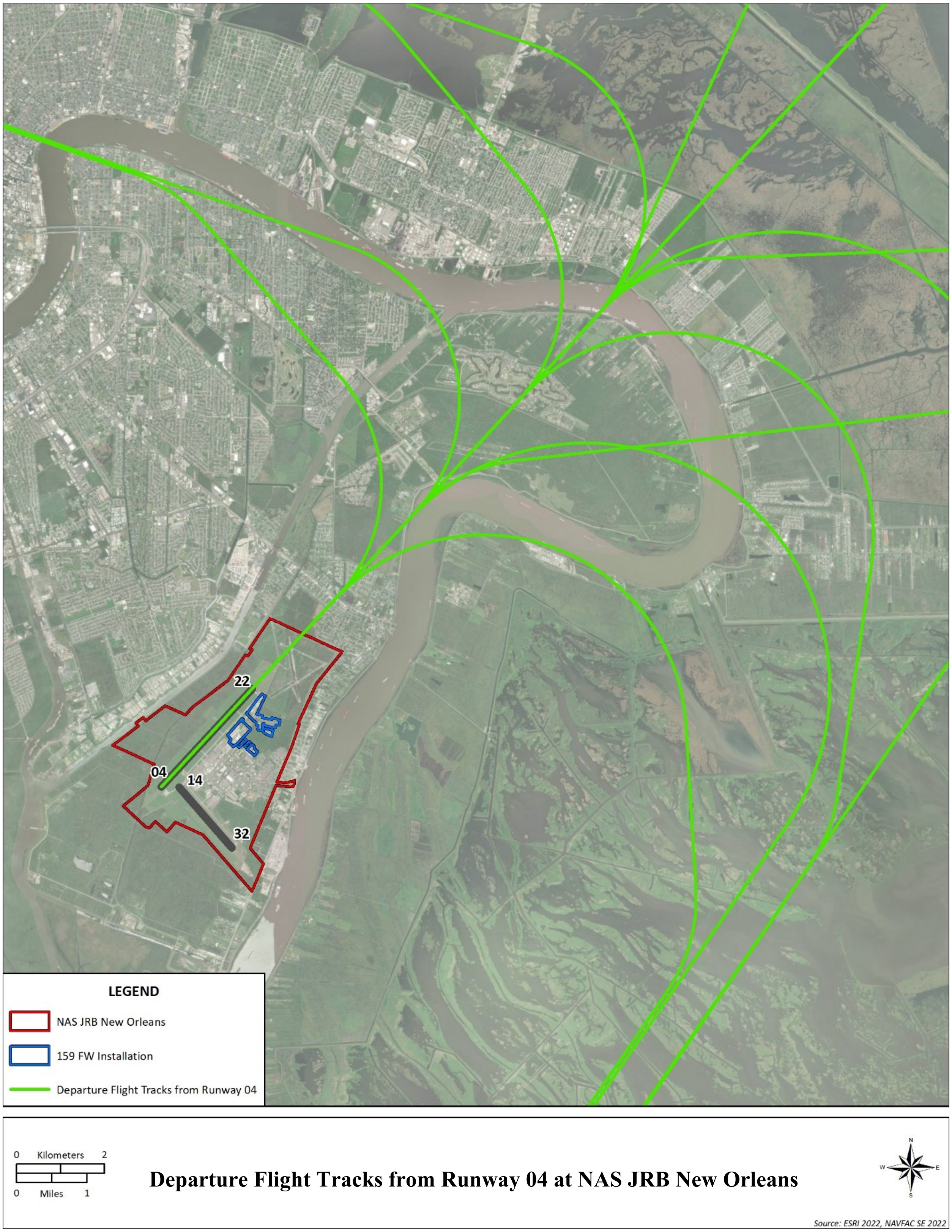
This page intentionally left blank.

Appendix A
Aircraft Modeling Details

This page intentionally left blank.

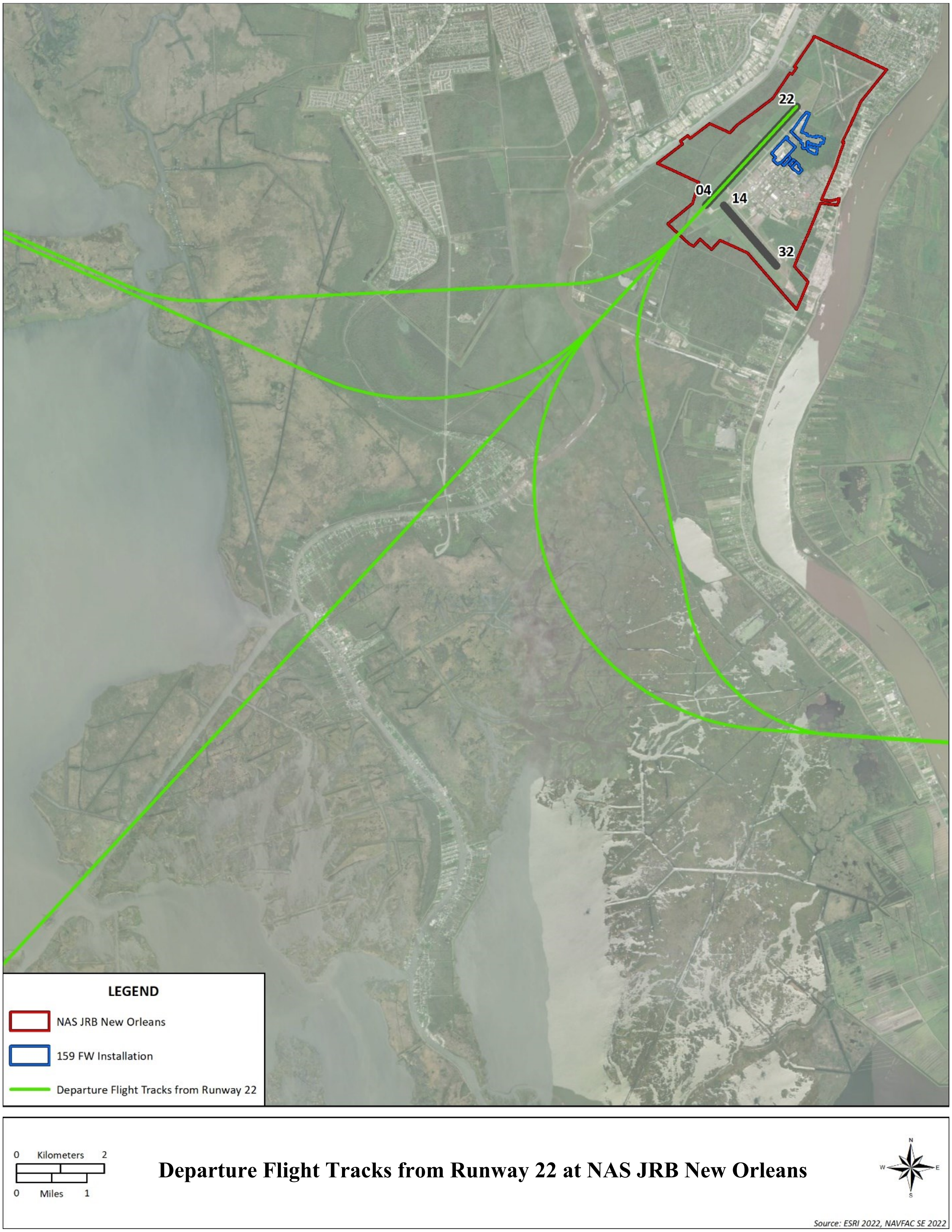
NAS JRB New Orleans Representative Flight Tracks

This page intentionally left blank.



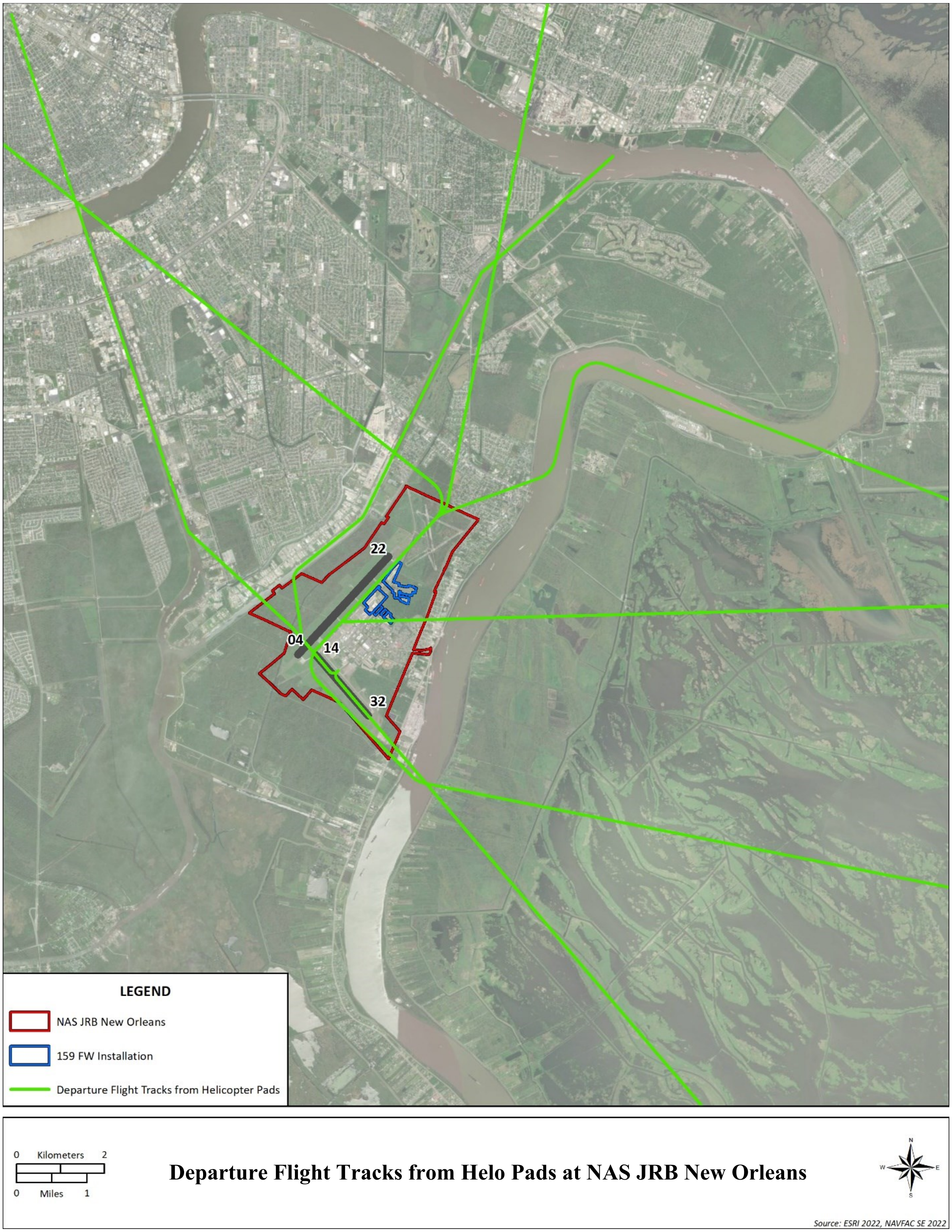
Departure Flight Tracks from Runway 04 at NAS JRB New Orleans

Source: ESRI 2022, NAVFAC SE 2022

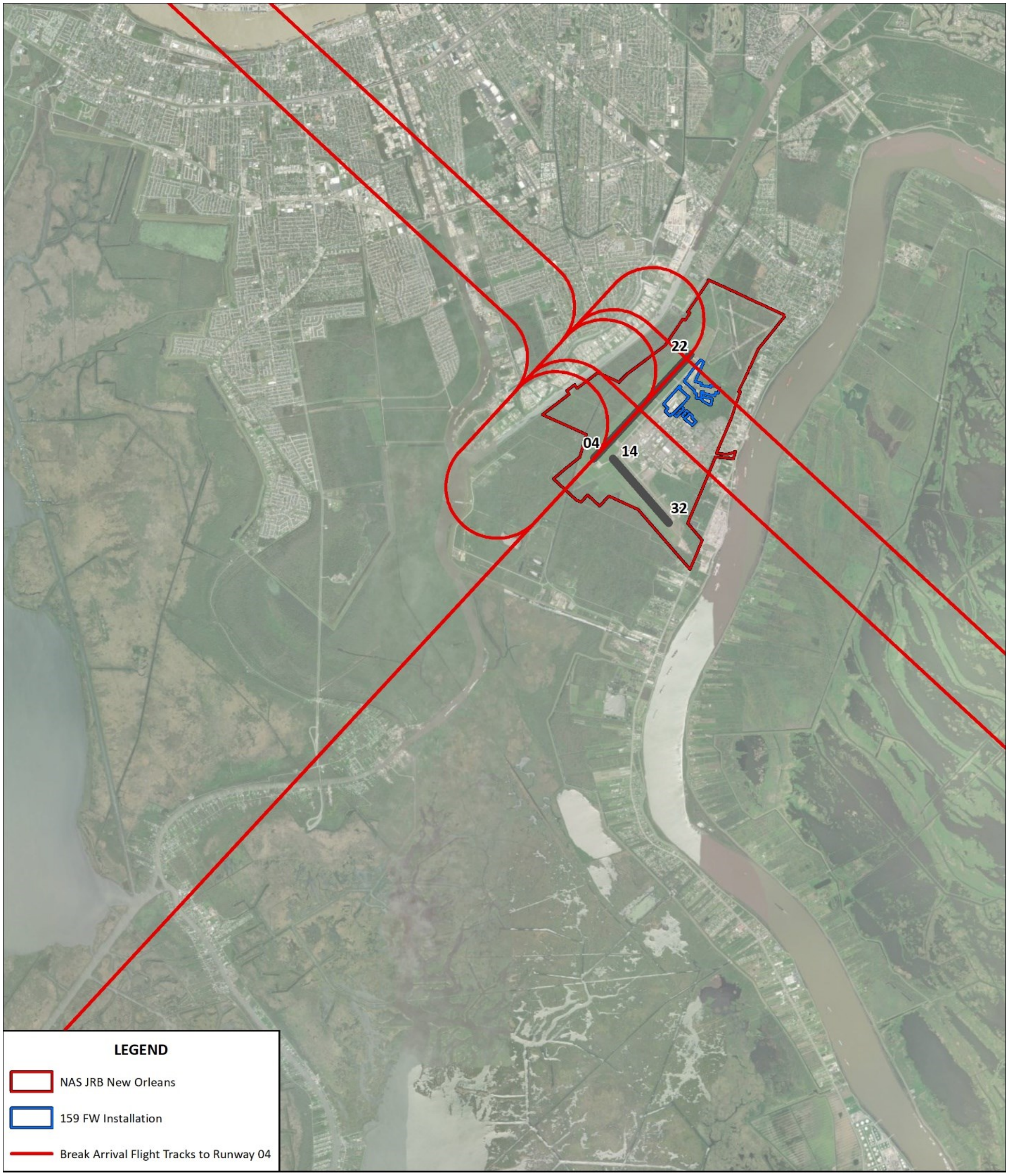


Departure Flight Tracks from Runway 22 at NAS JRB New Orleans

Departure Flight Tracks from Runways 14 and 32 at NAS JRB New Orleans

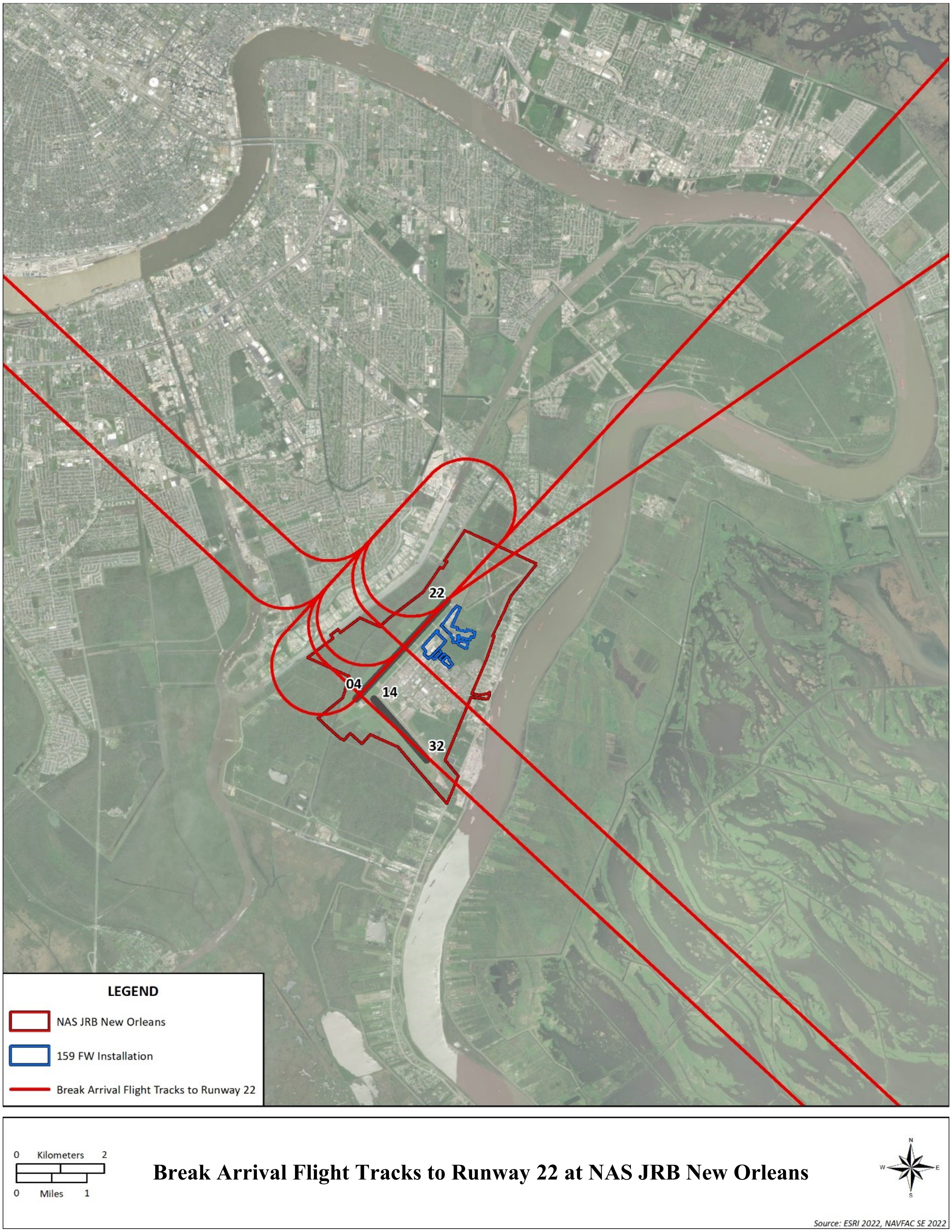


Departure Flight Tracks from Helo Pads at NAS JRB New Orleans

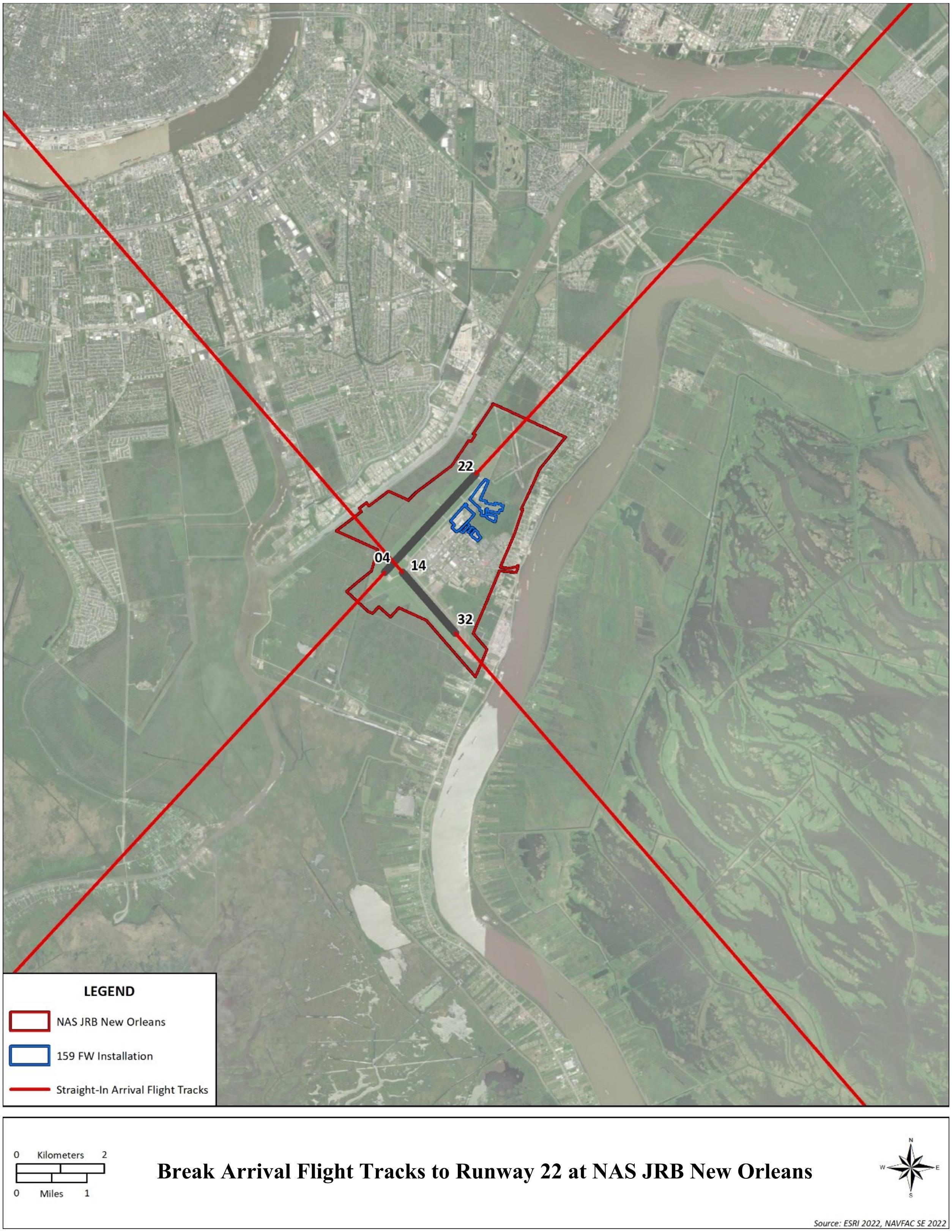


Break Arrival Flight Tracks to Runway 04 at NAS JRB New Orleans

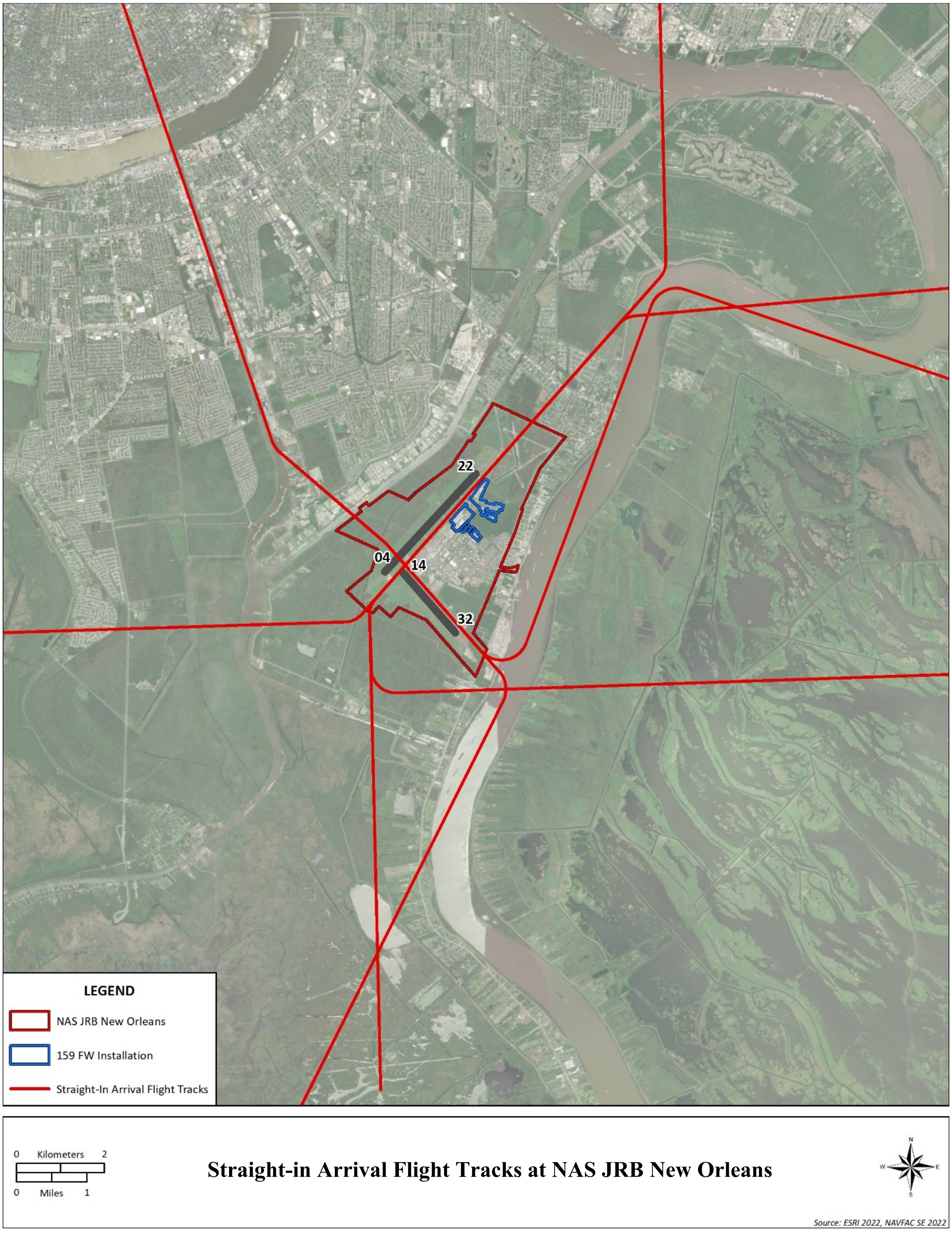
Source: ESRI 2022, NAVFAC SE 2022



Break Arrival Flight Tracks to Runway 22 at NAS JRB New Orleans

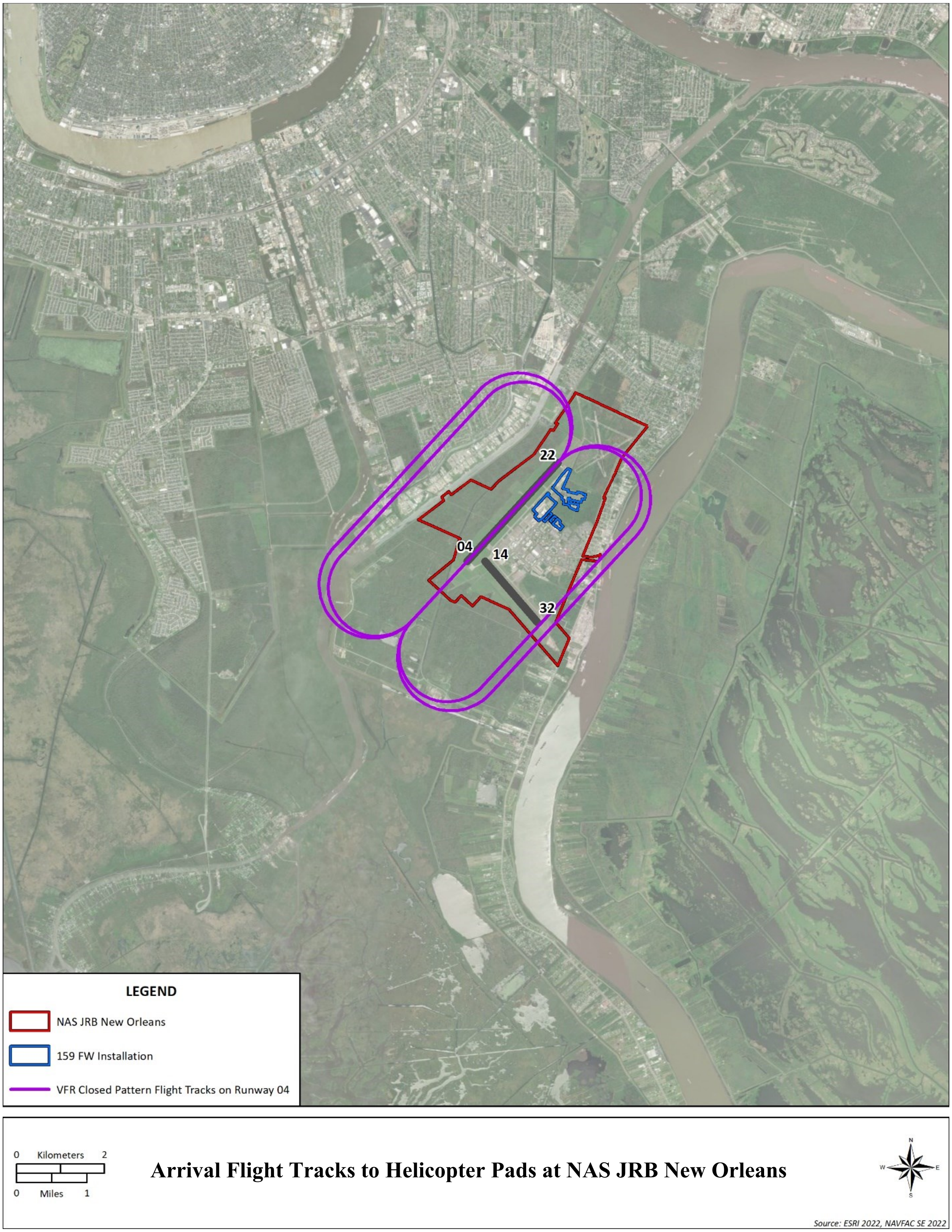


Break Arrival Flight Tracks to Runway 22 at NAS JRB New Orleans

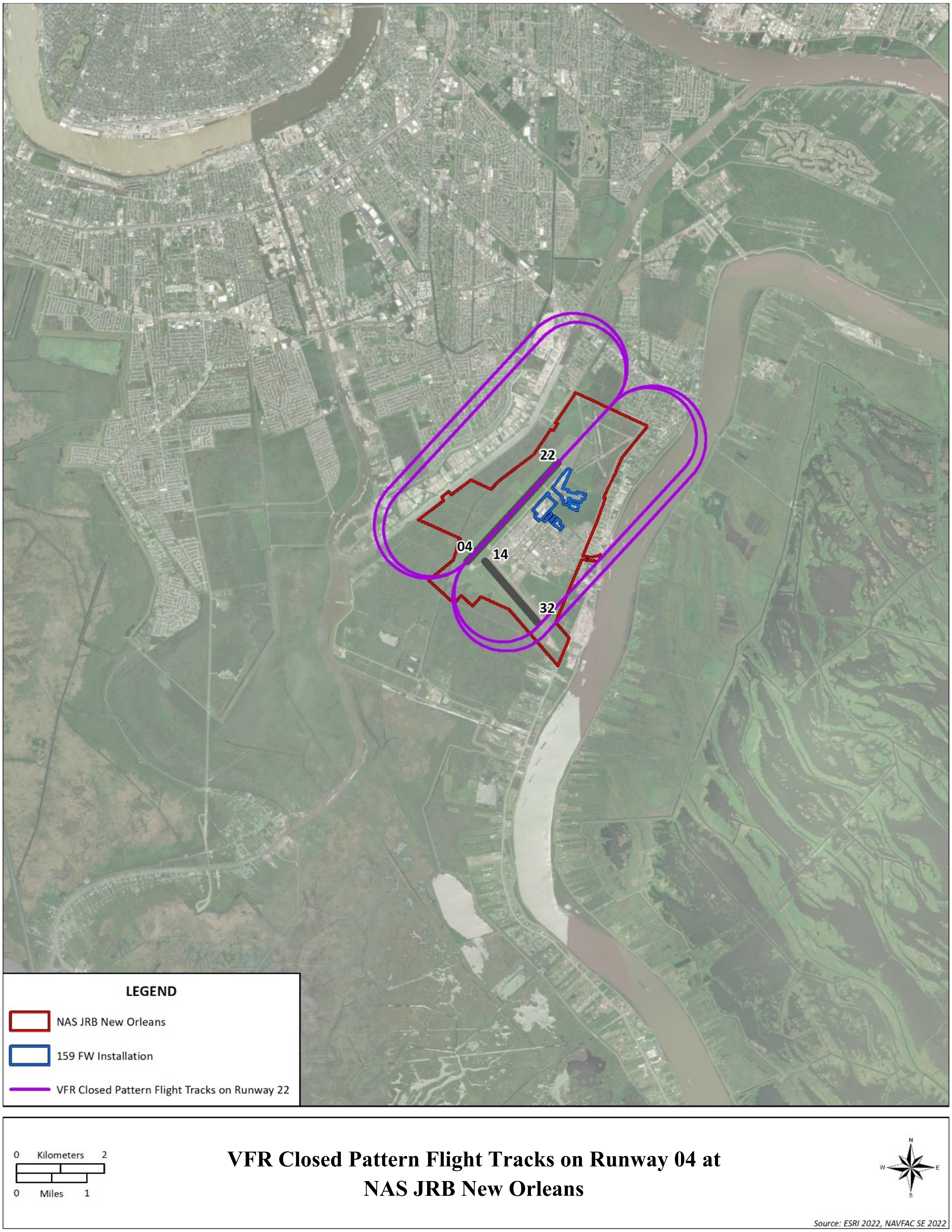


Straight-in Arrival Flight Tracks at NAS JRB New Orleans

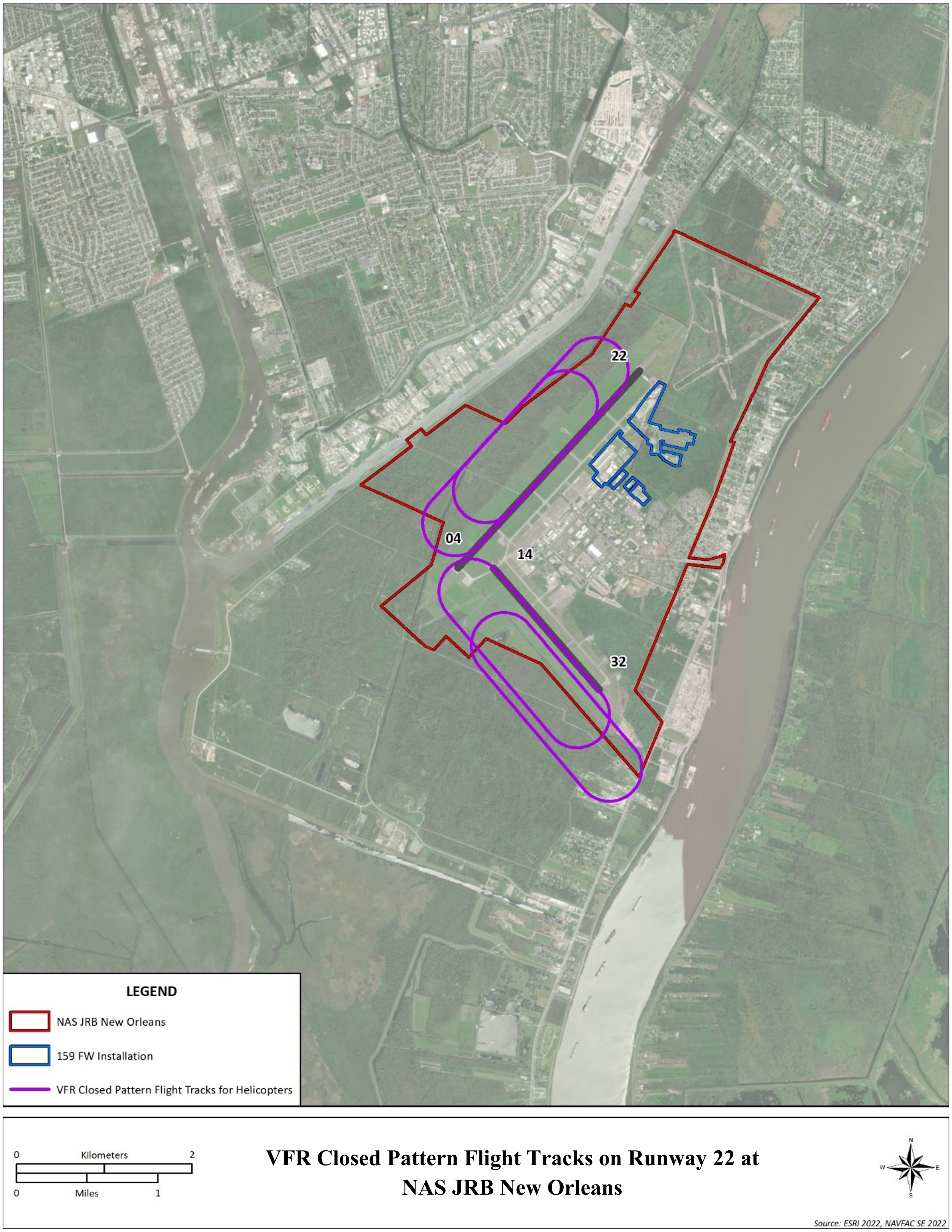
Source: ESRI 2022, NAVFAC SE 2022



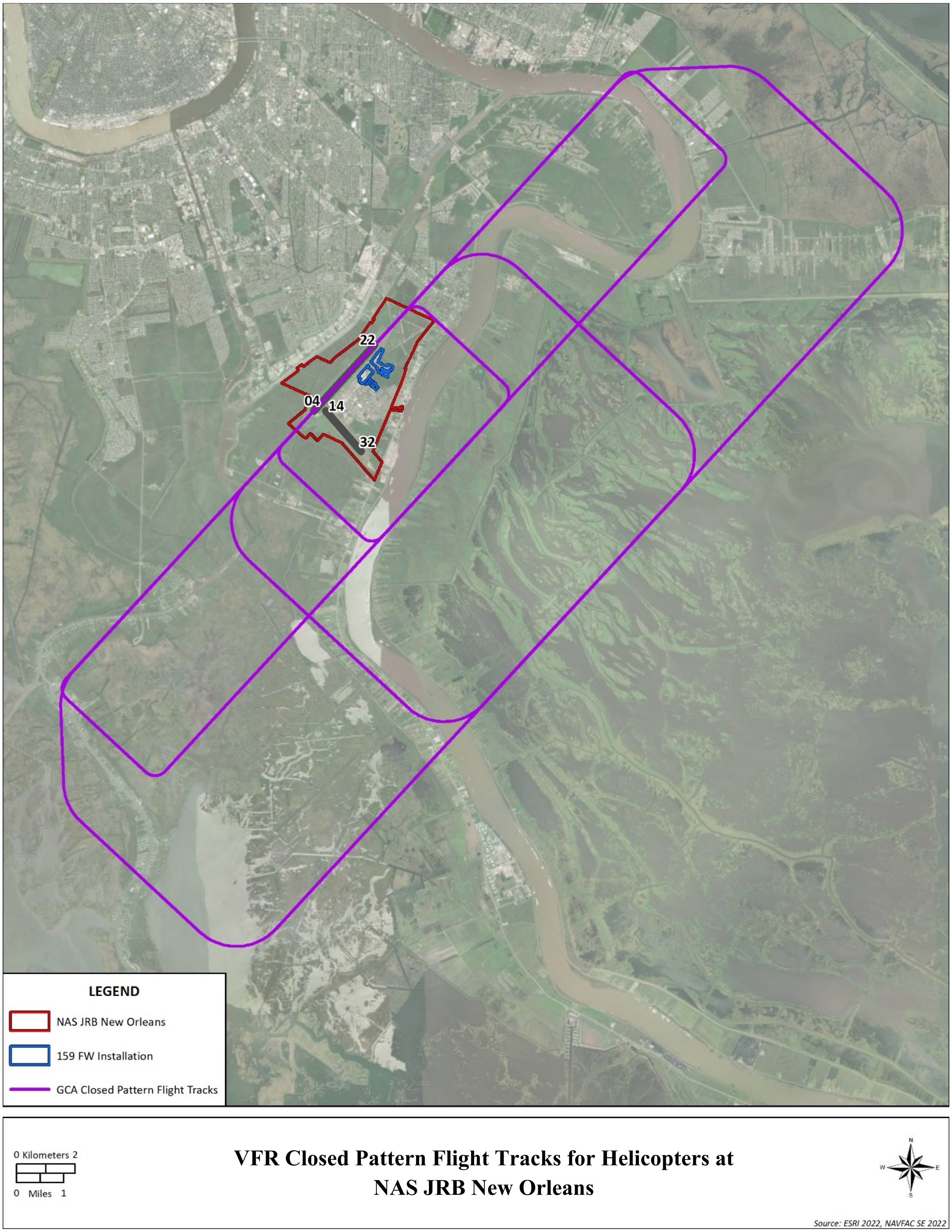
Arrival Flight Tracks to Helicopter Pads at NAS JRB New Orleans



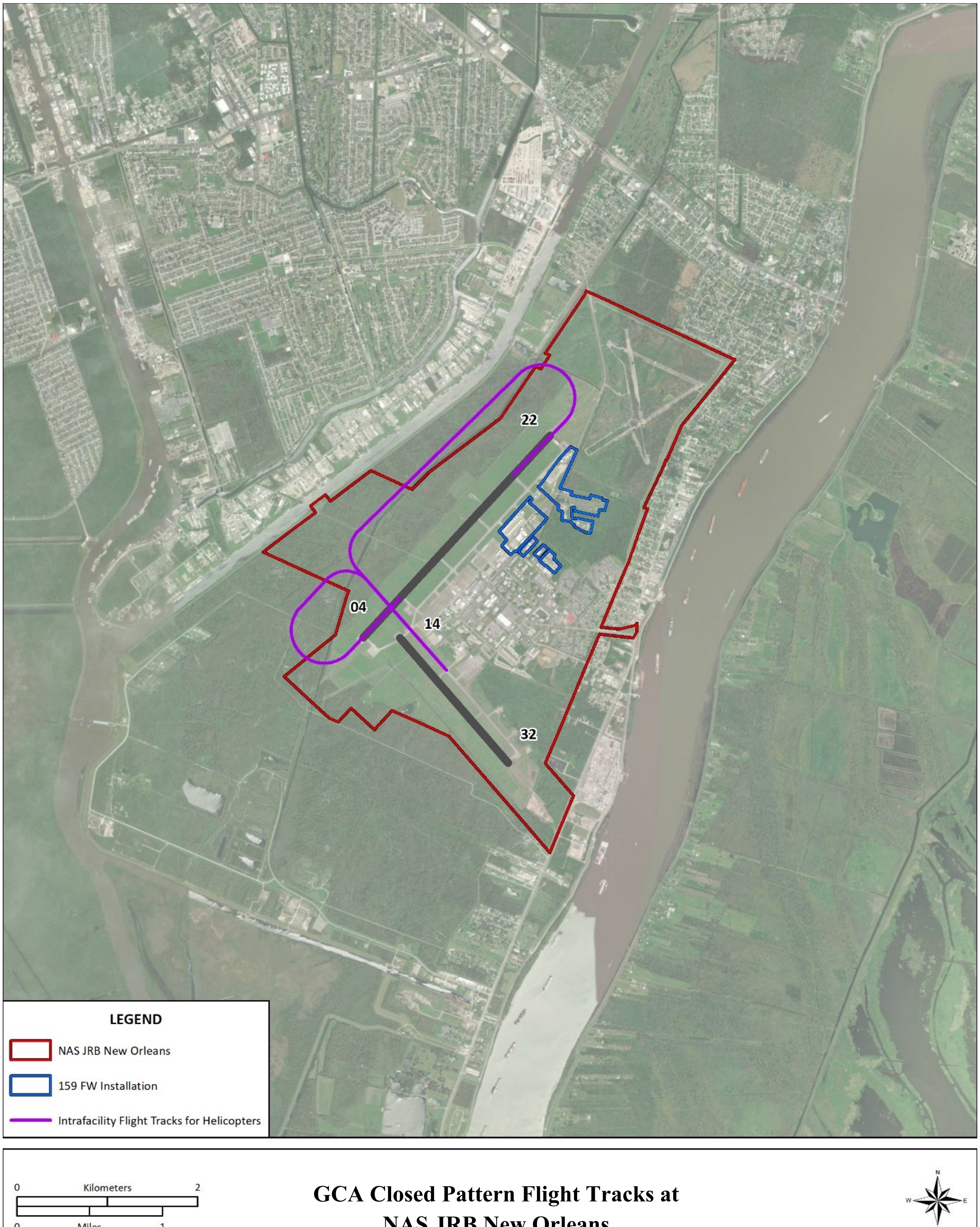
VFR Closed Pattern Flight Tracks on Runway 04 at NAS JRB New Orleans



VFR Closed Pattern Flight Tracks on Runway 22 at NAS JRB New Orleans



VFR Closed Pattern Flight Tracks for Helicopters at NAS JRB New Orleans



GCA Closed Pattern Flight Tracks at NAS JRB New Orleans

Source: ESRI 2022, NAVFAC SE 2022

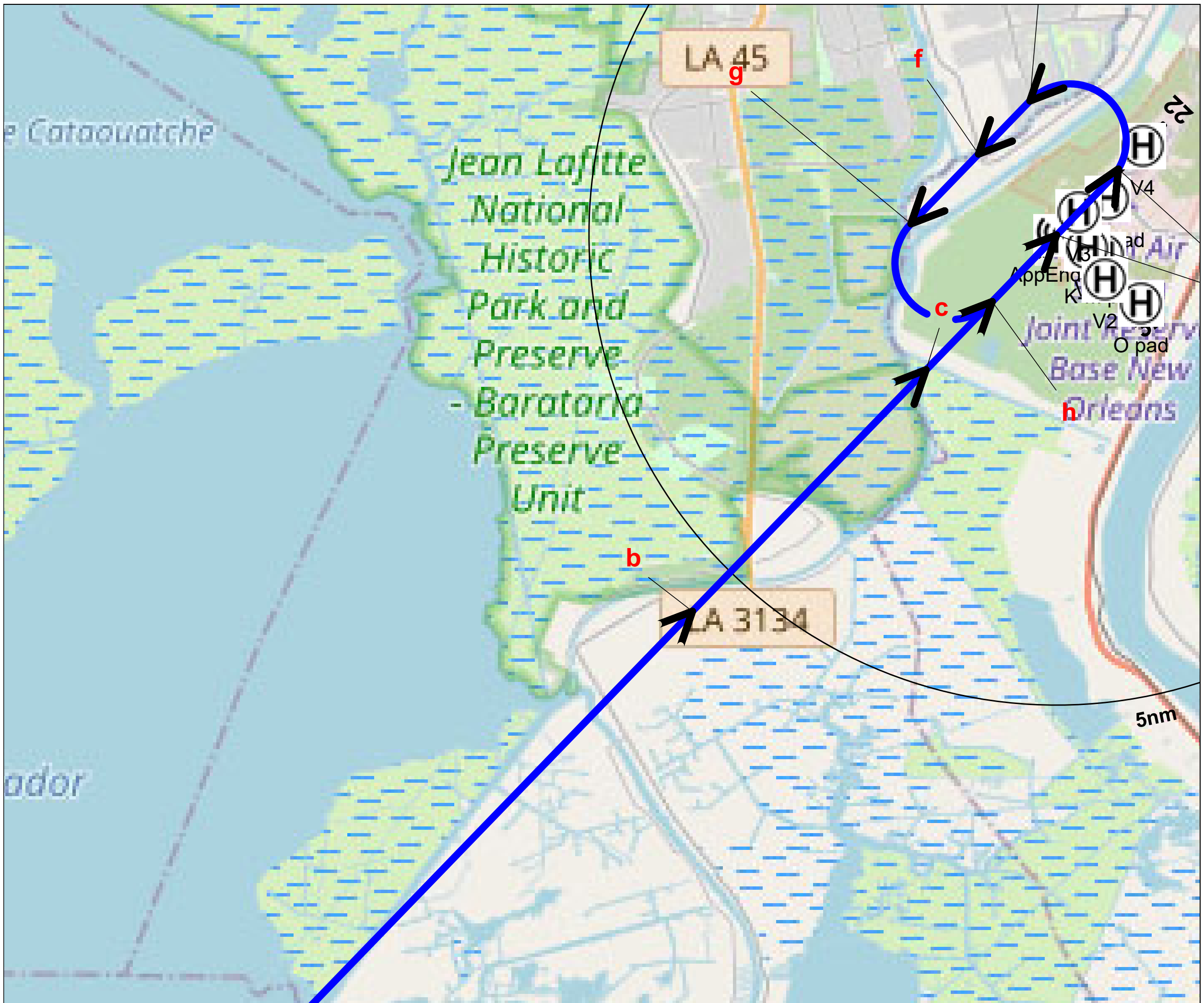
This page intentionally left blank.

NAS JRB New Orleans Representative Flight Profiles

This page intentionally left blank.

F-15C/D (Modeled as F-15E PW220)

This page intentionally left blank.



Flight Profile F15_04A02

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	139,701	5,000 AGL	80 Variable	300	-2.4	-1300	120	
b	78,990	2,500 AGL	80 Variable	300	-2.6	-1400	43	
c	57,211	1,500 AGL	80 Variable	300	0.0	0	36	2 nm from runway threshold
d	39,193	1,500 AGL	80 Variable	300	0.0	0	25	break point, midfield
e	28,605	1,500 AGL	70 Variable	200	0.0	0	15	begin downwind
f	23,820	1,500 AGL	70 Approach	190	0.0	0	20	mid downwind, drop gear
g	17,529	1,500 AGL	75 Approach	180	-5.9	-1900	38	end downwind
h	6,000	300 AGL	75 Approach	180	-2.4	-700	23	Final
i	0	50 AGL	72.1 Approach	130				threshold

F-15C/D - Flight Profile F15_04A02

On Runway 4 - Runway 4, Flight Track F15_04A02

Overhead to 4 mid break

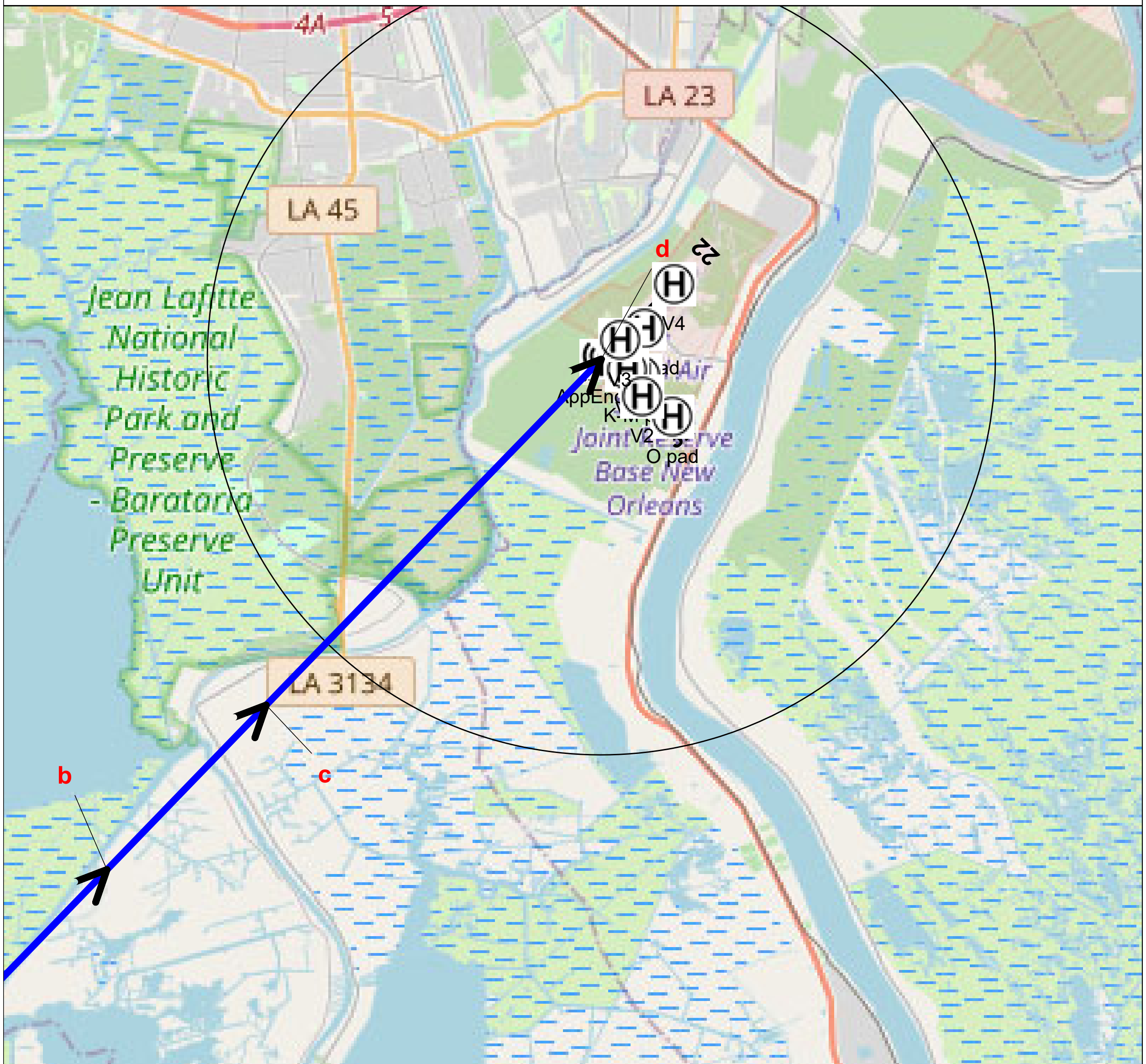
0 10,000 20,000 30,000 40,000 50,000

Scale in Feet 1:165,000 (1 inch = 13,800 feet)

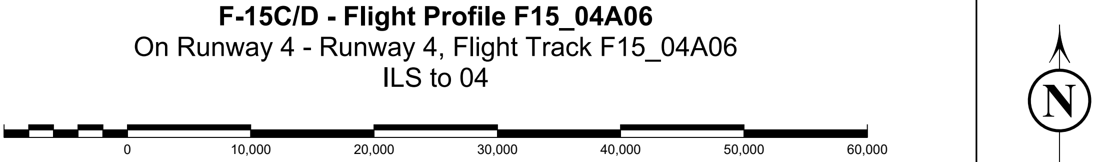
N

Flight Profile F15_04A06

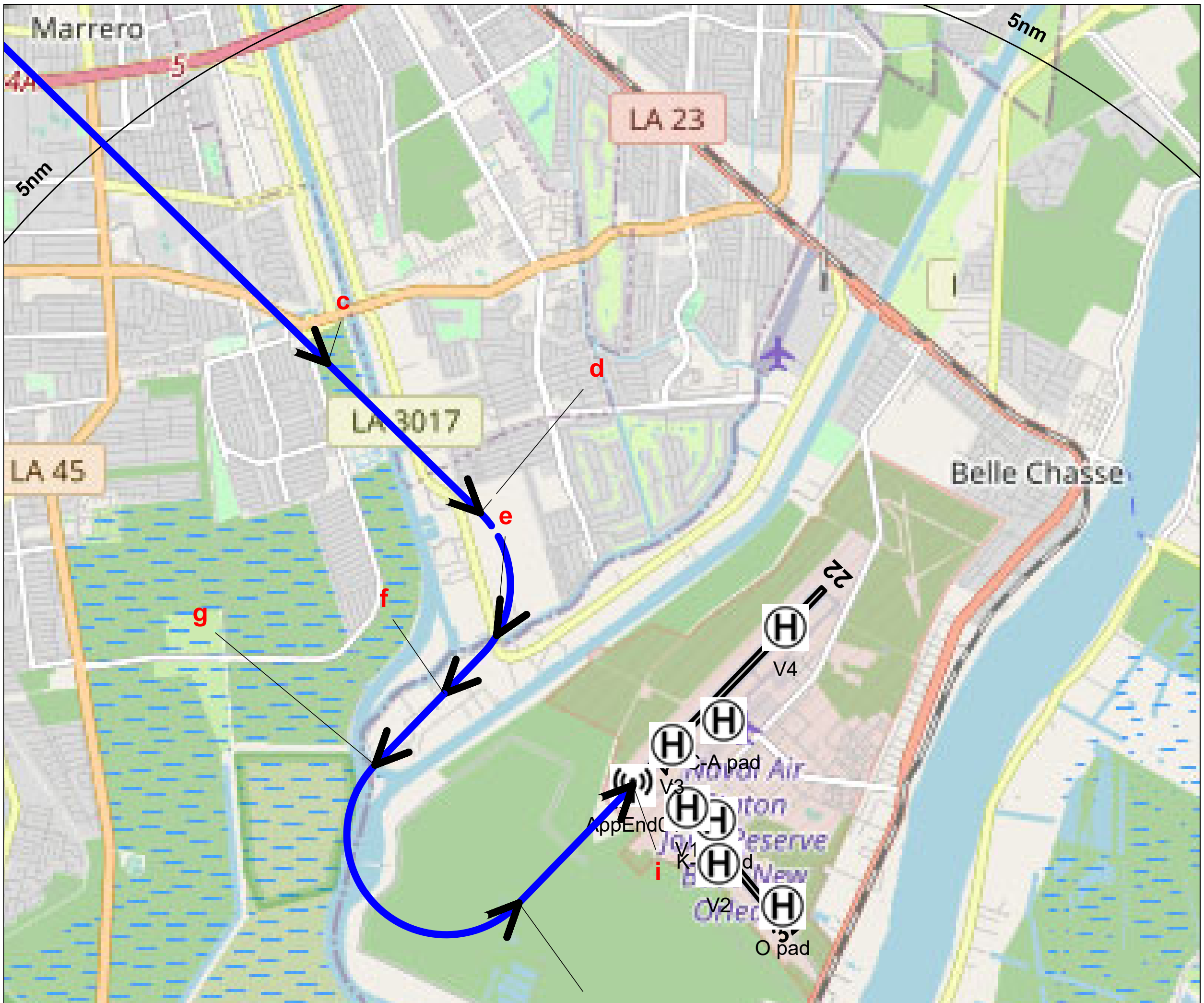
Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	90,000	6,000 AGL	78 Variable	250	-6.0	-2700	84	assumes 3 degree glide slope
b	54,685	2,300 AGL	78 Approach	250	-1.0	-300	52	9 nm from threshold, at least 2300 feet
c	37,064	2,000 AGL	75 Approach	150	-3.0	-700	157	6.1 nm from threshold
d	0	50 AGL	72.1 Approach	130				



F-15C/D - Flight Profile F15_04A06
On Runway 4 - Runway 4, Flight Track F15_04A06
ILS to 04



Scale in Feet 1:187,000 (1 inch = 15,600 feet)



Flight Profile F15_04A07

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	116,048	5,000 AGL	80 Variable	300	0.0	0	96	
b	67,636	5,000 AGL	80 Variable	300	-6.5	-3400	61	
c	36,713	1,500 AGL	80 Variable	300	0.0	0	15	2 nm from field
d	28,893	1,500 AGL	80 Variable	300	0.0	0	11	break turnj
e	24,043	1,500 AGL	70 Variable	200	0.0	0	9	begin downwind
f	21,164	1,500 AGL	70 Approach	190	0.0	0	12	mid downwind, drop gear
g	17,529	1,500 AGL	75 Approach	180	-5.9	-1900	38	end downwind
h	6,000	300 AGL	75 Approach	180	-2.4	-700	23	Final
i	0	50 AGL	72.1 Approach	130				threshold

F-15C/D - Flight Profile F15_04A07

On Runway 4 - Runway 4, Flight Track F15_04A07

City Side Arrival to 04, Ld

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,300 (1 inch = 7,780 feet)

N

Flight Profile F15_22A05

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	129,251	5,000 AGL	80 Variable	300	-2.3	-1200	122	
b	67,636	2,500 AGL	80 Variable	300	-3.8	-2000	30	
c	52,476	1,500 AGL	80 Variable	300	0.0	0	32	2 nm from field
d	36,281	1,500 AGL	80 Variable	300	0.0	0	16	break point, rwy numbers
e	29,560	1,500 AGL	70 Variable	200	0.0	0	15	begin downwind
f	24,481	1,500 AGL	70 Approach	190	0.0	0	22	mid downwind, drop gear
g	17,529	1,500 AGL	75 Approach	180	-5.9	-1900	38	end downwind
h	6,000	300 AGL	75 Approach	180	-2.4	-700	23	Final
i	0	50 AGL	72.1 Approach	130				threshold

F-15C/D - Flight Profile F15_22A05

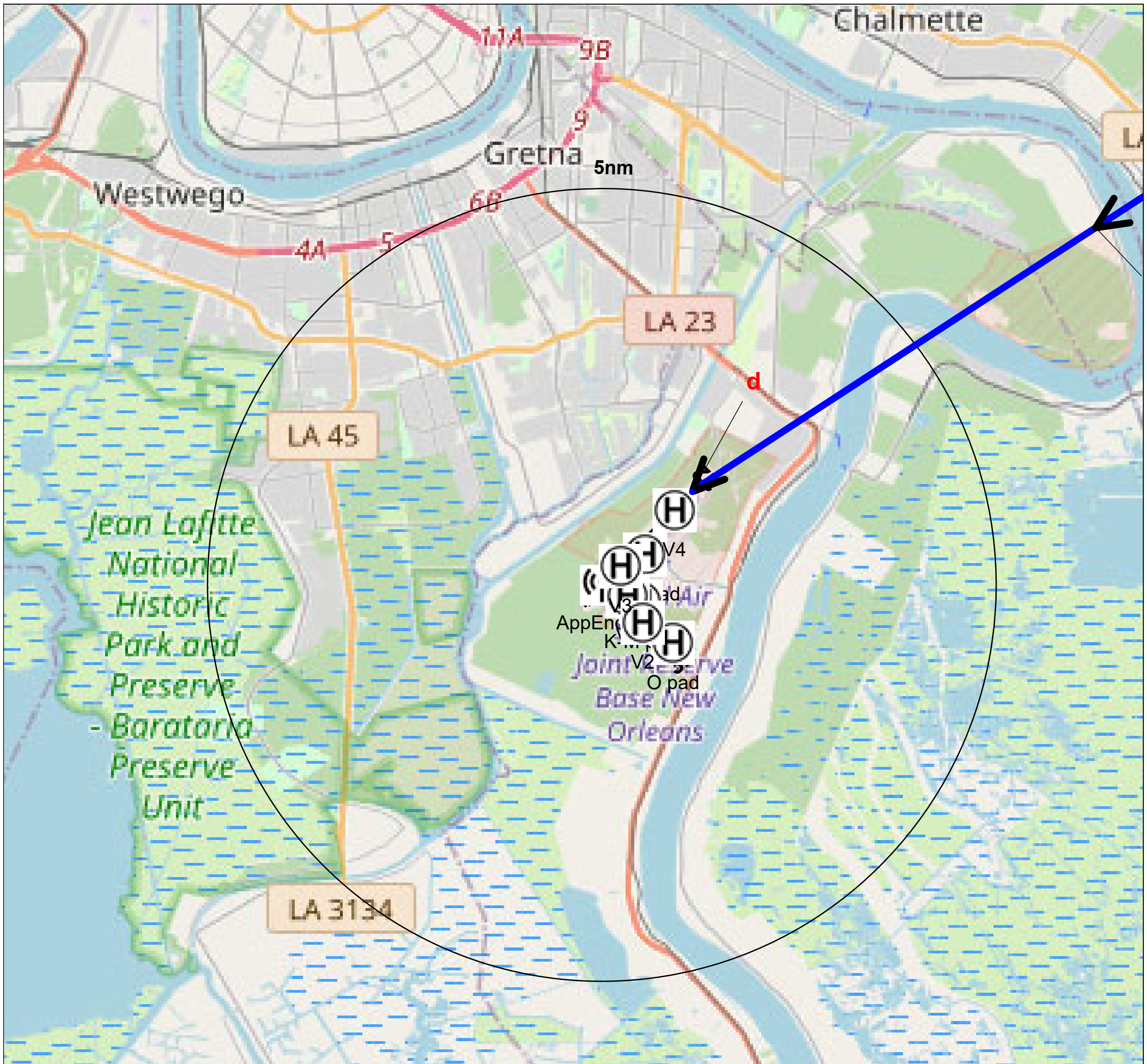
On Runway 22 - Runway 22, Flight Track F15_22A05

Midfield Arrival to 22, Wg

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,300 (1 inch = 7,780 feet)

N



Flight Profile F15_22A06

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	120,501	6,000 AGL	78 Variable	250	-3.2	-1400	156	assumes 3 degree glide slope
b	54,685	2,300 AGL	78 Approach	250	-1.0	-300	52	9 nm from threshold, at least 2300 feet
c	37,064	2,000 AGL	75 Approach	150	-3.0	-700	157	6.1 nm from threshold
d	0	50 AGL	72.1 Approach	130				

F-15C/D - Flight Profile F15_22A06

On Runway 22 - Runway 22, Flight Track F15_22A06

TACAN to 22

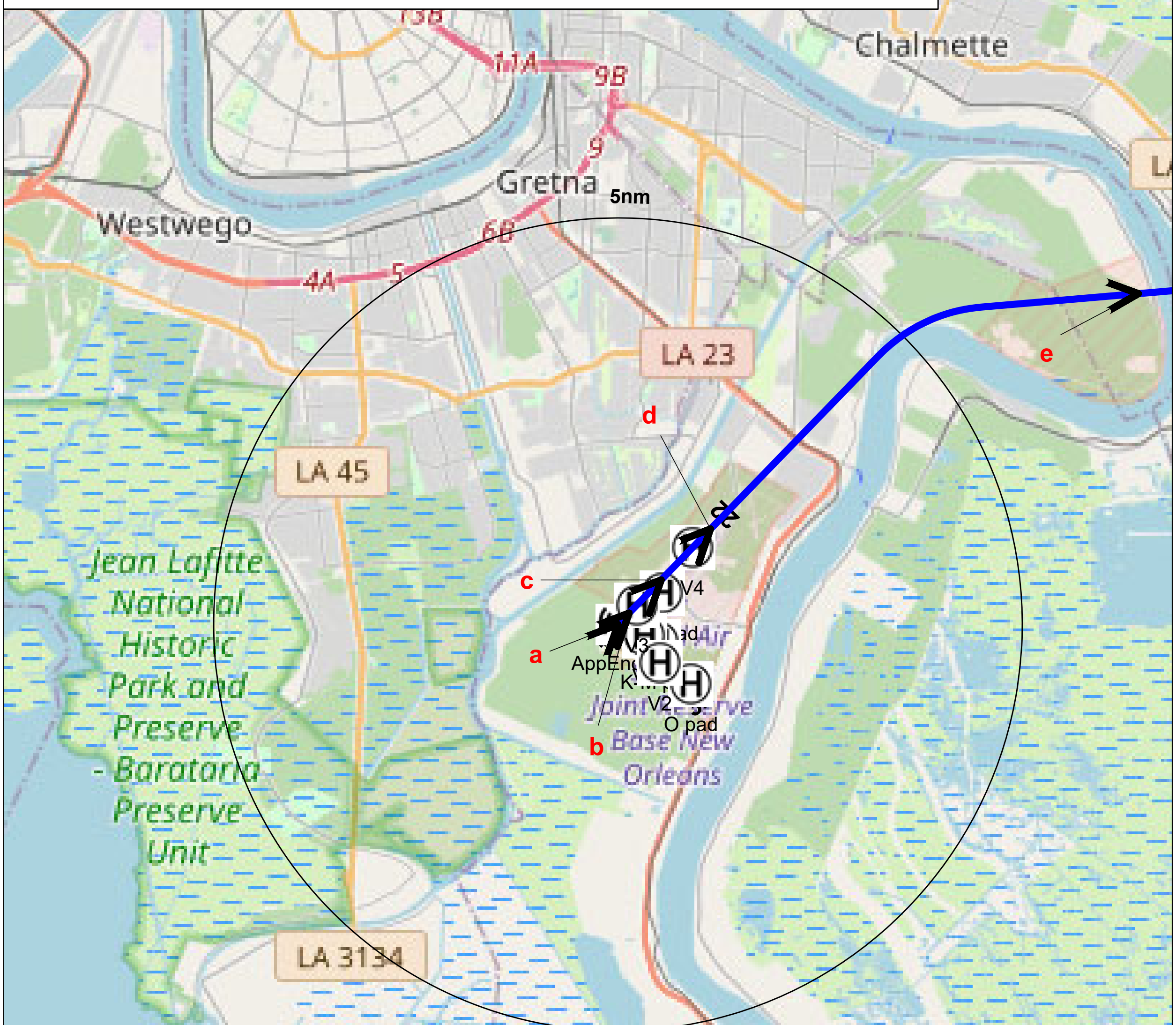
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F15_04D05a

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	0	0 AGL	80 80% RPM Eng Runup	0	0.0	0	12
b	1,200	0 AGL	91 Afterburner	120	1.7	500	12
c	4,650	100 AGL	92 Approach	220	4.3	2200	11
d	9,970	500 AGL	92 Variable	350	13.8	8700	65
e	48,600	10,000 AGL	92 Variable	350	7.5	4700	128
f	124,500	20,000 AGL	83 Cruise	350	0.0	0	32
g	143,236	20,000 AGL	83 Cruise	350			



F-15C/D - Flight Profile F15_04D05a
On Runway 4 - Runway 4, Flight Track F15_04D05
Early TOC, to Whodat AB power on t/o, all

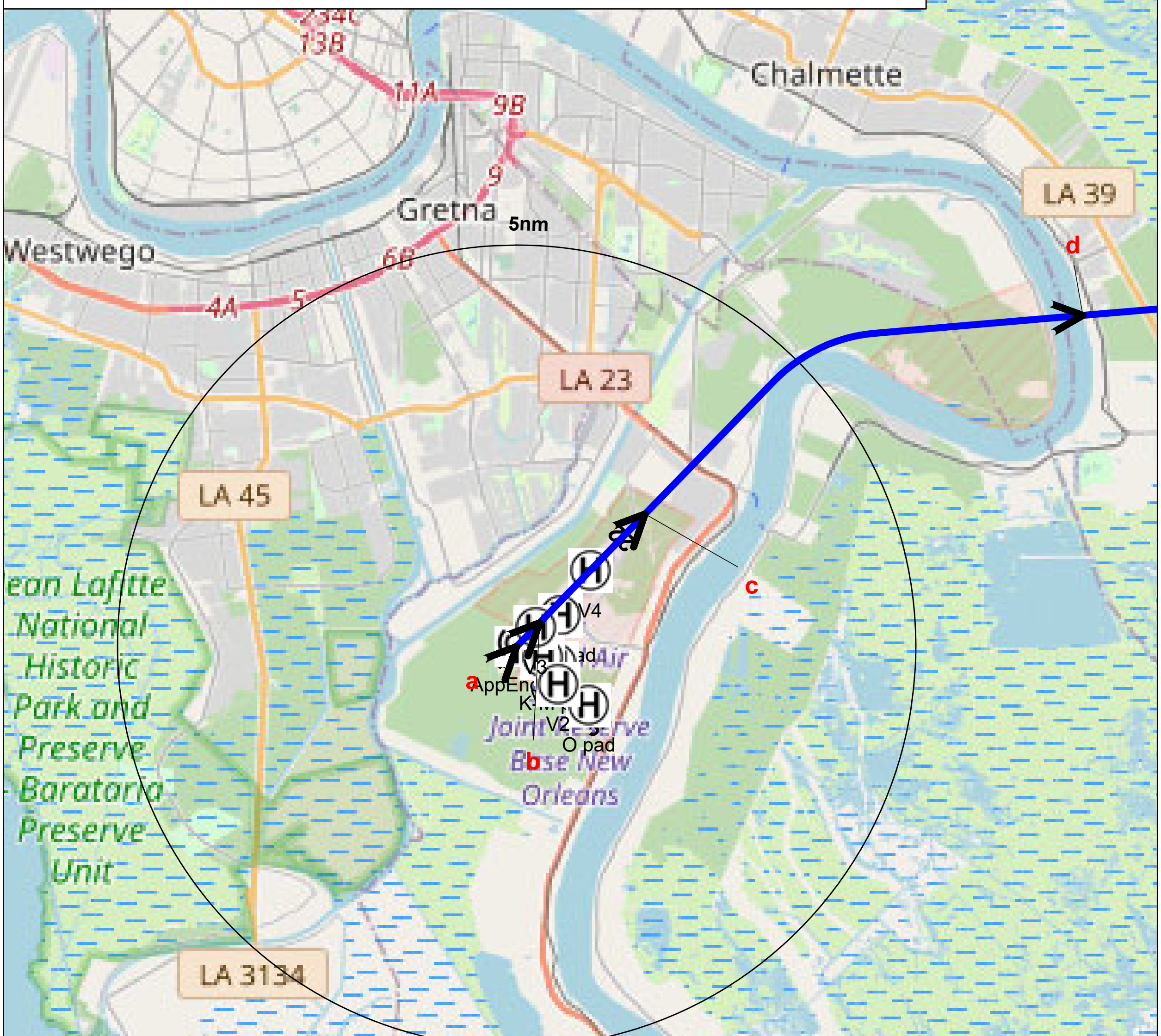
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F15_04D05m

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	0	0 AGL	80 80% RPM Eng Runup	0	0.0	0	25
b	2,500	0 AGL	92 Approach	120	2.5	1000	29
c	14,000	500 AGL	92 Variable	350	13.8	8700	65
d	52,600	10,000 AGL	92 Variable	350	7.5	4700	128
e	128,500	20,000 AGL	83 Cruise	350	0.0	0	25
f	143,236	20,000 AGL	83 Cruise	350			



F-15C/D - Flight Profile F15_04D05m
On Runway 4 - Runway 4, Flight Track F15_04D05
Early TOC, to Whodat Mil power on t/o, all

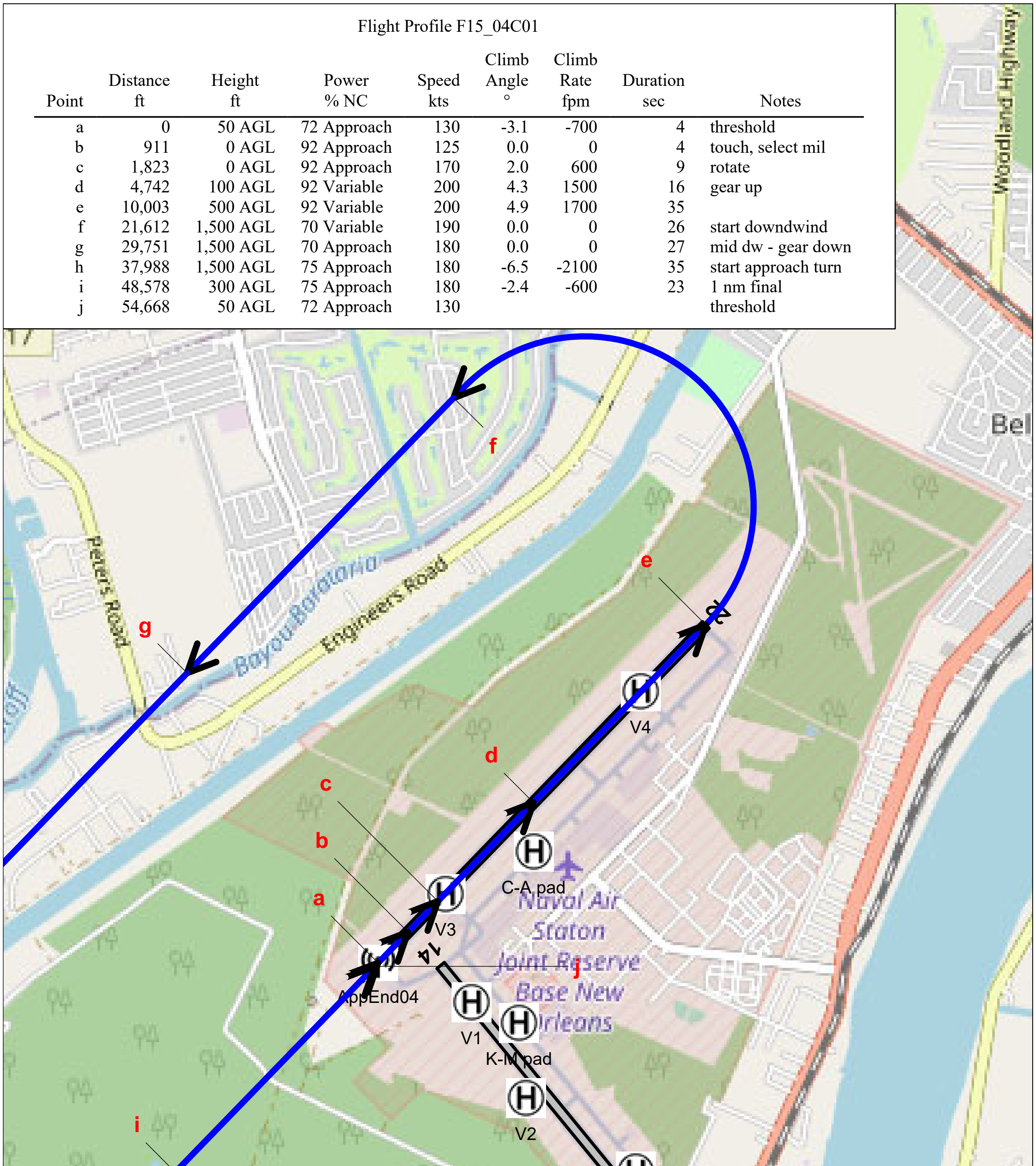
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F15_04C01

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	72 Approach	130	-3.1	-700	4	threshold
b	911	0 AGL	92 Approach	125	0.0	0	4	touch, select mil
c	1,823	0 AGL	92 Approach	170	2.0	600	9	rotate
d	4,742	100 AGL	92 Variable	200	4.3	1500	16	gear up
e	10,003	500 AGL	92 Variable	200	4.9	1700	35	
f	21,612	1,500 AGL	70 Variable	190	0.0	0	26	start downdwind
g	29,751	1,500 AGL	70 Approach	180	0.0	0	27	mid dw - gear down
h	37,988	1,500 AGL	75 Approach	180	-6.5	-2100	35	start approach turn
i	48,578	300 AGL	75 Approach	180	-2.4	-600	23	1 nm final
j	54,668	50 AGL	72 Approach	130				threshold



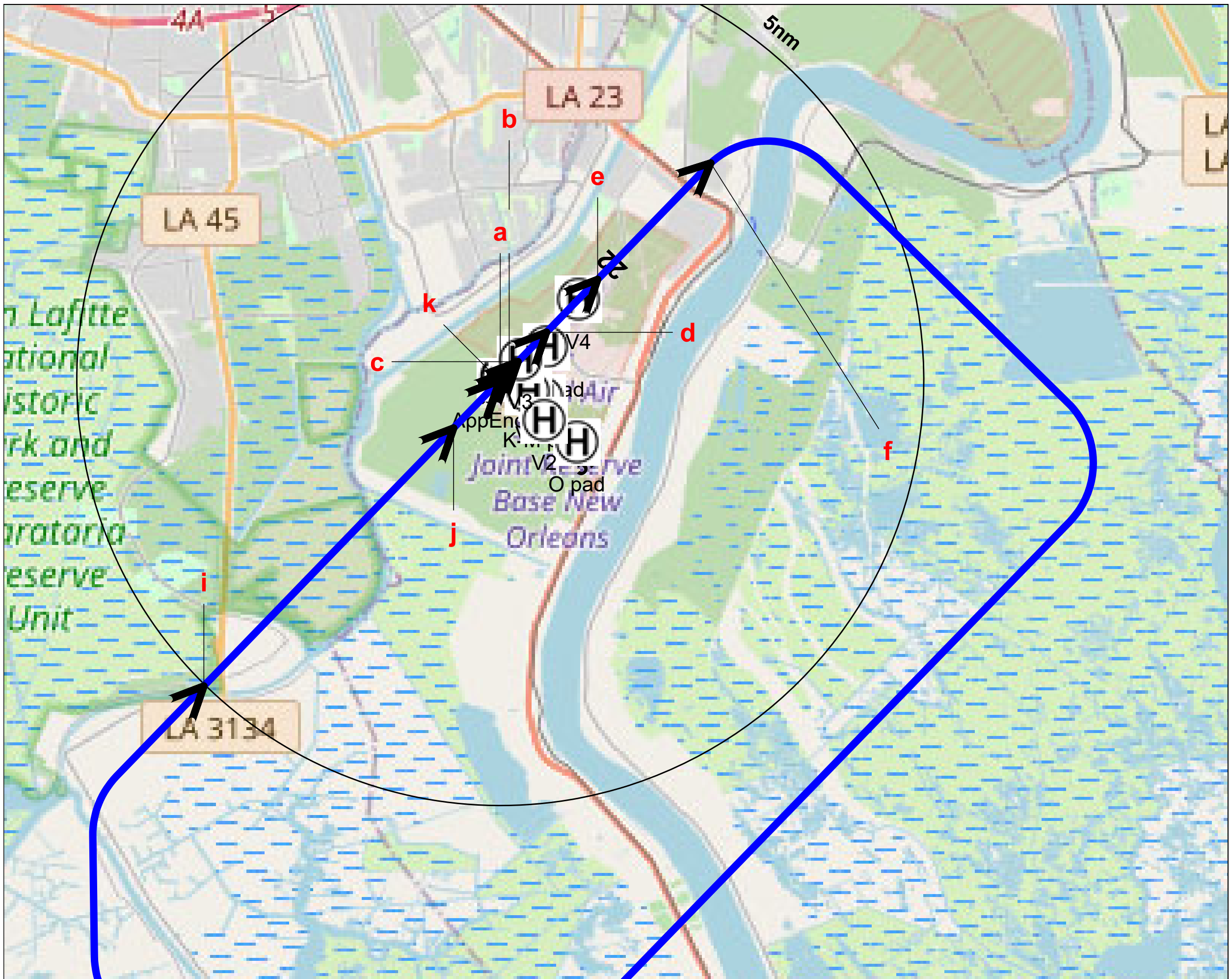
F-15C/D - Flight Profile F15_04C01

On Runway 4 - Runway 4, Flight Track F15_04C01

Closed VFR pattern in 04 direction

0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Scale in Feet 1:46,700 (1 inch = 3,890 feet)



Flight Profile F15_04C03

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	72 Approach	130	-3.1	-700	4	threshold
b	911	0 AGL	92 Approach	125	0.0	0	4	touch, select mil
c	1,823	0 AGL	92 Approach	170	2.0	600	9	rotate
d	4,742	100 AGL	92 Variable	200	4.3	1500	16	gear up
e	10,003	500 AGL	92 Variable	200	4.9	1900	32	
f	21,612	1,500 AGL	70 Variable	230	0.0	0	322	level in pattern
g	146,531	1,500 AGL	70 Approach	230	0.0	0	38	base leg, gear down
h	159,707	1,500 AGL	75 Approach	180	0.0	0	86	slowed to approach speed
i	185,929	1,500 AGL	72 Approach	180	-2.7	-900	85	begin descent
j	211,627	300 AGL	72 Approach	180	-3.0	-800	18	1 nm final
k	216,349	50 AGL	72 Approach	130				threshold

F-15C/D - Flight Profile F15_04C03

On Runway 4 - Runway 4, Flight Track F15_04C03

GCA Box in 04 direction

0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

This page intentionally left blank.

F-15EX (Modeled as F-15EX GE129)

This page intentionally left blank.

Flight Profile F15EX_04A02

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	140,059	10,000 AGL	74 Variable	300	-6.0	-3200	159	Descent
b	59,357	1,500 AGL	84 Variable	300	0.0	0	40	level at pattern altitude at initial (2-3nm fro
c	39,323	1,500 AGL	77 Variable	300	0.0	0	25	begin break turn
d	28,605	1,500 AGL	79 Variable	200	0.0	0	23	begin downwind clean
e	21,095	1,500 AGL	79 Approach	190	0.0	0	11	Gear Down
f	17,529	1,500 AGL	83 Approach	180	-9.3	-2700	19	Start turn
g	12,170	620 AGL	80 Approach	150	-3.0	-800	24	90 deg to go
h	6,000	300 AGL	86 Approach	150	-2.4	-600	25	wings level 1nm
i	0	50 AGL	74 Approach	130				threshold

F-15EX - Flight Profile F15EX_04A02

On Runway 4 - Runway 4, Flight Track F15_04A02

Overhead to 4 mid break

0 2,000 4,000 6,000 8,000 10,000 12,000

Scale in Feet 1:39,800 (1 inch = 3,320 feet)

N

Flight Profile F15EX_04A06

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	90,000	5,250 AGL	82 Variable	220	-4.0	-1600	79	3deg GS clean
b	60,800	3,200 AGL	84 Approach	220	-3.0	-1000	171	gear down at 10nm
c	6,000	300 AGL	84 Approach	160	-2.4	-600	25	mile final
d	0	50 AGL	74 Approach	130				Over threshold

F-15EX - Flight Profile F15EX_04A06

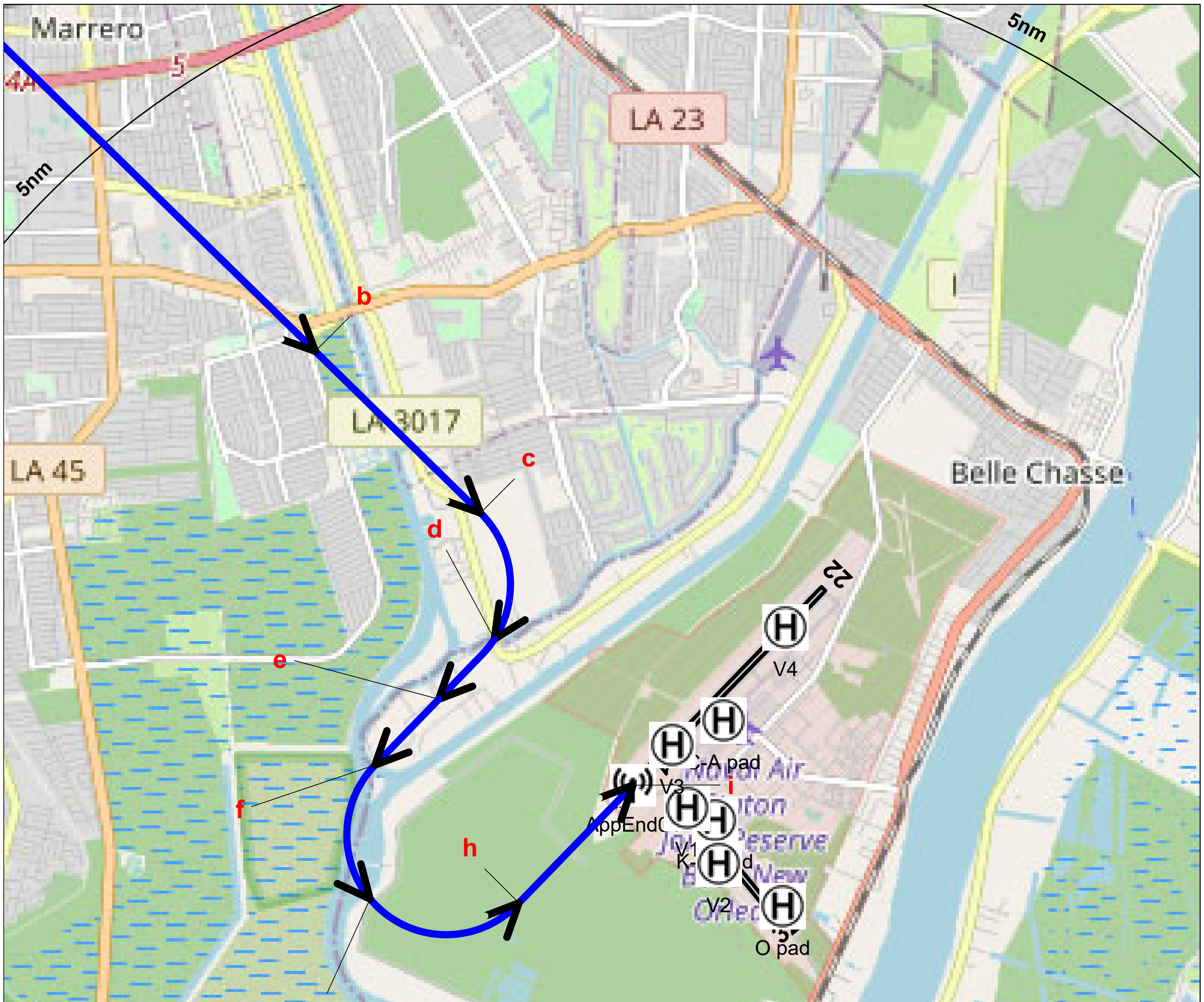
On Runway 4 - Runway 4, Flight Track F15_04A06

ILS to 04

0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N



Flight Profile F15EX_04A07

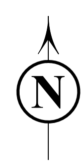
Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	128,893	10,000 AGL	74 Variable	300	-5.3	-2800	181	Descent
b	37,348	1,500 AGL	84 Variable	300	0.0	0	17	level at pattern altitude at initial (2-3nm fro
c	28,893	1,500 AGL	77 Variable	300	0.0	0	12	begin break turn
d	23,875	1,500 AGL	79 Variable	200	0.0	0	9	begin downwind clean
e	20,881	1,500 AGL	79 Approach	190	0.0	0	11	Gear Down
f	17,529	1,500 AGL	83 Approach	180	-9.3	-2700	19	Start turn
g	12,170	620 AGL	80 Approach	150	-3.0	-800	24	90 deg to go
h	6,000	300 AGL	86 Approach	150	-2.4	-600	25	wings level 1nm
i	0	50 AGL	74 Approach	130				threshold

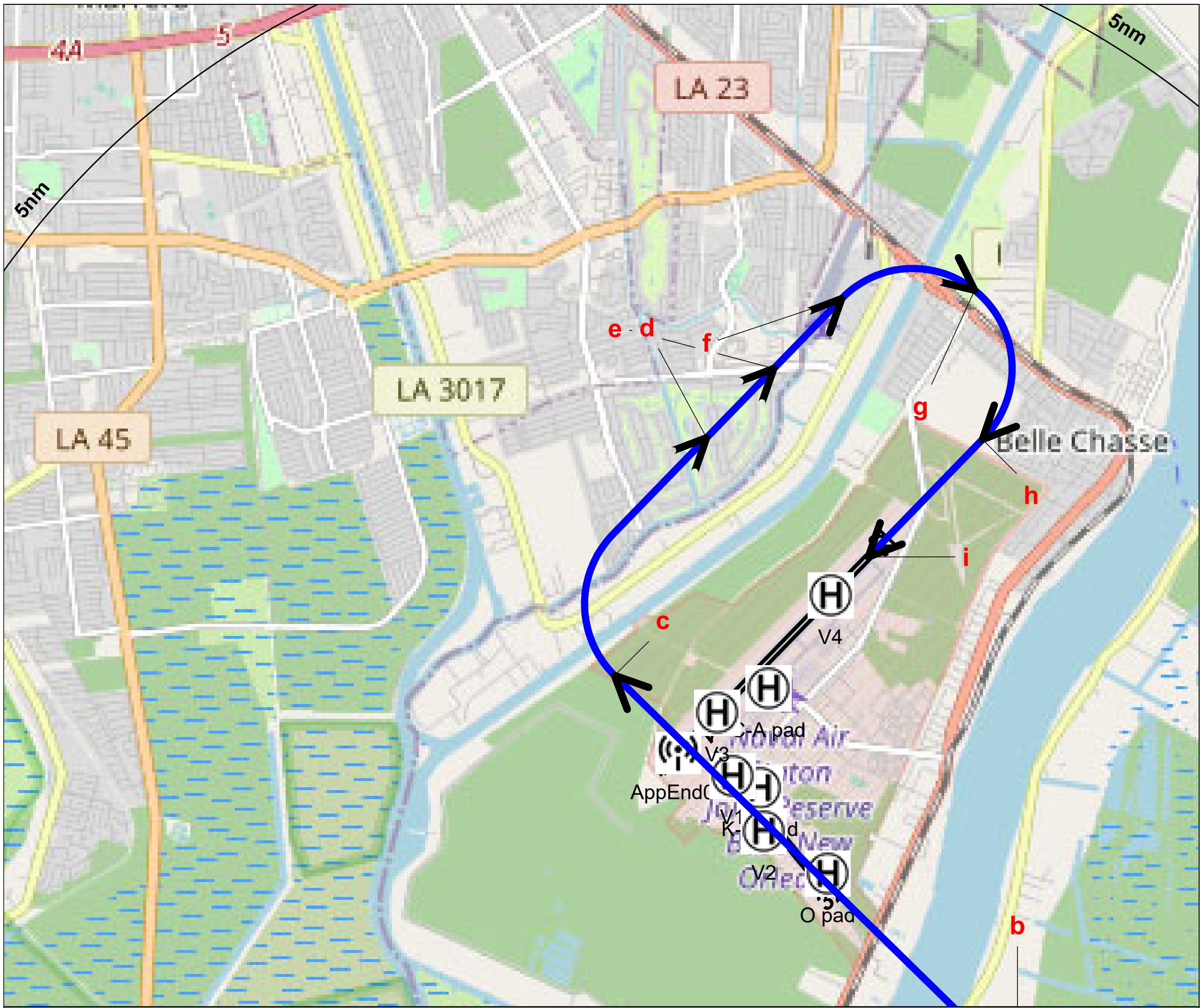
F-15EX - Flight Profile F15EX_04A07

On Runway 4 - Runway 4, Flight Track F15_04A07

City Side Arrival to 04, Ld

Scale in Feet 1:93,300 (1 inch = 7,780 feet)





Flight Profile F15EX_22A05

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	135,287	10,000 AGL	74 Variable	300	-6.1	-3300	157	Descent
b	55,943	1,500 AGL	84 Variable	300	0.0	0	41	level at pattern altitude at initial (2-3nm fro
c	35,287	1,500 AGL	77 Variable	300	0.0	0	25	begin break turn
d	24,628	1,500 AGL	79 Variable	200	0.0	0	11	begin downwind clean
e	21,095	1,500 AGL	79 Approach	190	0.0	0	11	Gear Down
f	17,529	1,500 AGL	83 Approach	180	-9.3	-2700	19	Start turn
g	12,170	620 AGL	80 Approach	150	-3.0	-800	24	90 deg to go
h	6,000	300 AGL	86 Approach	150	-2.4	-600	25	wings level 1nm
i	0	50 AGL	74 Approach	130				threshold

F-15EX - Flight Profile F15EX_22A05

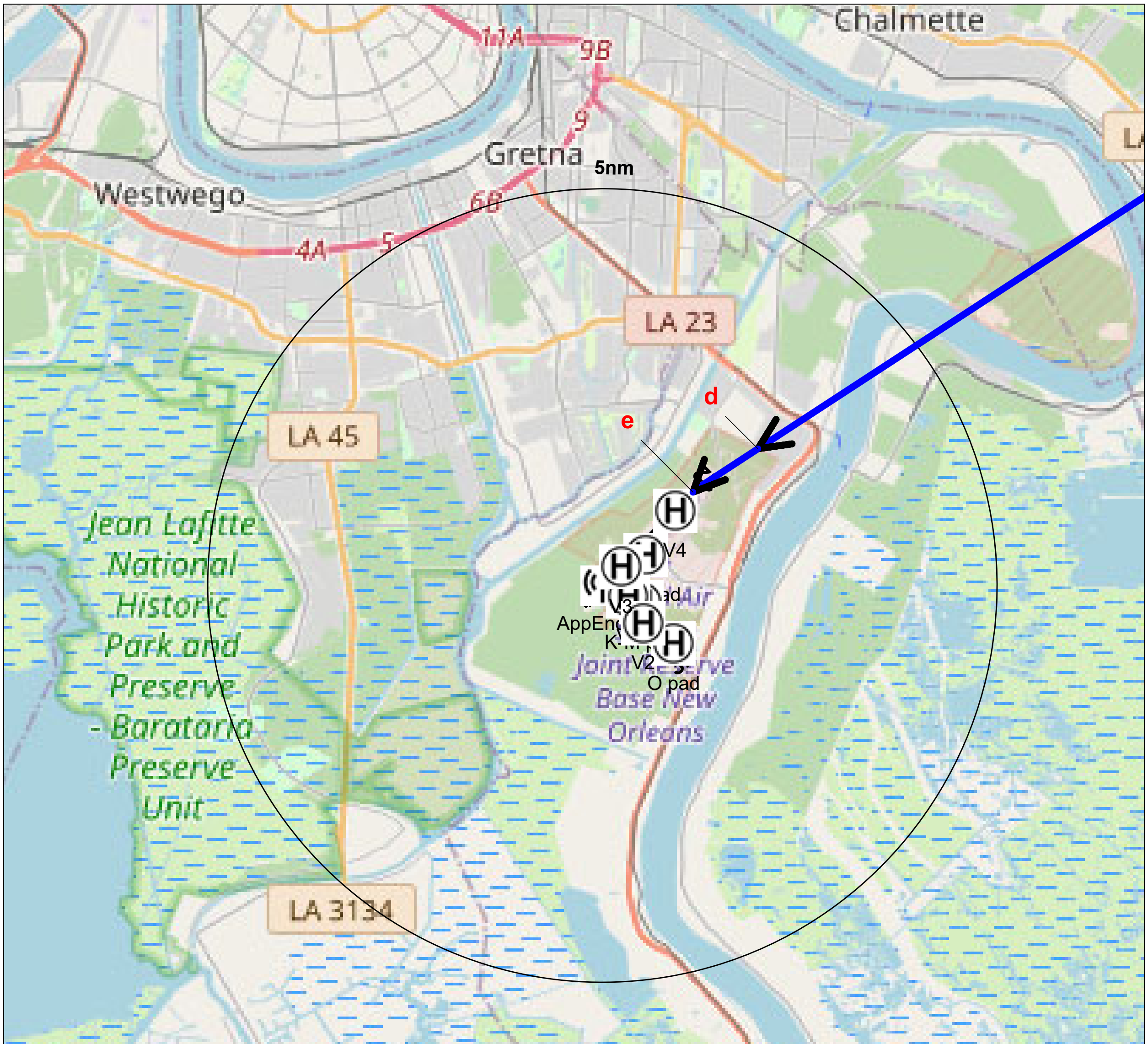
On Runway 22 - Runway 22, Flight Track F15_22A05

Midfield Arrival to 22, Wg

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,300 (1 inch = 7,780 feet)

N



Flight Profile F15EX_22A06

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	120,000	5,250 AGL	86 Variable	250	0.0	0	50	Level to intercept GS
b	100,000	5,250 AGL	82 Variable	220	-3.0	-1200	106	3deg GS clean
c	60,800	3,200 AGL	84 Approach	220	-3.0	-1000	171	gear down at 10nm
d	6,000	300 AGL	84 Approach	160	-2.4	-600	25	mile final
e	0	50 AGL	74 Approach	130				Over threshold

F-15EX - Flight Profile F15EX_22A06

On Runway 22 - Runway 22, Flight Track F15_22A06

TACAN to 22

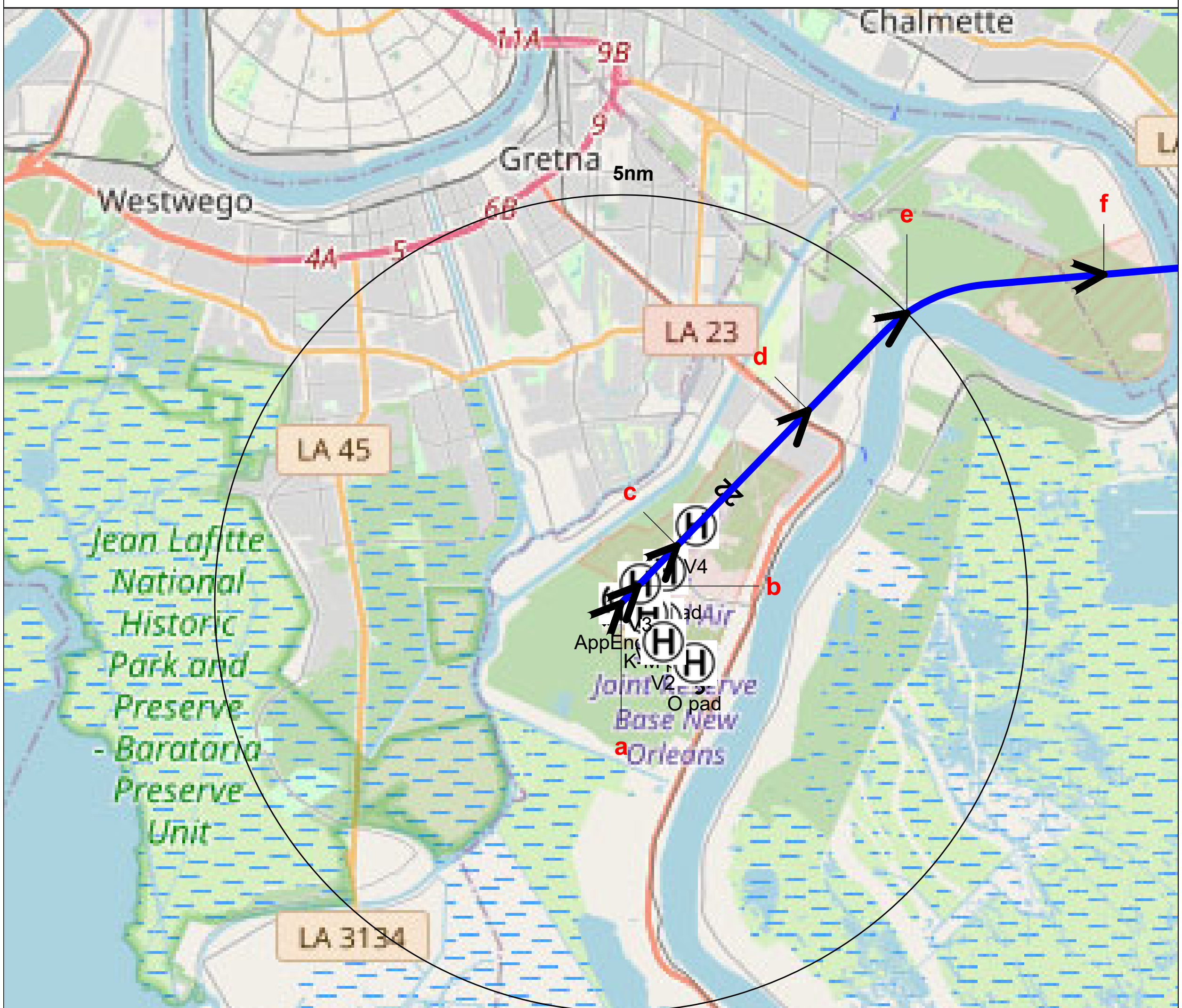
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F15EX_04D05a

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	N
a	0	0 AGL	80 85% RPM Eng Runup	0	0.0	0	17	noisefile has a "85% Eng Runu
b	1,800	0 AGL	105 Afterburner	125	2.0	600	15	1800' to reach 125 start rotate
c	6,000	150 AGL	104 Takeoff	200	23.3	12000	30	into MIL, cleaning gear
d	20,050	6,200 AGL	104 Variable	350	20.2	13000	17	
e	30,380	10,000 AGL	104 Variable	350	18.2	11700	26	
f	45,570	15,000 AGL	104 Variable	350	17.6	11300	16	
g	55,000	18,000 AGL	88 Variable	350	0.0	0	110	assume level at 18k
h	120,000	18,000 AGL	88 Variable	350				



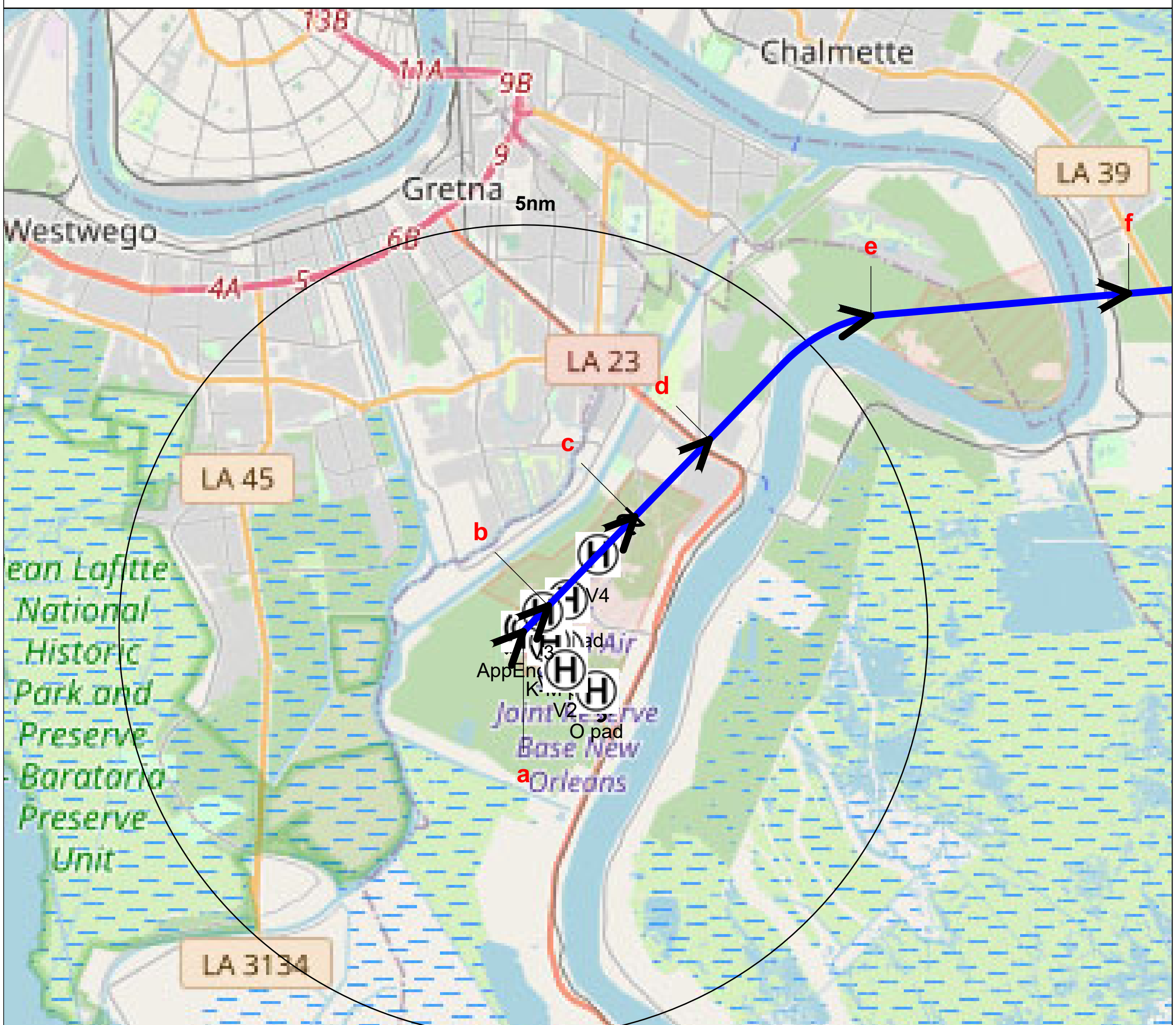
F-15EX - Flight Profile F15EX_04D05a
On Runway 4 - Runway 4, Flight Track F15_04D05
Early TOC, to Whodat AB power on t/o, all

0 10,000 20,000 30,000 40,000 50,000 60,000

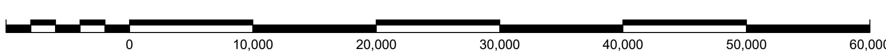
Scale in Feet 1:187,000 (1 inch = 15,600 feet)

Flight Profile F15EX_04D05m

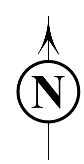
Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	N
a	0	0 AGL	80 85% RPM Eng Runup	0	0.0	0	24	noisefile has a "85% Eng Runu
b	2,700	0 AGL	104 Takeoff	135	1.8	700	25	2700' to reach 135
c	12,000	300 AGL	104 Variable	300	24.1	14700	15	
d	20,051	3,900 AGL	104 Variable	350	21.5	13900	26	3.9kft at 3.3nm
e	35,570	10,000 AGL	104 Variable	350	22.4	14600	33	10k at 5.8nm
f	55,000	18,000 AGL	88 Variable	350	0.0	0	110	assume level at 18k
g	120,000	18,000 AGL	88 Variable	350				



F-15EX - Flight Profile F15EX_04D05m
On Runway 4 - Runway 4, Flight Track F15_04D05
Early TOC, to Whodat Mil power on t/o, all

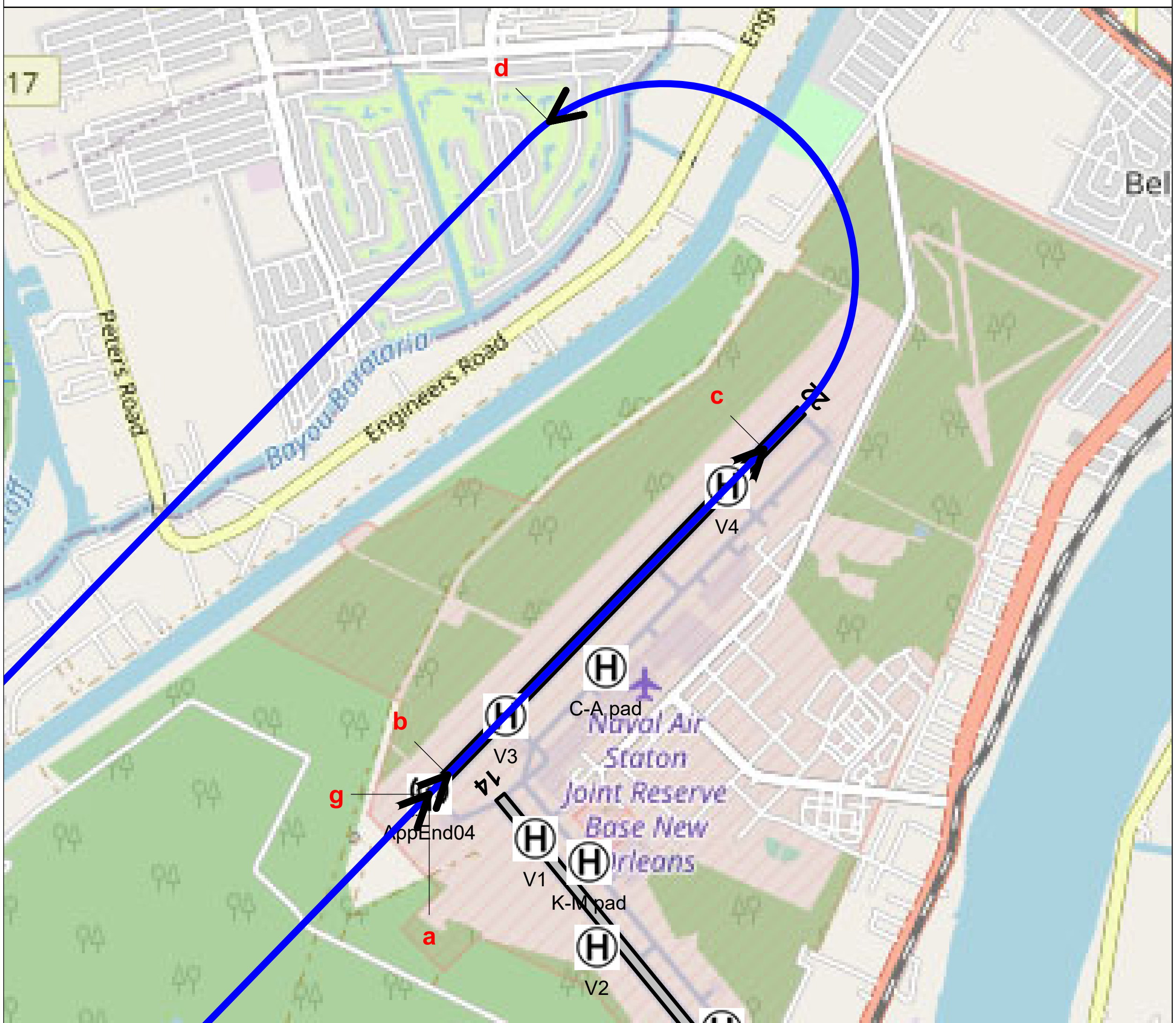


Scale in Feet 1:187,000 (1 inch = 15,600 feet)



Flight Profile F15EX_04C01

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	77 Level Flight (LPA)	130	-4.6	-1100	2	threshold.
b	500	10 AGL	102 Approach	150	2.0	800	23	low apch 10' - or touchdown if appr
c	9,000	300 AGL	103 Takeoff	285	5.8	2500	29	begin XW turn
d	20,736	1,500 AGL	77 Variable	200	0.0	0	49	WL downwind
e	36,400	1,500 AGL	84 Approach	180	-6.0	-1800	41	Start approach turn
f	47,725	300 AGL	74 Approach	150	-2.0	-500	28	WL final
g	54,766	50 AGL	74 Approach	150				Threshold



F-15EX - Flight Profile F15EX_04C01

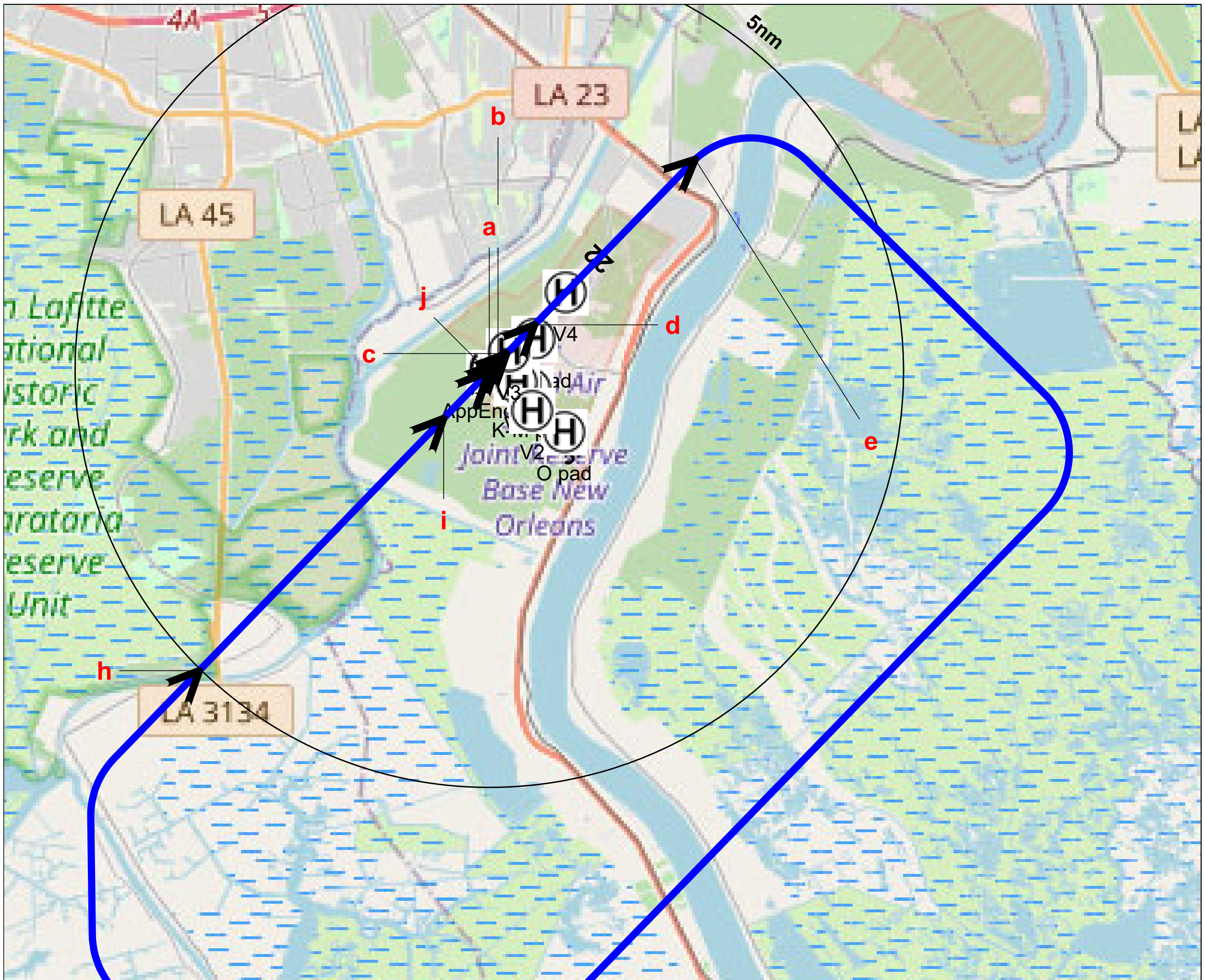
On Runway 4 - Runway 4, Flight Track F15_04C01

Closed VFR pattern in 04 direction

0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Scale in Feet 1:46,700 (1 inch = 3,890 feet)

N



Flight Profile F15EX_04C03

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	77 Approach	130	-3.1	-700	4	threshold
b	911	0 AGL	102 Approach	125	0.0	0	4	touch, select mil
c	1,823	0 AGL	102 Approach	170	2.0	600	9	rotate
d	4,742	100 AGL	103 Variable	200	4.7	1800	46	gear up
e	21,612	1,500 AGL	77 Variable	230	0.0	0	322	level in pattern
f	146,531	1,500 AGL	77 Approach	230	0.0	0	38	base leg, gear down
g	159,707	1,500 AGL	84 Approach	180	0.0	0	86	slowed to approach speed
h	185,929	1,500 AGL	77 Approach	180	-2.7	-900	85	begin descent
i	211,627	300 AGL	77 Approach	180	-3.0	-800	18	1 nm final
j	216,349	50 AGL	77 Approach	130				threshold

F-15EX - Flight Profile F15EX_04C03
On Runway 4 - Runway 4, Flight Track F15_04C03
GCA Box pattern in 04 direction

0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

This page intentionally left blank.

F-35A (Modeled as F-35A)

This page intentionally left blank.

Flight Profile F35_04A02

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	140,059	10,000 MSL	15 Variable	350	-5.8	-3300	154	begin descent from 10k, ~20nm
b	55,674	1,500 AGL	35 Variable	300	0.0	0	32	initial, level, increase power
c	39,710	1,500 AGL	35 Variable	300	0.0	0	26	begin break
d	28,605	1,500 AGL	35 Variable	210	0.0	0	12	WL, begin dw
e	24,525	1,500 AGL	40 Approach Low	200	0.0	0	24	gear down, increase power
f	16,759	1,500 AGL	40 Approach Low	190	-5.8	-1900	33	end dw
g	6,076	420 AGL	40 Approach Low	190	-3.5	-1100	20	WL, 1nm final
h	0	50 AGL	40 Approach Low	175				

F-35A - Flight Profile F35_04A02

On Runway 4 - Runway 4, Flight Track F15_04A02

Overhead to 04 mid break

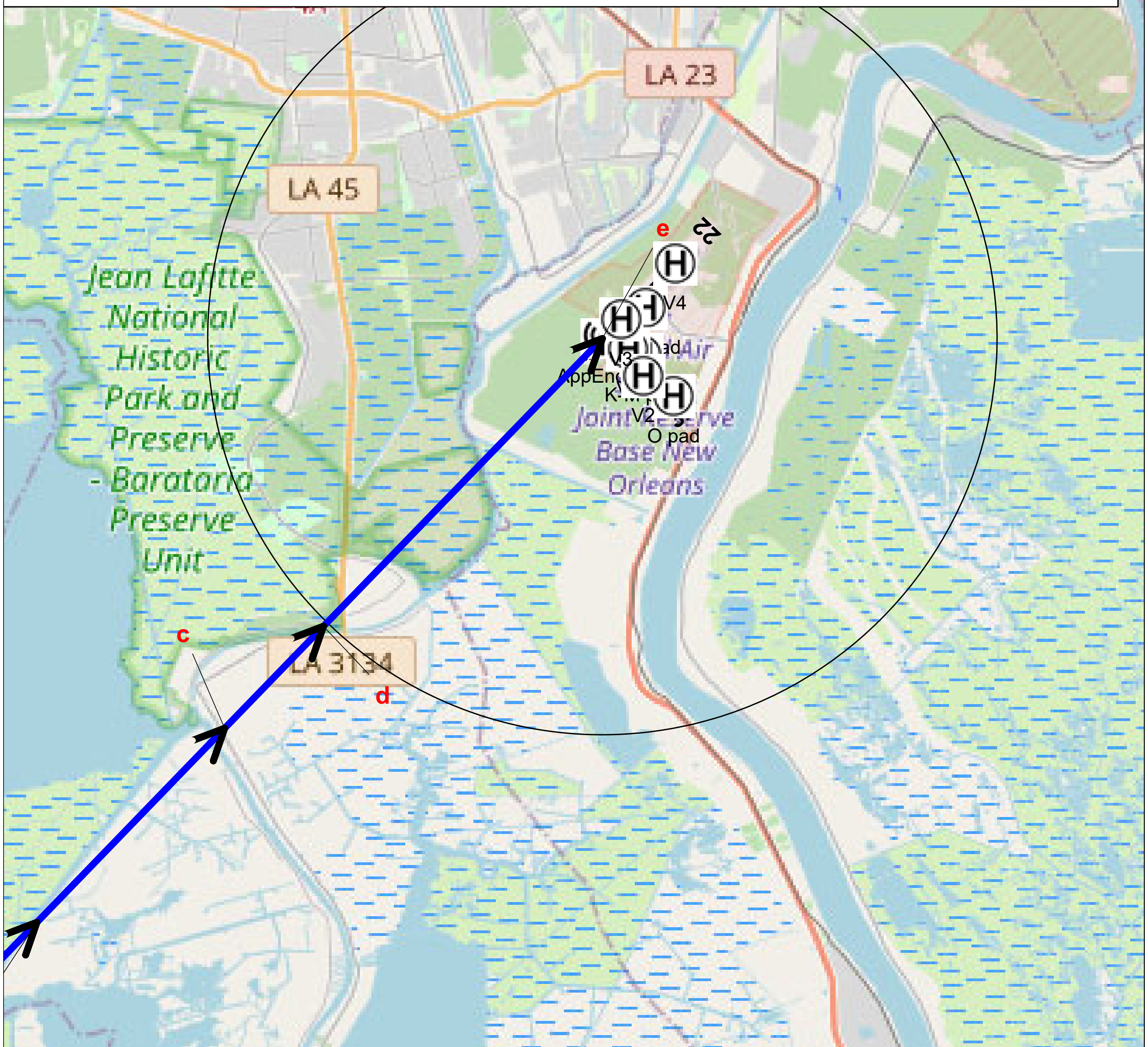
0 2,000 4,000 6,000 8,000 10,000 12,000

Scale in Feet 1:39,600 (1 inch = 3,300 feet)

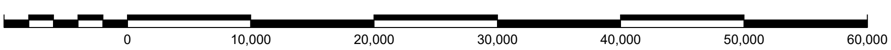
N

Flight Profile F35_04A06

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	90,000	10,000 MSL	15 Variable	350	-11.6	-6700	50	begin descent from 10k MSL
b	62,457	4,350 AGL	15 Variable	300	-5.2	-2400	47	300 kts
c	41,695	2,450 AGL	40 Approach Low	225	-3.4	-1200	32	Gear Down
d	30,783	1,800 AGL	40 Approach Low	180	-3.3	-1000	103	Initial
e	0	50 AGL	40 Approach Low	175				cross threshold 50ft



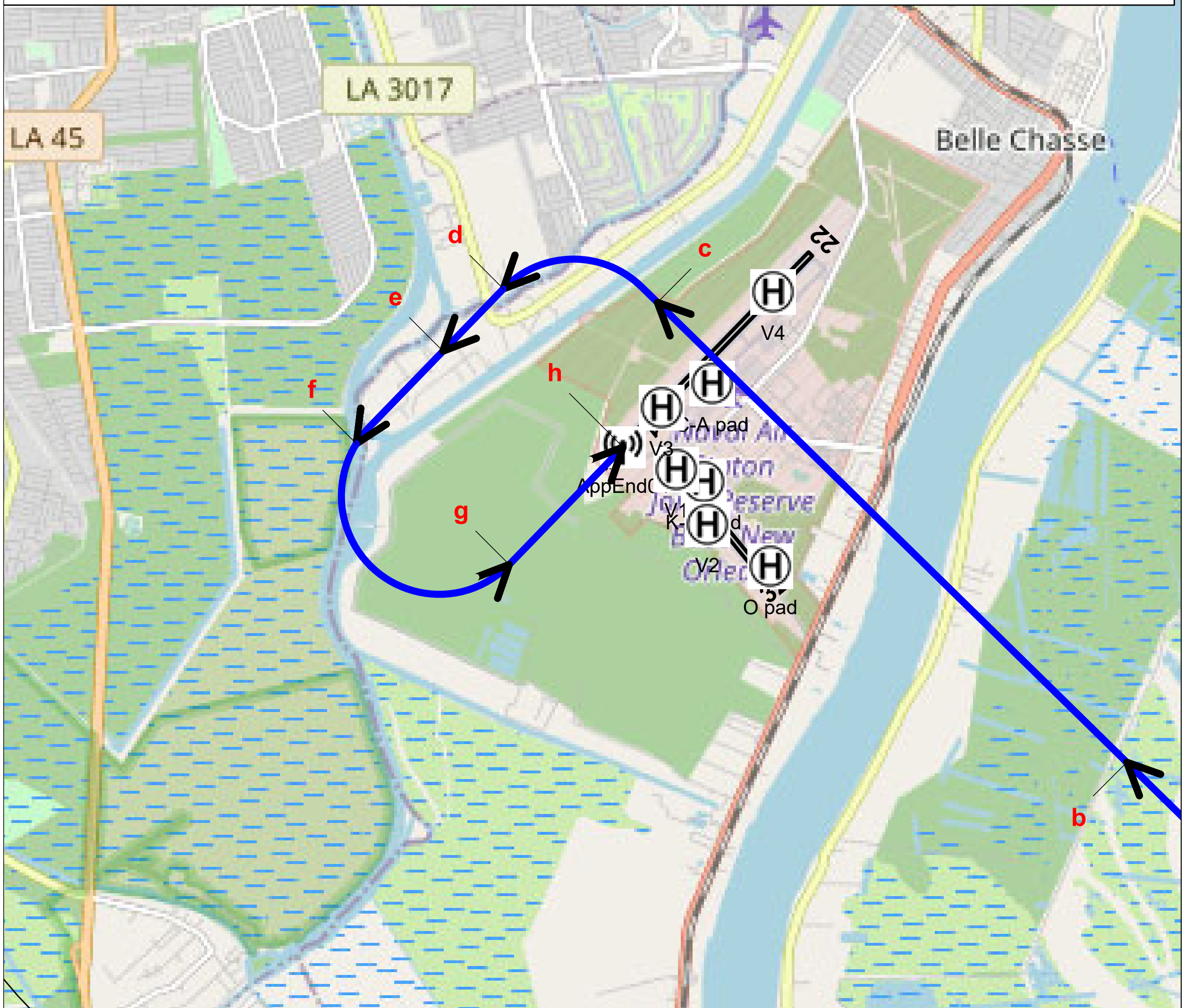
F-35A - Flight Profile F35_04A06
On Runway 4 - Runway 4, Flight Track F15_04A06
ILS to 04



Scale in Feet 1:187,000 (1 inch = 15,600 feet)

Flight Profile F35_04A07

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	130,425	10,000 MSL	15 Variable	350	-6.5	-3700	136	begin descent from 10k, ~20nm
b	55,674	1,500 AGL	35 Variable	300	0.0	0	48	initial, level, increase power
c	31,241	1,500 AGL	35 Variable	300	0.0	0	15	begin break
d	24,698	1,500 AGL	35 Variable	210	0.0	0	9	WL, begin dw
e	21,475	1,500 AGL	40 Approach Low	200	0.0	0	14	gear down, increase power
f	16,759	1,500 AGL	40 Approach Low	190	-5.8	-1900	33	end dw
g	6,076	420 AGL	40 Approach Low	190	-3.5	-1100	20	WL, 1nm final
h	0	50 AGL	40 Approach Low	175				

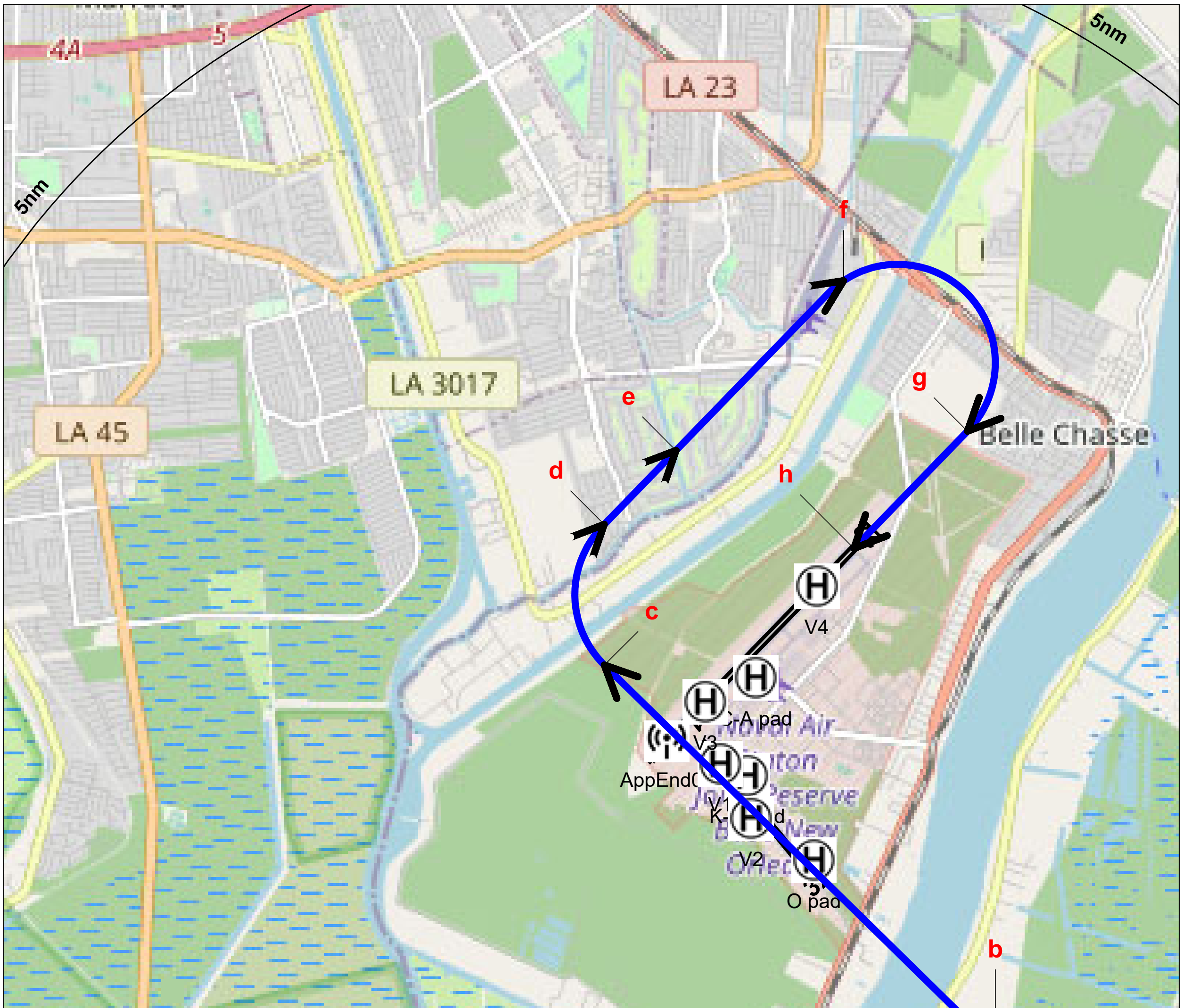


F-35A - Flight Profile F35_04A07
On Runway 4 - Runway 4, Flight Track F15_04A04
City Side Arrival to 04, Ld

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,300 (1 inch = 7,780 feet)

N



Flight Profile F35_22A05

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	135,287	10,000 MSL	15 Variable	350	-6.1	-3500	145	begin descent from 10k, ~20nm
b	55,674	1,500 AGL	35 Variable	300	0.0	0	40	initial, level, increase power
c	35,287	1,500 AGL	35 Variable	300	0.0	0	14	begin break
d	29,475	1,500 AGL	35 Variable	210	0.0	0	11	WL, begin dw
e	25,637	1,500 AGL	40 Approach Low	200	0.0	0	27	gear down, increase power
f	16,759	1,500 AGL	40 Approach Low	190	-5.8	-1900	33	end dw
g	6,076	420 AGL	40 Approach Low	190	-3.5	-1100	20	WL, 1nm final
h	0	50 AGL	40 Approach Low	175				

F-35A - Flight Profile F35_22A05

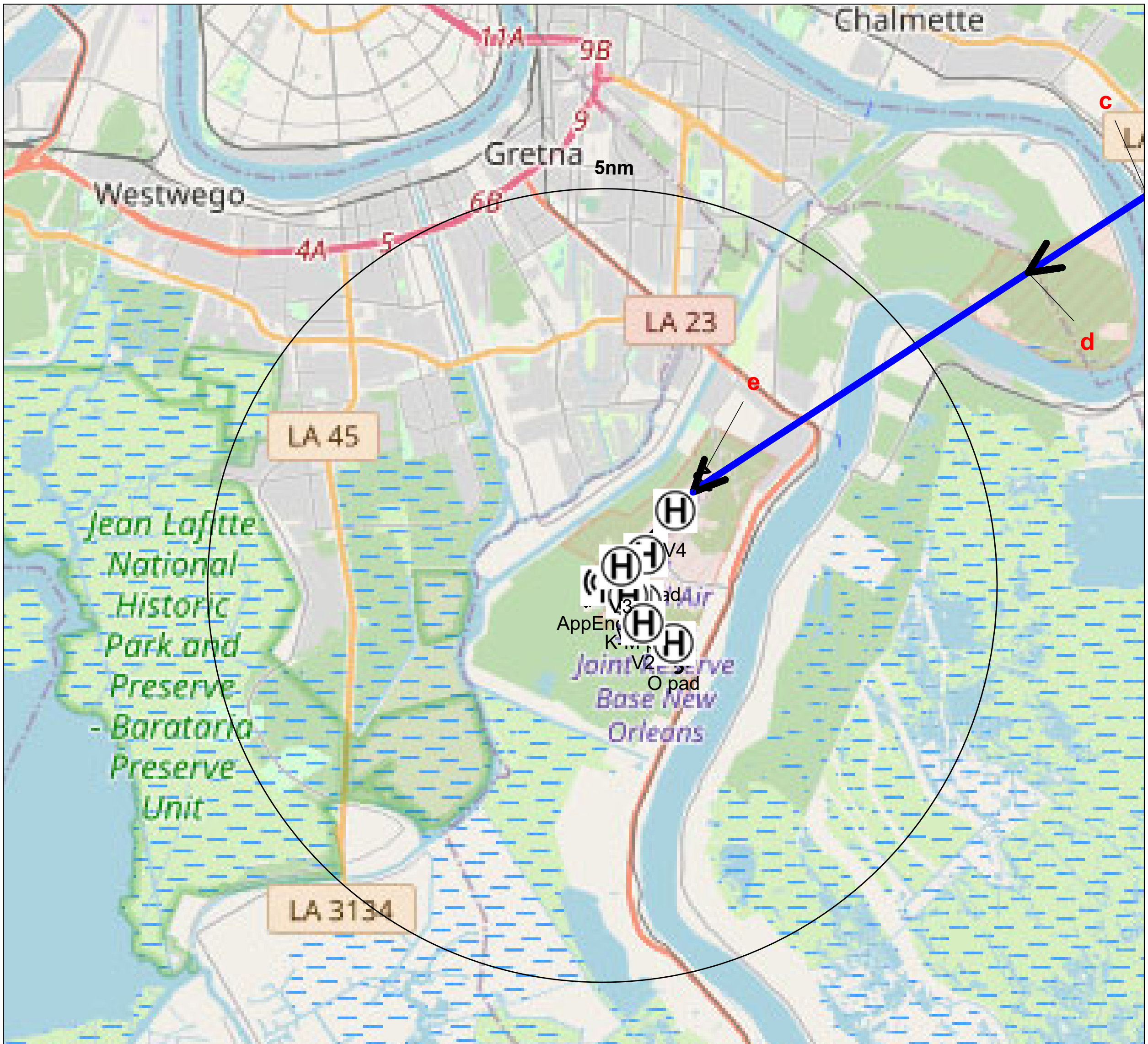
On Runway 22 - Runway 22, Flight Track F15_22A05

Midfield Arrival to 22, Wg

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,300 (1 inch = 7,780 feet)

N



Flight Profile F35_22A06

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	120,501	10,000 MSL	15 Variable	350	-5.6	-3200	106	begin descent from 10k MSL
b	62,457	4,350 AGL	15 Variable	300	-5.2	-2400	47	300 kts
c	41,695	2,450 AGL	40 Approach Low	225	-3.4	-1200	32	Gear Down
d	30,783	1,800 AGL	40 Approach Low	180	-3.3	-1000	103	Initial
e	0	50 AGL	40 Approach Low	175				cross threshold 50ft

F-35A - Flight Profile F35_22A06

On Runway 22 - Runway 22, Flight Track F15_22A06

TACAN to 22

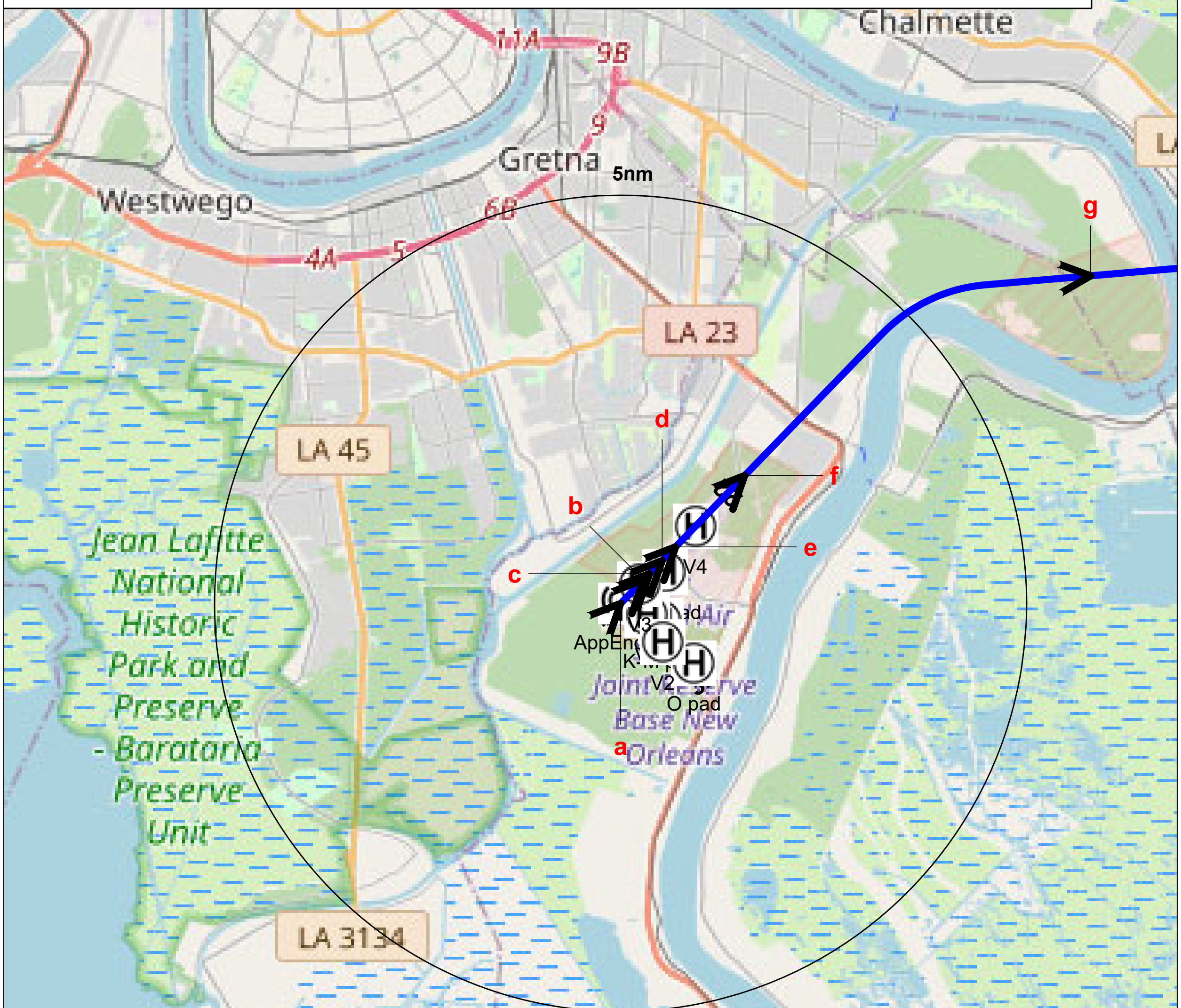
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F35_04D05a

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	0 AGL	50 50% ETR	0	0.0	0	16	1 second run-up at 50%
b	2,457	0 AGL	150 Afterburner	185	0.6	200	2	Rotate
c	3,102	7 AGL	150 Afterburner	190	1.8	600	4	
d	4,454	50 AGL	100 Variable	205	4.0	1500	4	mil
e	5,892	150 AGL	100 Intermediate	220	7.0	3200	17	gear up
f	13,288	1,060 AGL	100 Intermediate	300	15.9	8700	62	
g	44,650	10,000 MSL	40 Intermediate	300	0.0	0	283	
h	200,000	10,000 MSL	40 Intermediate	350				



F-35A - Flight Profile F35_04D05a

On Runway 4 - Runway 4, Flight Track F15_04D05

Early TOC, to Whodat AB power on t/o, all

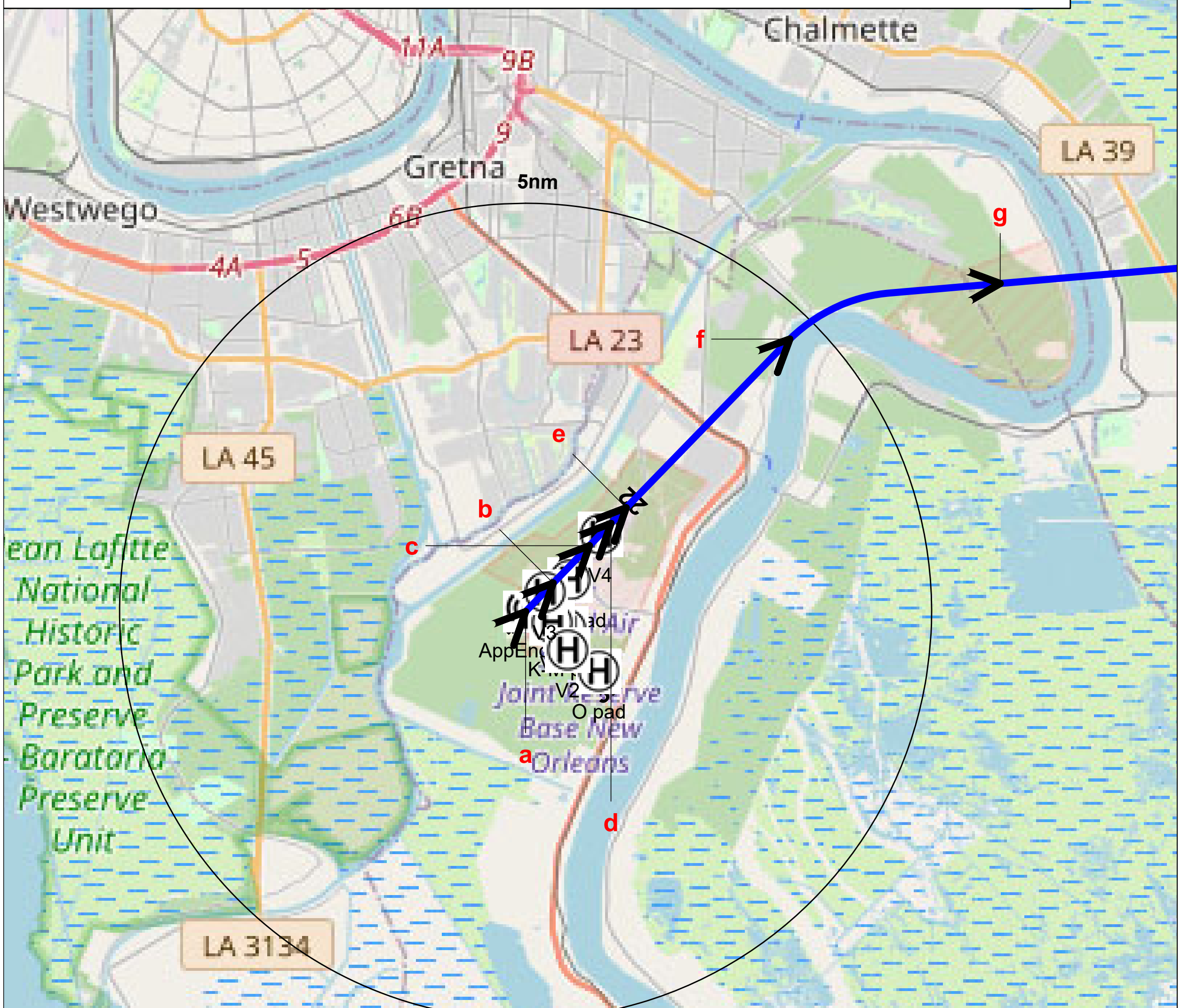
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F35_04D05m

Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	0 AGL	50 50% ETR	0	0.0	0	22	1 second run-up at 50%
b	2,963	0 AGL	100 Variable	160	1.8	600	12	Rotate
c	6,843	125 AGL	100 Variable	220	6.3	2600	6	gear up
d	9,162	380 AGL	100 Variable	240	11.1	4900	4	
e	10,792	700 AGL	100 Variable	250	14.0	6900	38	
f	28,315	5,070 AGL	100 Variable	300	16.5	9000	33	
g	45,000	10,000 MSL	40 Variable	300	0.0	0	283	
h	200,000	10,000 MSL	40 Variable	350				



F-35A - Flight Profile F35_04D05m

On Runway 4 - Runway 4, Flight Track F15_04D05

Early TOC, to Whodat Mil power on t/o, all

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

Flight Profile F35_04C01

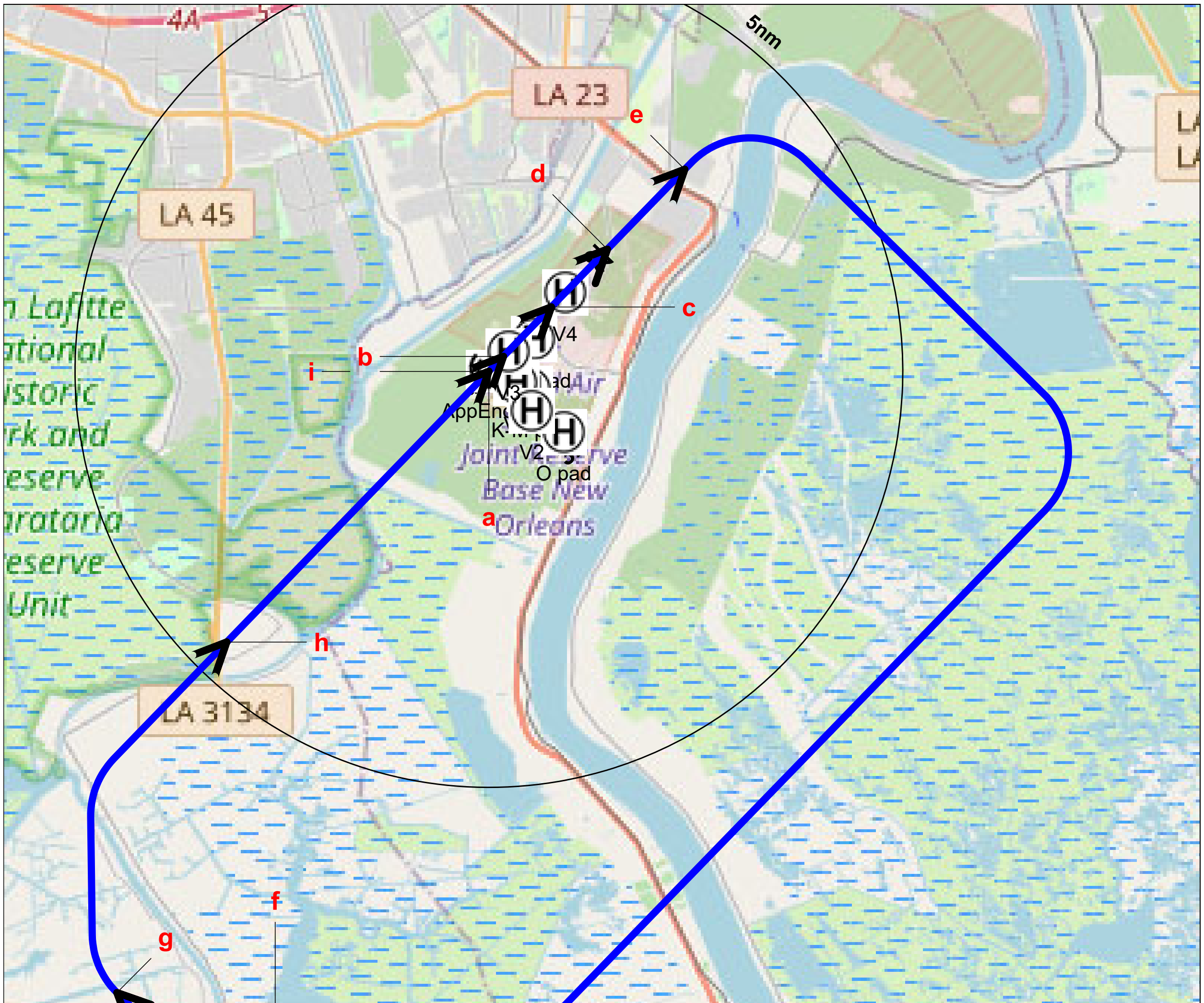
Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	72 Approach Low	130	-3.1	-700	4	threshold
b	911	0 AGL	92 Approach Low	125	0.0	0	4	touch, select mil
c	1,823	0 AGL	92 Approach Low	170	2.0	600	9	rotate
d	4,742	100 AGL	92 Variable	200	4.3	1500	16	gear up
e	10,003	500 AGL	92 Variable	200	4.9	1700	35	
f	21,612	1,500 AGL	70 Variable	190	0.0	0	26	start downdwind
g	29,751	1,500 AGL	70 Approach Low	180	0.0	0	27	mid dw - gear down
h	37,988	1,500 AGL	75 Approach Low	180	-6.5	-2100	35	start approach turn
i	48,578	300 AGL	75 Approach Low	180	-2.3	-600	24	1 nm final
j	54,756	50 AGL	72 Approach Low	130				threshold

F-35A - Flight Profile F35_04C01
On Runway 4 - Runway 4, Flight Track F35_04C01
Closed VFR pattern in 04 direction

0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Scale in Feet 1:46,700 (1 inch = 3,890 feet)

N



Point	Distance ft	Height ft	Power % ETR	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	40 Variable	165	-1.5	-400	6	
b	1,519	10 AGL	100 Variable	145	3.3	1100	16	
c	6,562	300 AGL	100 Variable	225	7.3	3100	15	gear up
d	12,449	1,050 AGL	25 Variable	250	3.2	1400	19	reach pattern airspeed
e	20,587	1,500 MSL	25 Variable	250	0.0	0	289	
f	142,682	1,500 MSL	40 Variable	250	0.0	0	45	
g	158,911	1,500 MSL	40 Approach Low	175	0.0	0	101	gear down
h	188,832	1,500 MSL	40 Approach Low	175	-3.0	-900	96	begin descent
i	216,407	50 AGL	40 Approach Low	165				

Flight Profile F35_04C03

F-35A - Flight Profile F35_04C03

On Runway 4 - Runway 4, Flight Track F15_04C03

GCA Box pattern in 04 direction

0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

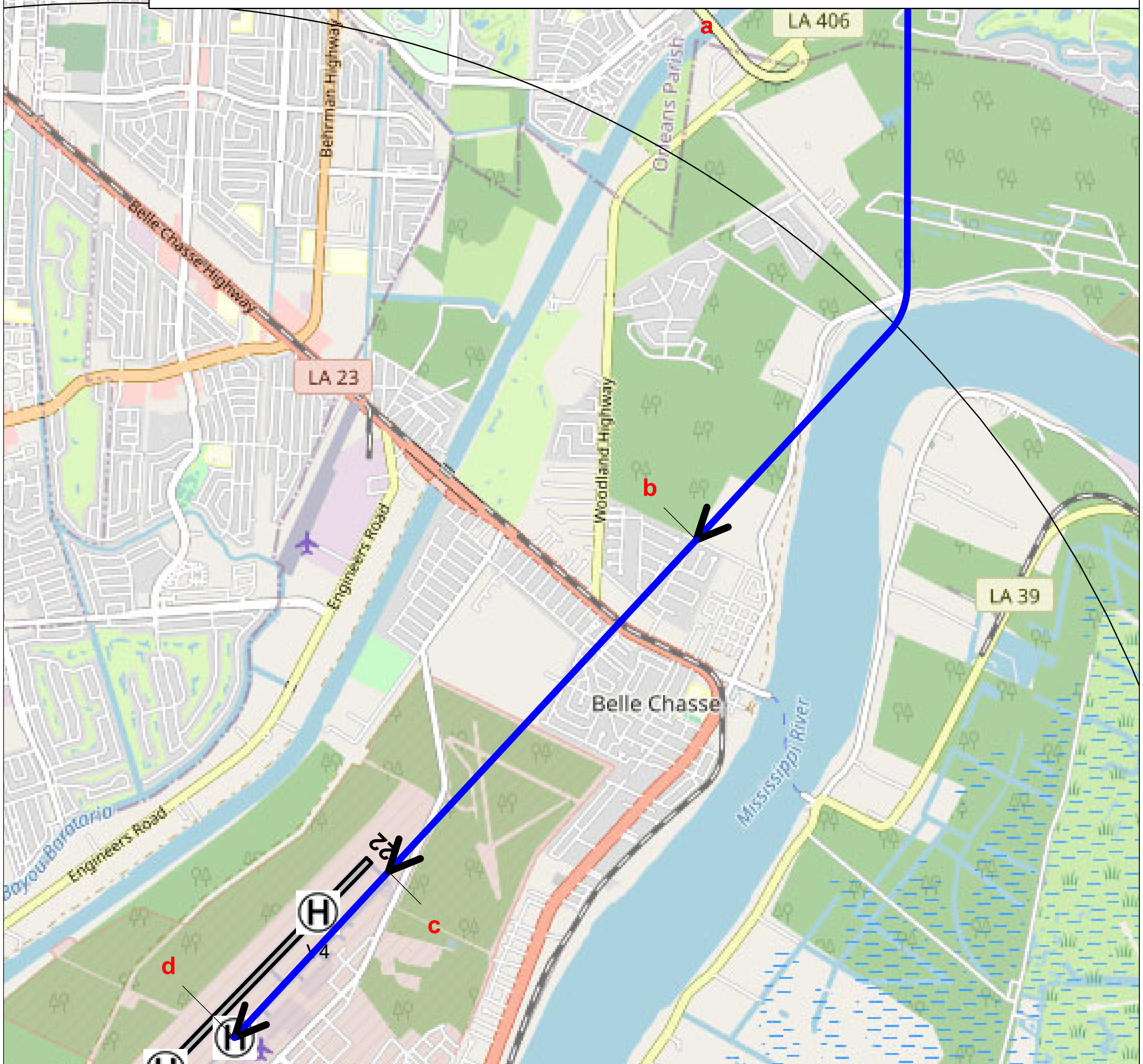
This page intentionally left blank.

AH-1 / UH-1 (Modeled as AH1W)

This page intentionally left blank.

Flight Profile CA_A_04

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	40,216	500 AGL	100	0	0	0	90	0.0	0	161
b	18,431	500 AGL	60	0	0	0	90	-1.4	-100	121
c	6,148	200 AGL	60	0	0	0	90	-1.8	-100	112
d	0	5 AGL	5	0	0	0	90			



AH/UH-1 - Flight Profile CA_A_04
On Runway C-A pad, Flight Track H1_CAA04
H1 arrive from north

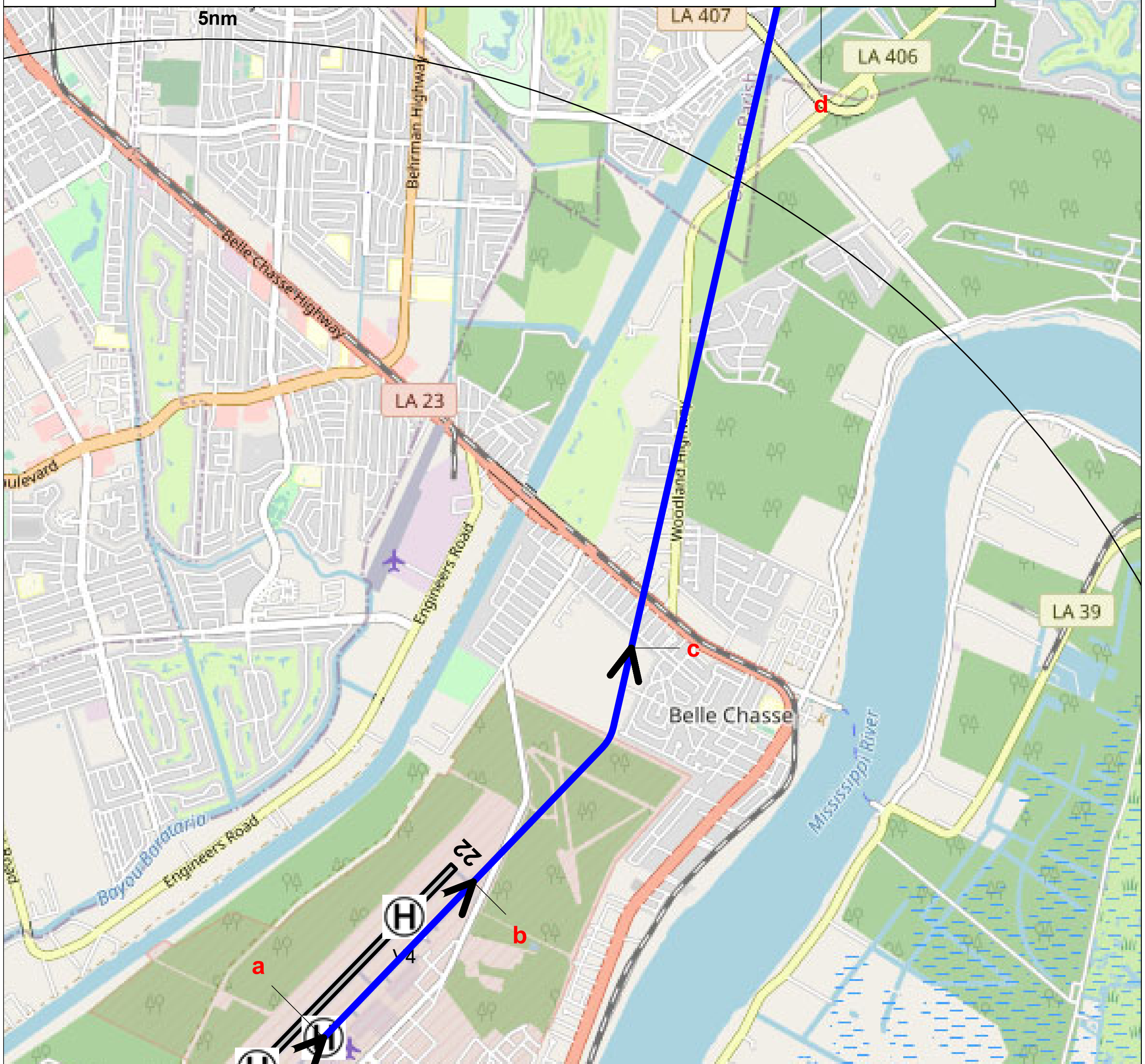
0 4,000 8,000 12,000 16,000 20,000

Scale in Feet 1:65,800 (1 inch = 5,480 feet)

N

Flight Profile CA_D_01

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	5 AGL	1	0	0	0	90	1.8	100	89
b	6,081	200 AGL	80	0	0	0	90	2.1	300	54
c	14,262	500 AGL	100	0	0	0	90	0.0	0	142
d	38,260	500 AGL	100	0	0	0	90			

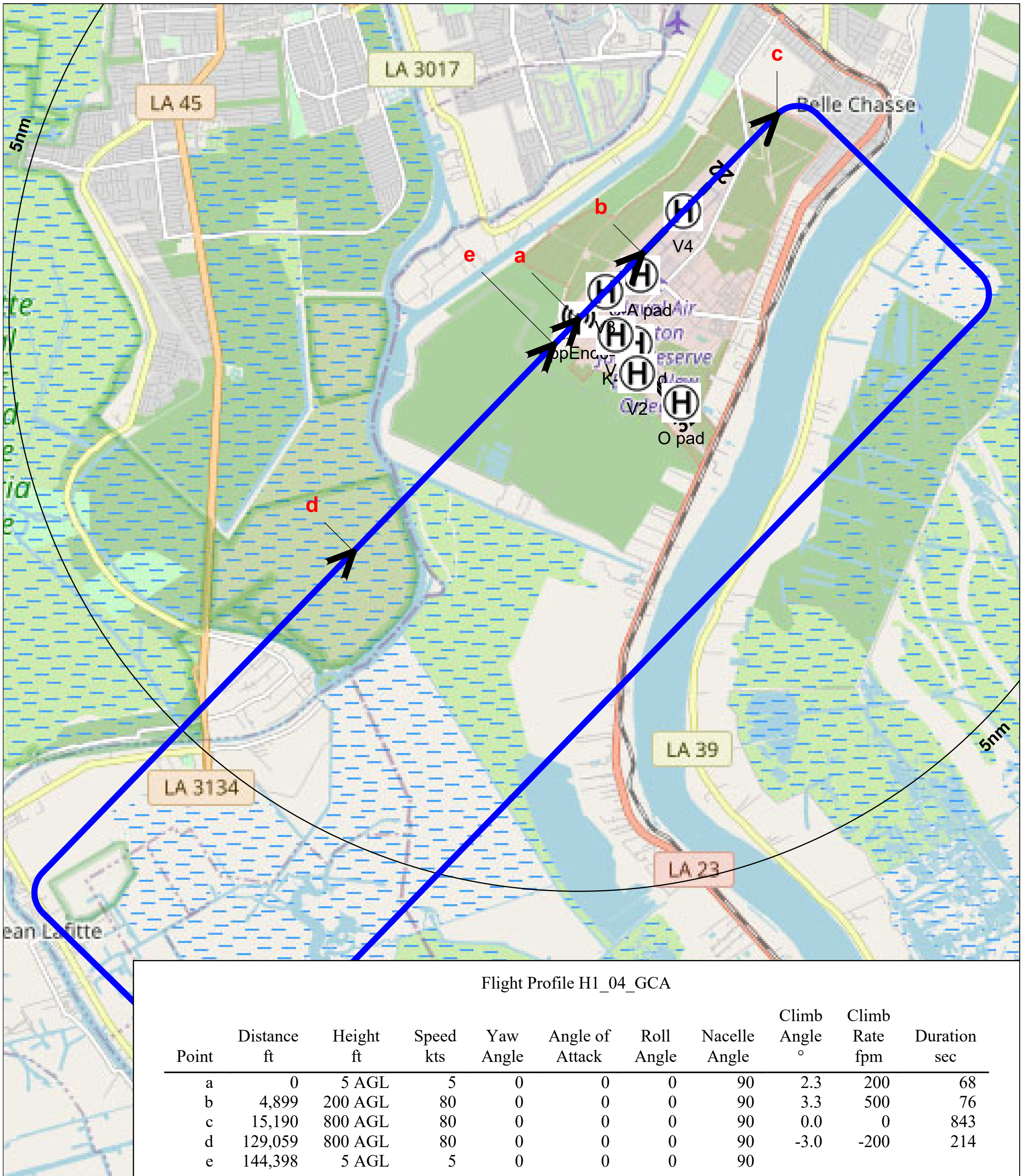


AH/UH-1 - Flight Profile CA_D_01
On Runway C-A pad, Flight Track H1_CAD01
H1 North departure

0 4,000 8,000 12,000 16,000 20,000

Scale in Feet 1:68,300 (1 inch = 5,690 feet)

N



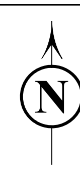
Flight Profile H1_04_GCA

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	5 AGL	5	0	0	0	90	2.3	200	68
b	4,899	200 AGL	80	0	0	0	90	3.3	500	76
c	15,190	800 AGL	80	0	0	0	90	0.0	0	843
d	129,059	800 AGL	80	0	0	0	90	-3.0	-200	214
e	144,398	5 AGL	5	0	0	0	90			

AH/UH-1 - Flight Profile H1_04_GCA

On Runway 4 - Runway 4, Flight Track H1_04C01

Scale in Feet 1:115,000 (1 inch = 9,620 feet)



Flight Profile H1_V1_C01

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	5 AGL	5	0	0	0	90	2.3	200	68
b	4,899	200 AGL	80	0	0	0	90	1.3	200	32
c	9,256	300 AGL	80	0	0	0	90	0.0	0	44
d	15,200	300 AGL	80	0	0	0	90	-3.7	-300	64
e	19,777	5 AGL	5	0	0	0	90			

AH/UH-1 - Flight Profile H1_V1_C01

On Runway V1, Flight Track H1_C01

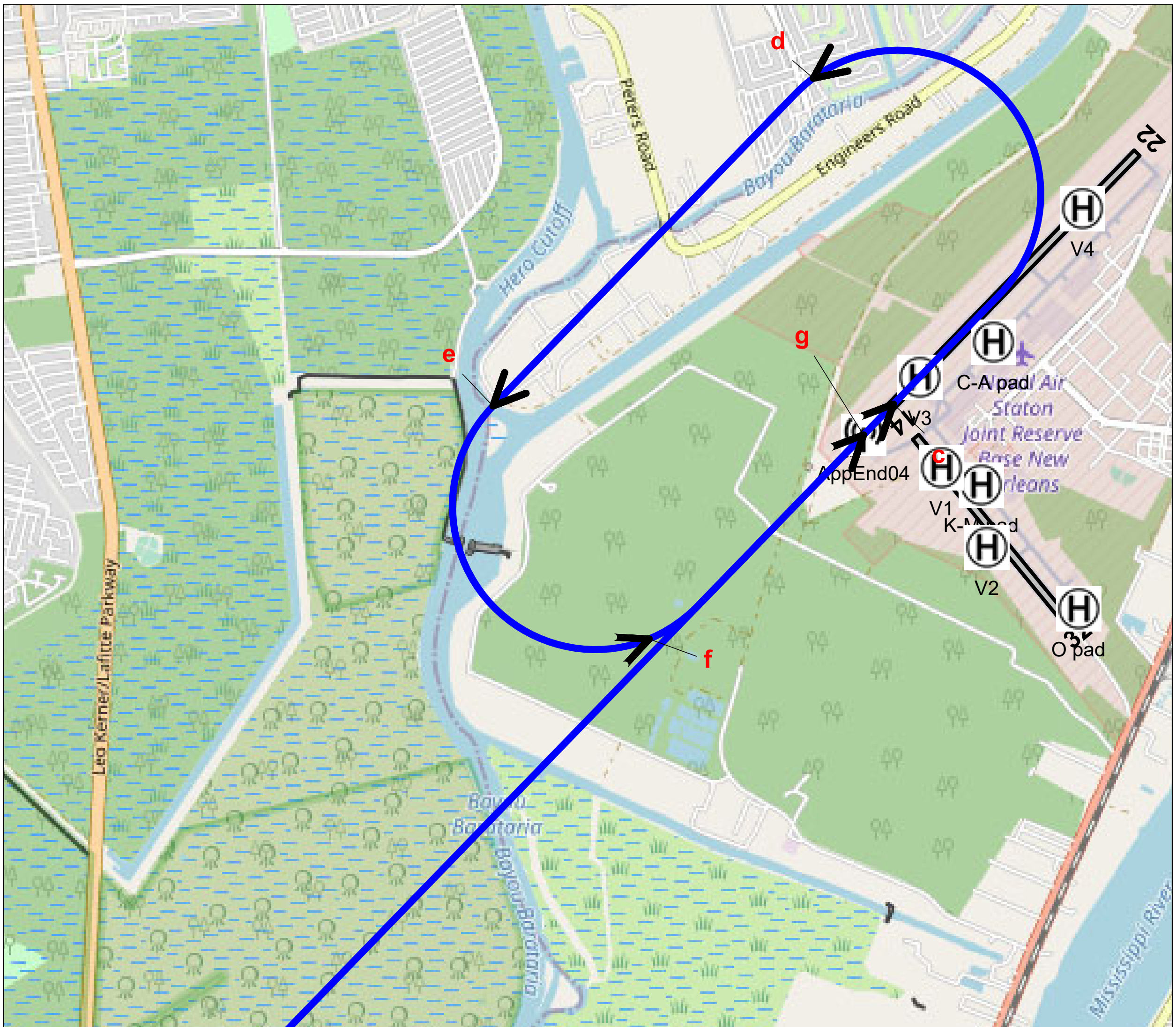
0 400 800 1,200 1,600 2,000 2,400 2,800 3,200 3,600 4,000 4,400 4,800

Scale in Feet 1:14,200 (1 inch = 1,180 feet)

N

F-5E (Modeled as F-5E)

This page intentionally left blank.



Flight Profile F5_04A02

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	140,059	10,000 MSL	83 Cruise	300	-7.0	-3700	128	
b	75,230	2,000 AGL	83 Cruise	300	-0.9	-500	57	Initial
c	43,969	1,500 AGL	84 Cruise	350	0.0	0	29	
d	29,203	1,500 AGL	78 Approach	250	0.0	0	31	Begin Downwind; gear down
e	17,529	1,500 AGL	84.7 Approach	200	-6.6	-2000	34	End Downwind
f	7,575	350 AGL	84.7 Approach	150	-2.3	-600	30	
g	0	50 AGL	84.7 Approach	150				

F-5E - Flight Profile F5_04A02

On Runway 4 - Runway 4, Flight Track F15_04A02

Overhead to 4 mid break

0 4,000 8,000 12,000 16,000 20,000

Scale in Feet 1:63,500 (1 inch = 5,290 feet)

N

Flight Profile F5_04A06

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	65,000	5,000 MSL	85 Cruise	300	-5.1	-2500	48	
b	42,533	3,000 MSL	82 Approach	250	-4.9	-2000	48	7 nm initial
c	24,304	1,431 AGL	82 Approach	200	-3.3	-1000	82	
d	0	50 AGL	82 Approach	150				

F-5E - Flight Profile F5_04A06

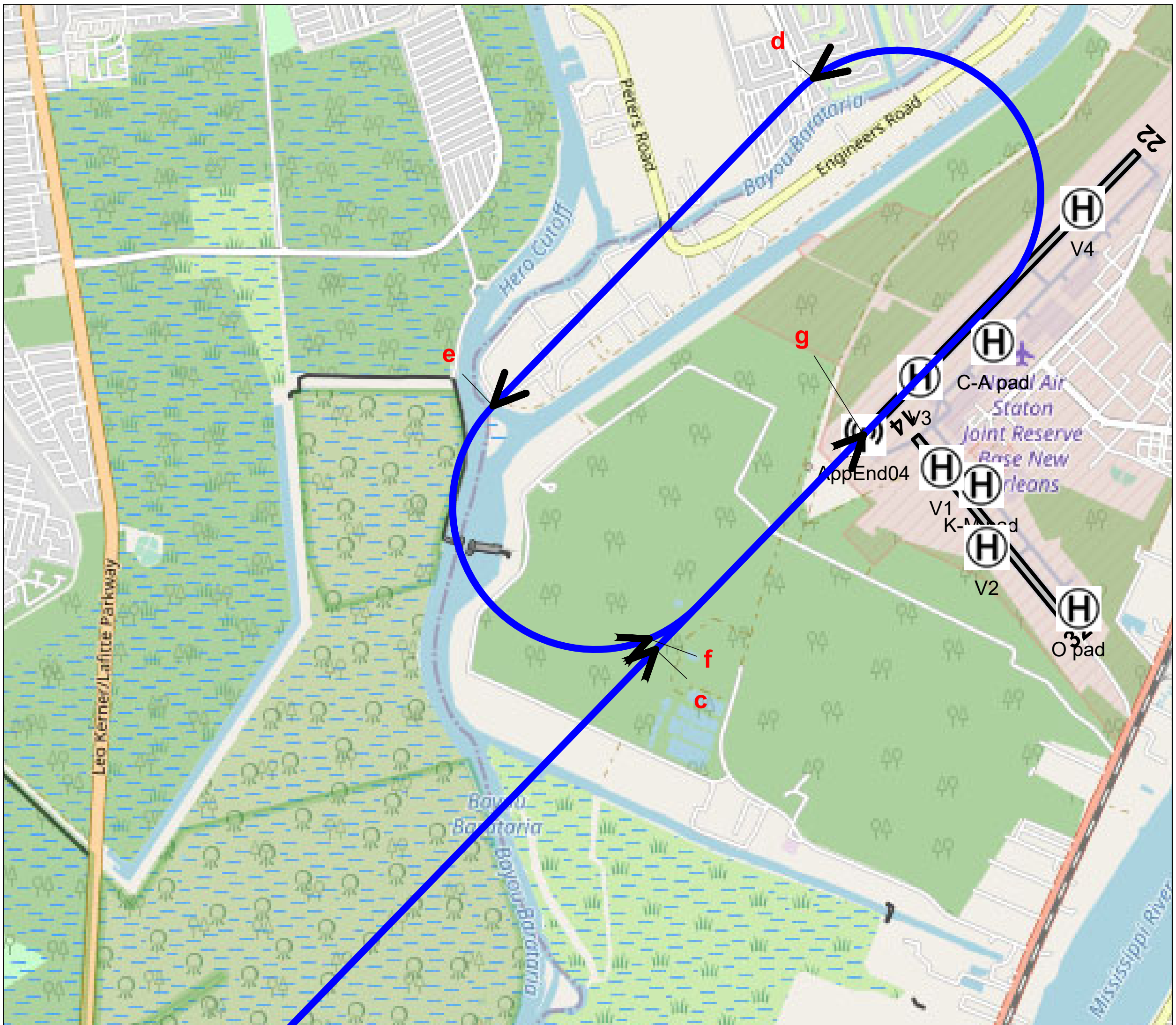
On Runway 4 - Runway 4, Flight Track F15_04A06

ILS to 04

0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N



Flight Profile F5_04A12

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	140,059	10,000 MSL	83 Cruise	300	-7.0	-3700	128	
b	75,230	2,000 AGL	83 Cruise	300	-3.0	-1800	41	Initial
c	52,671	800 AGL	84 Cruise	350	0.0	0	46	
d	29,203	800 AGL	78 Approach	250	-1.0	-400	31	Begin Downwind; gear down
e	17,529	600 AGL	84.7 Approach	200	-1.4	-400	34	End Downwind
f	7,575	350 AGL	84.7 Approach	150	-2.3	-600	30	
g	0	50 AGL	84.7 Approach	150				

F-5E - Flight Profile F5_04A12

On Runway 4 - Runway 4, Flight Track F15_04A02

CV Break to 4 mid break

0 4,000 8,000 12,000 16,000 20,000

Scale in Feet 1:63,500 (1 inch = 5,290 feet)

N

Flight Profile F5_22A06

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	65,000	5,000 MSL	85 Cruise	300	-5.1	-2500	48	
b	42,533	3,000 MSL	82 Approach	250	-4.9	-2000	48	7 nm initial
c	24,304	1,431 AGL	82 Approach	200	-3.3	-1000	82	
d	0	50 AGL	82 Approach	150				

F-5E - Flight Profile F5_22A06

On Runway 22 - Runway 22, Flight Track F15_22A06

TACAN to 22

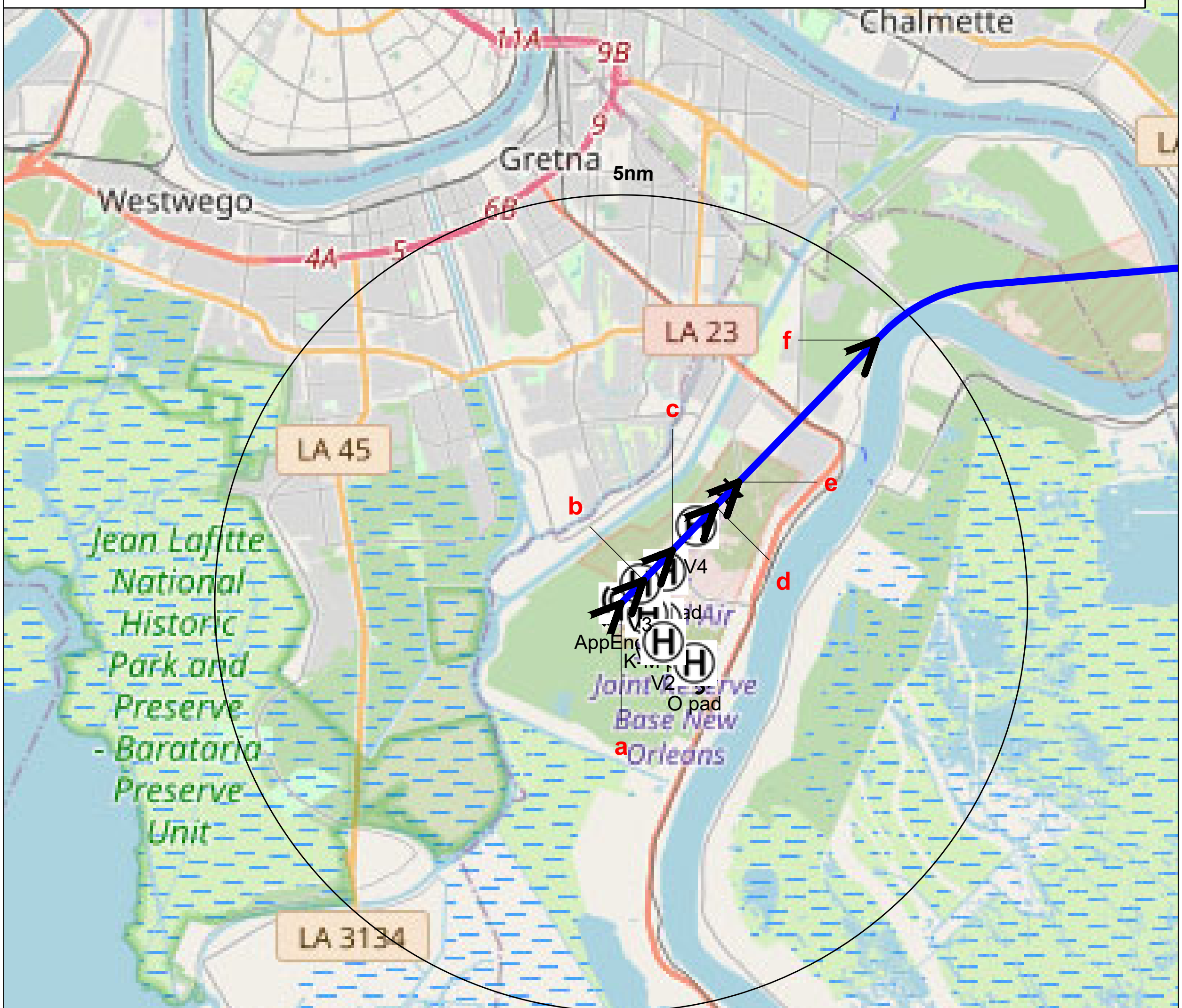
0 10,000 20,000 30,000 40,000 50,000 60,000

Scale in Feet 1:187,000 (1 inch = 15,600 feet)

N

Flight Profile F5_04D05

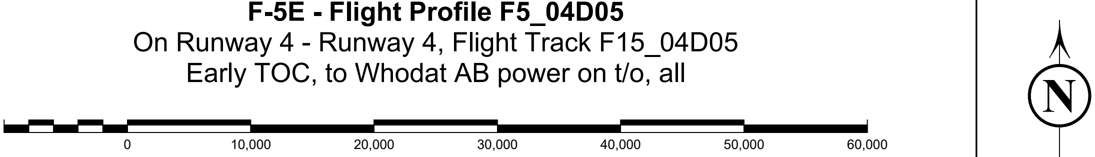
Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	0 AGL	80 80% RPM Eng Runup	0	0.0	0	19	10 sec runup at 80%
b	2,400	0 AGL	101 Afterburner	150	2.8	700	12	
c	5,500	150 AGL	101 Takeoff	150	4.4	1700	13	
d	10,100	500 AGL	101 Takeoff	280	4.6	2600	5	
e	12,600	700 AGL	101 Takeoff	350	6.2	3800	25	
f	27,340	2,300 AGL	101 Takeoff	350	6.3	3900	51	
g	57,680	5,650 MSL	95 Takeoff	350	7.4	4600	57	
h	91,142	10,000 MSL	90 Takeoff	350				



F-5E - Flight Profile F5_04D05

On Runway 4 - Runway 4, Flight Track F15_04D05

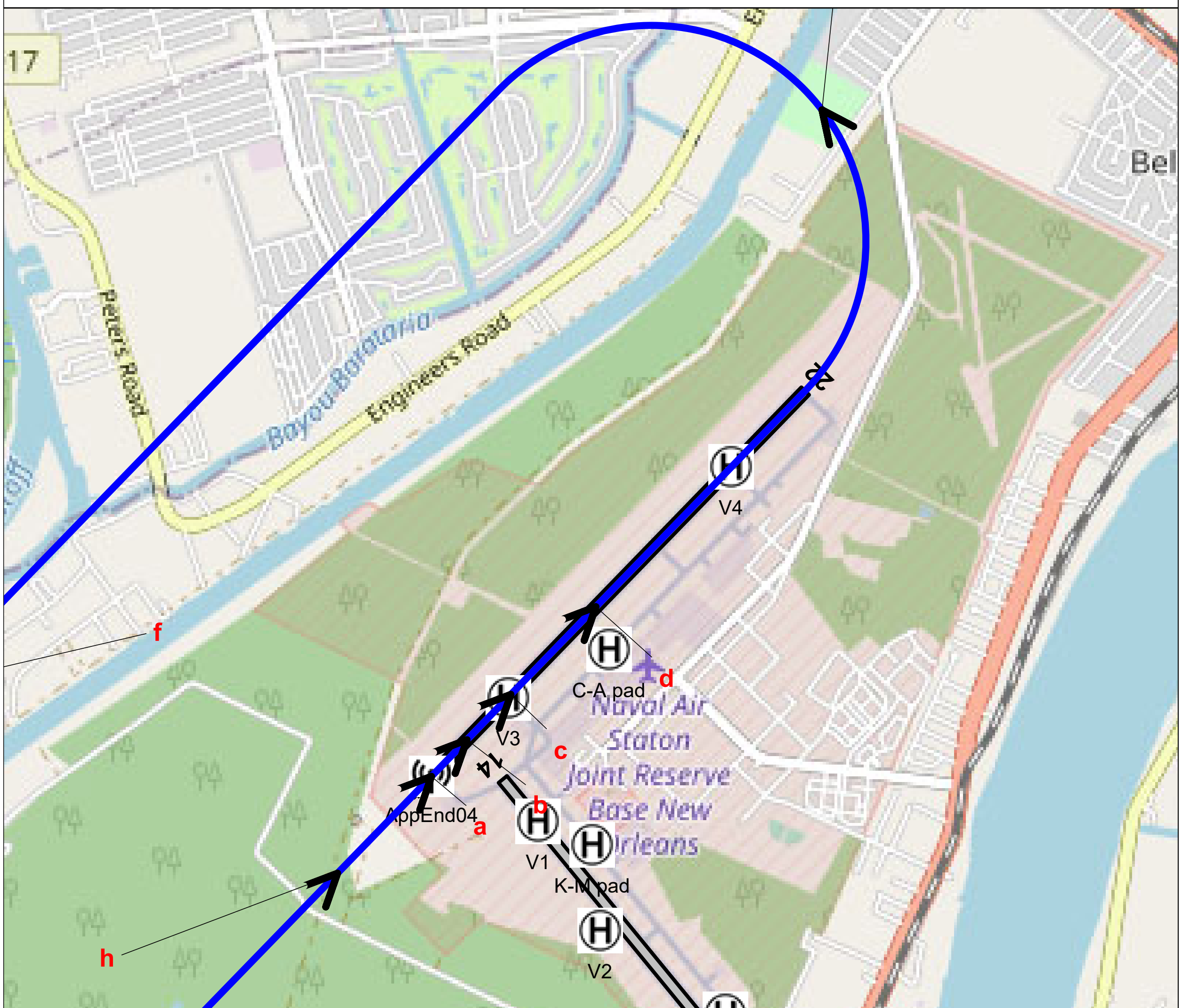
Early TOC, to Whodat AB power on t/o, all



Scale in Feet 1:187,000 (1 inch = 15,600 feet)

Flight Profile F5_04C01

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	50 AGL	84.7 Approach	150	-3.0	-800	4	dirty entire pattern;
b	950	0 AGL	101 Takeoff	150	0.0	0	4	not using approach due to extrapolation limi
c	2,127	0 AGL	101 Takeoff	170	7.5	2300	8	lift off
d	4,400	300 AGL	90 Approach	170	6.1	1800	39	
e	15,700	1,500 AGL	84.7 Approach	170	0.0	0	78	
f	38,014	1,500 AGL	84.7 Approach	170	-6.3	-1800	37	End Downwind
g	48,450	350 AGL	84.7 Approach	160	-2.7	-700	24	roll WL
h	54,770	50 AGL	84.7 Approach	150				threshold



F-5E - Flight Profile F5_04C01
On Runway 4 - Runway 4, Flight Track F35_04C01
Closed VFR pattern in 04 direction

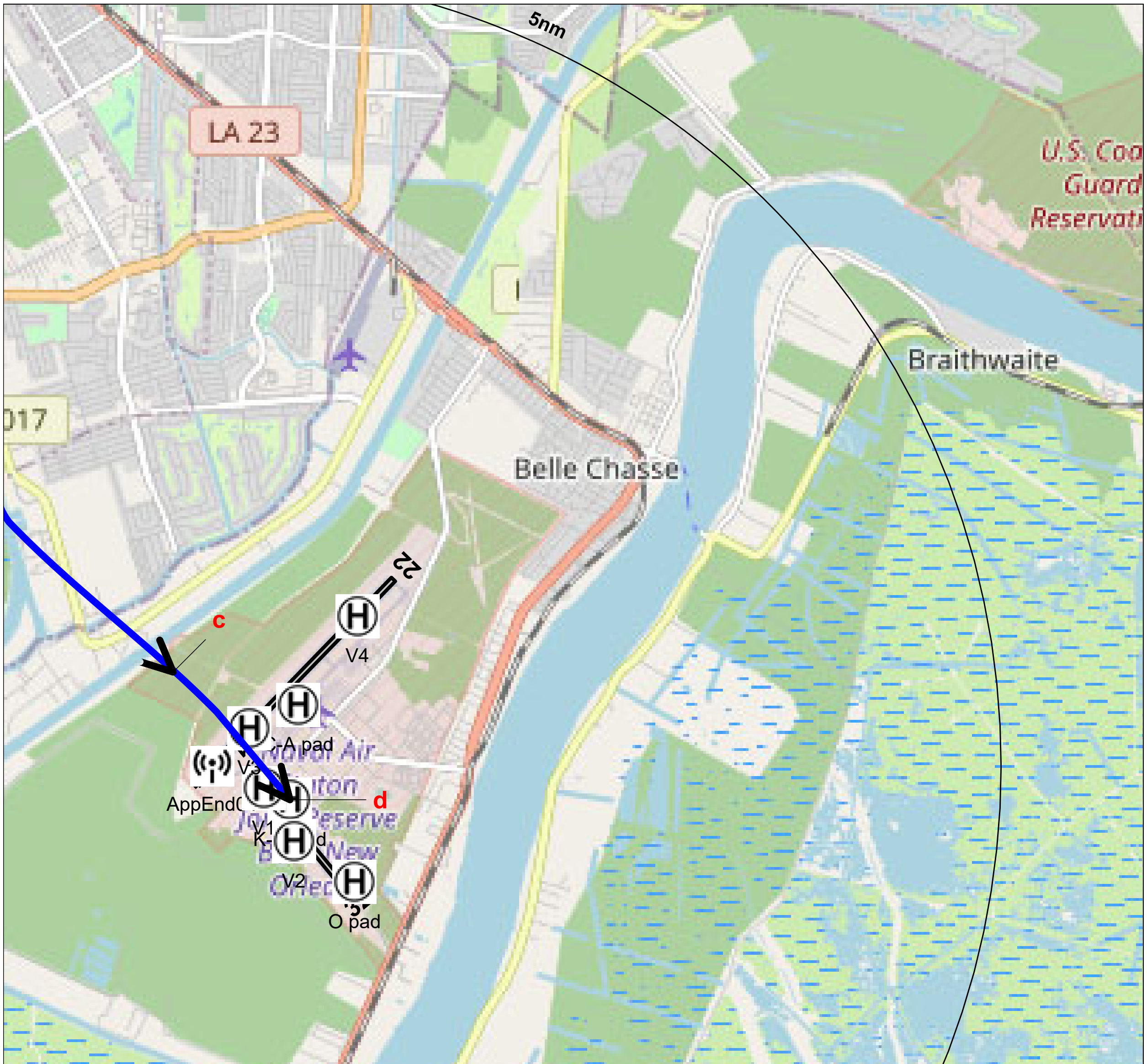
0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Scale in Feet 1:46,700 (1 inch = 3,890 feet)

N

HH-60 (Modeled as SH60B)

This page intentionally left blank.



Flight Profile H60_KMA03

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	56,179	500 AGL	100	0	0	0	90	0.0	0	198
b	22,801	500 AGL	100	0	0	0	90	-1.1	-200	106
c	6,655	200 AGL	80	0	0	0	90	-1.5	-100	93
d	0	20 AGL	5	0	0	0	90			

HH-60 - Flight Profile H60_KMA03

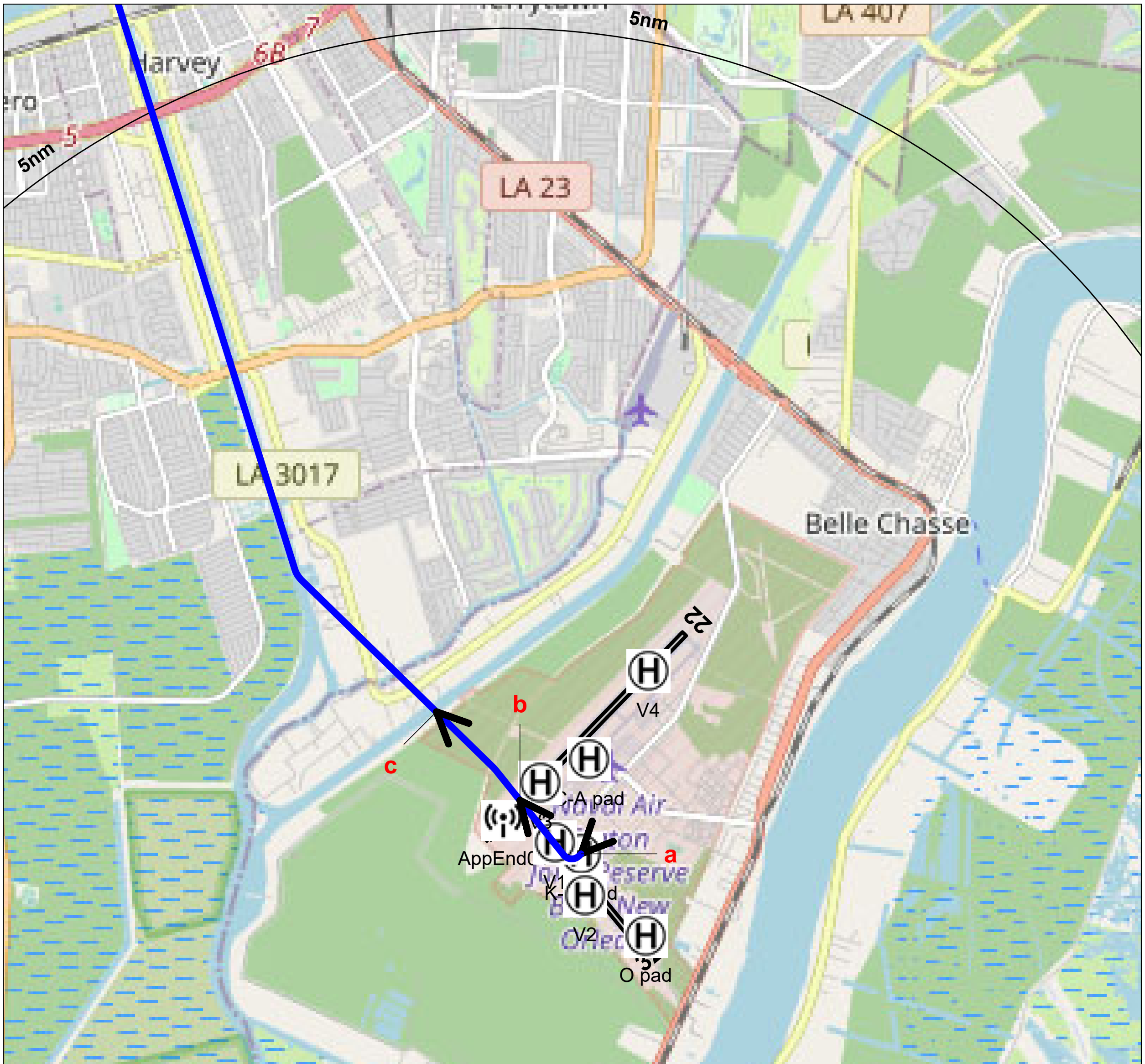
On Runway K-M pad - txwy K & M, Flight Track H60_KMA03

Arrive to KM pad via N/canal

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,400 (1 inch = 7,780 feet)

N



Flight Profile H60_D01

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	20 AGL	5	0	0	0	90	3.0	200	48
b	3,471	200 AGL	80	0	0	0	90	3.7	600	31
c	8,161	500 AGL	100	0	0	0	90	0.0	0	286
d	56,479	500 AGL	100	0	0	0	90			

HH-60 - Flight Profile H60_D01

On Runway K-M pad - txwy K & M, Flight Track H60_KMD01

Depart KM to Canal

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:93,400 (1 inch = 7,780 feet)

N

Flight Profile H60_04C01

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	20 AGL	5	0	0	0	90	2.2	200	66
b	4,717	200 AGL	80	0	0	0	90	1.3	200	32
c	9,024	300 AGL	80	0	0	0	90	0.0	0	43
d	14,764	300 AGL	80	0	0	0	90	-2.9	-400	34
e	18,734	100 AGL	60	0	0	0	90	-4.4	-300	19
f	19,771	20 AGL	5	0	0	0	90			

HH-60 - Flight Profile H60_04C01
On Runway V3, Flight Track H60_C01
Closed on runway 04 at B

Scale in Feet 1:46,700 (1 inch = 3,890 feet)

Flight Profile H60_KM_C03

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	20 AGL	5	0	0	0	90	2.2	200	66
b	4,717	200 AGL	80	0	0	0	90	1.3	200	32
c	9,024	300 AGL	80	0	0	0	90	0.0	0	79
d	19,693	300 AGL	80	0	0	0	90	-2.1	-300	46
e	25,172	100 AGL	60	0	0	0	90	-2.8	-200	29
f	26,781	20 AGL	5	0	0	0	90			

HH-60 - Flight Profile H60_KM_C03
On Runway K-M pad - txwy K & M, Flight Track H60_C03

0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Scale in Feet 1:46,700 (1 inch = 3,890 feet)

N

Flight Profile H60_KM_I02

Point	Distance ft	Height ft	Speed kts	Yaw Angle	Angle of Attack	Roll Angle	Nacelle Angle	Climb Angle °	Climb Rate fpm	Duration sec
a	0	20 AGL	5	0	0	0	90	2.2	200	66
b	4,717	200 AGL	80	0	0	0	90	4.4	600	10
c	6,031	300 AGL	80	0	0	0	90	0.0	0	11
d	7,469	300 AGL	80	0	0	0	90	-2.4	-300	41
e	12,284	100 AGL	60	0	0	0	90	-2.8	-200	30
f	13,928	20 AGL	5	0	0	0	90			

HH-60 - Flight Profile H60_KM_I02
On Runway K-M pad - txwy K & M, Flight Track H60_KMI02
transition to 04 pattern

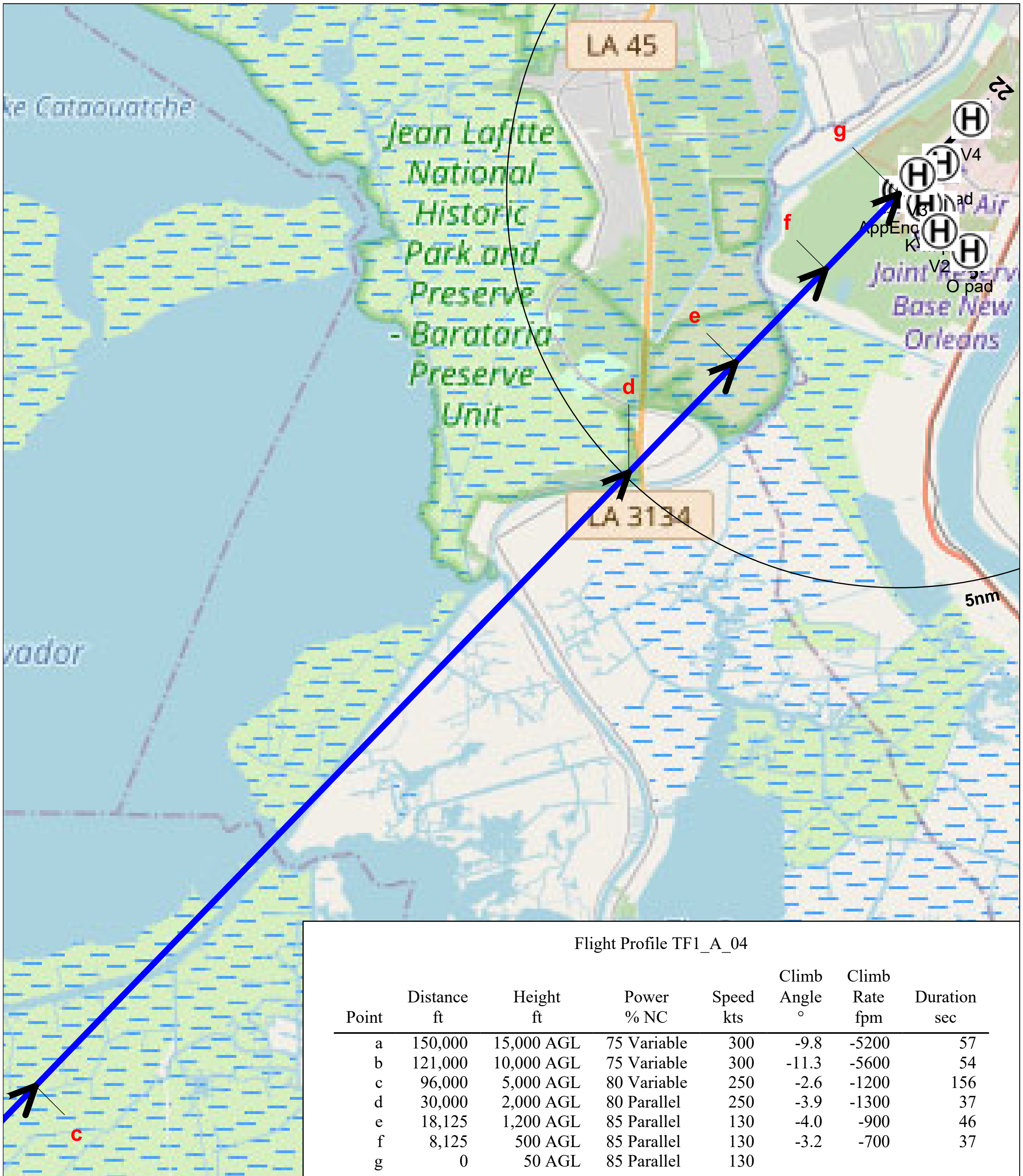
0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Scale in Feet 1:46,700 (1 inch = 3,890 feet)

This page intentionally left blank.

Transient Fighter 1 (Modeled as F-18E/F)

This page intentionally left blank.



Flight Profile TF1_A_04

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	150,000	15,000 AGL	75 Variable	300	-9.8	-5200	57
b	121,000	10,000 AGL	75 Variable	300	-11.3	-5600	54
c	96,000	5,000 AGL	80 Variable	250	-2.6	-1200	156
d	30,000	2,000 AGL	80 Parallel	250	-3.9	-1300	37
e	18,125	1,200 AGL	85 Parallel	130	-4.0	-900	46
f	8,125	500 AGL	85 Parallel	130	-3.2	-700	37
g	0	50 AGL	85 Parallel	130			

Transient Fighter 1 - Flight Profile TF1_A_04

On Runway 4 - Runway 4, Flight Track T-SI-04

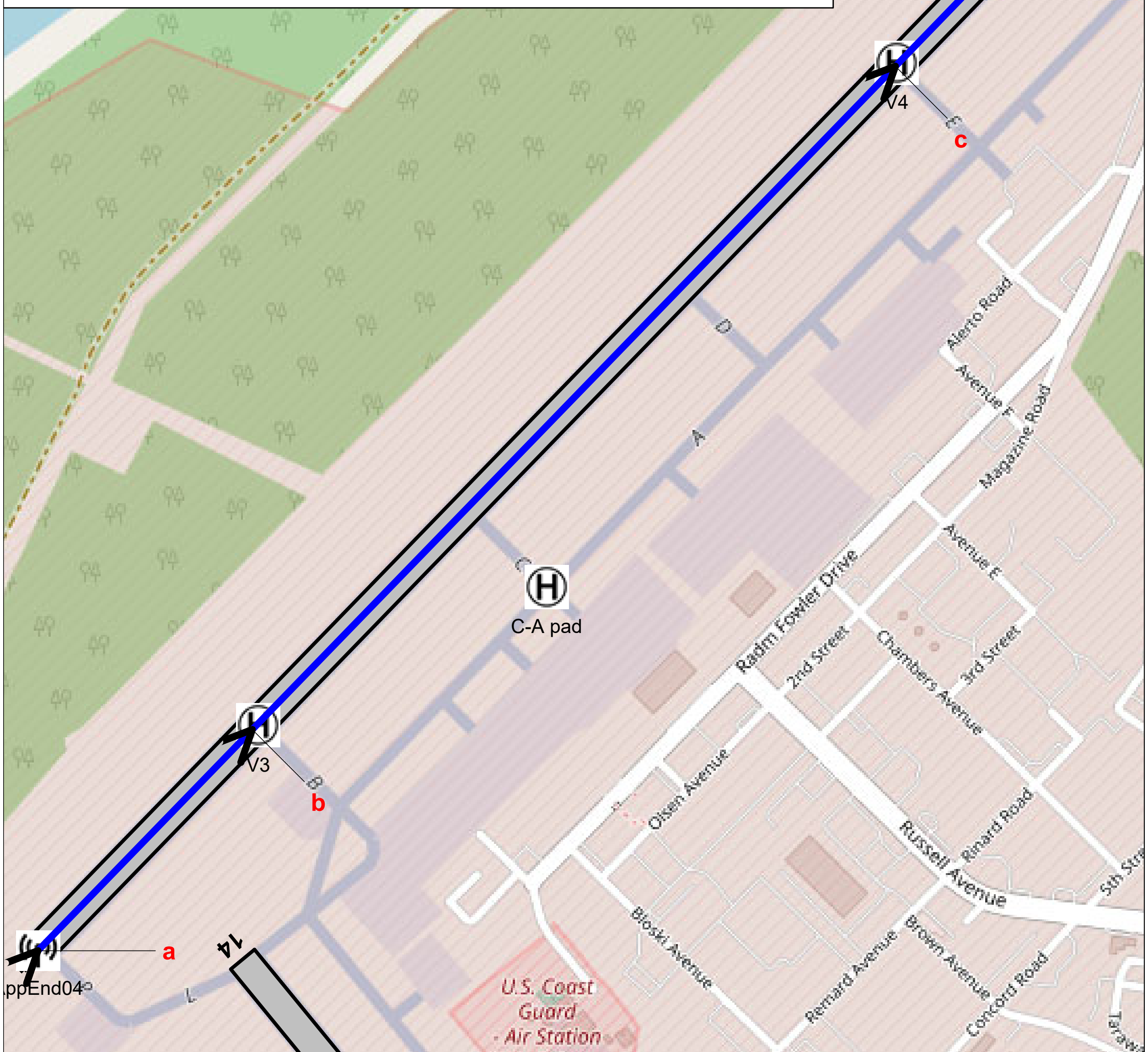
0 10,000 20,000 30,000 40,000 50,000

Scale in Feet 1:167,000 (1 inch = 14,000 feet)

N

Flight Profile TF1_D_04

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	0	0 AGL	97 Min A/B	0	0.0	0	18
b	2,000	0 AGL	97 Afterburner	135	9.5	3200	18
c	8,000	1,000 AGL	96 Variable	250	21.8	11100	3
d	9,250	1,500 AGL	95 Variable	300	17.2	9400	105
e	62,500	18,000 AGL	84 Variable	300	0.0	0	173
f	150,000	18,000 AGL	84 Variable	300			



Transient Fighter 1 - Flight Profile TF1_D_04

On Runway 4 - Runway 4, Flight Track T-Dept-S-04

0 1,000 2,000 3,000 4,000 5,000

Scale in Feet 1:15,800 (1 inch = 1,320 feet)

N

Transient Fighter 2 (Modeled as F-16C)

This page intentionally left blank.

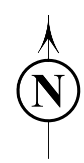
Flight Profile TF2_A_04

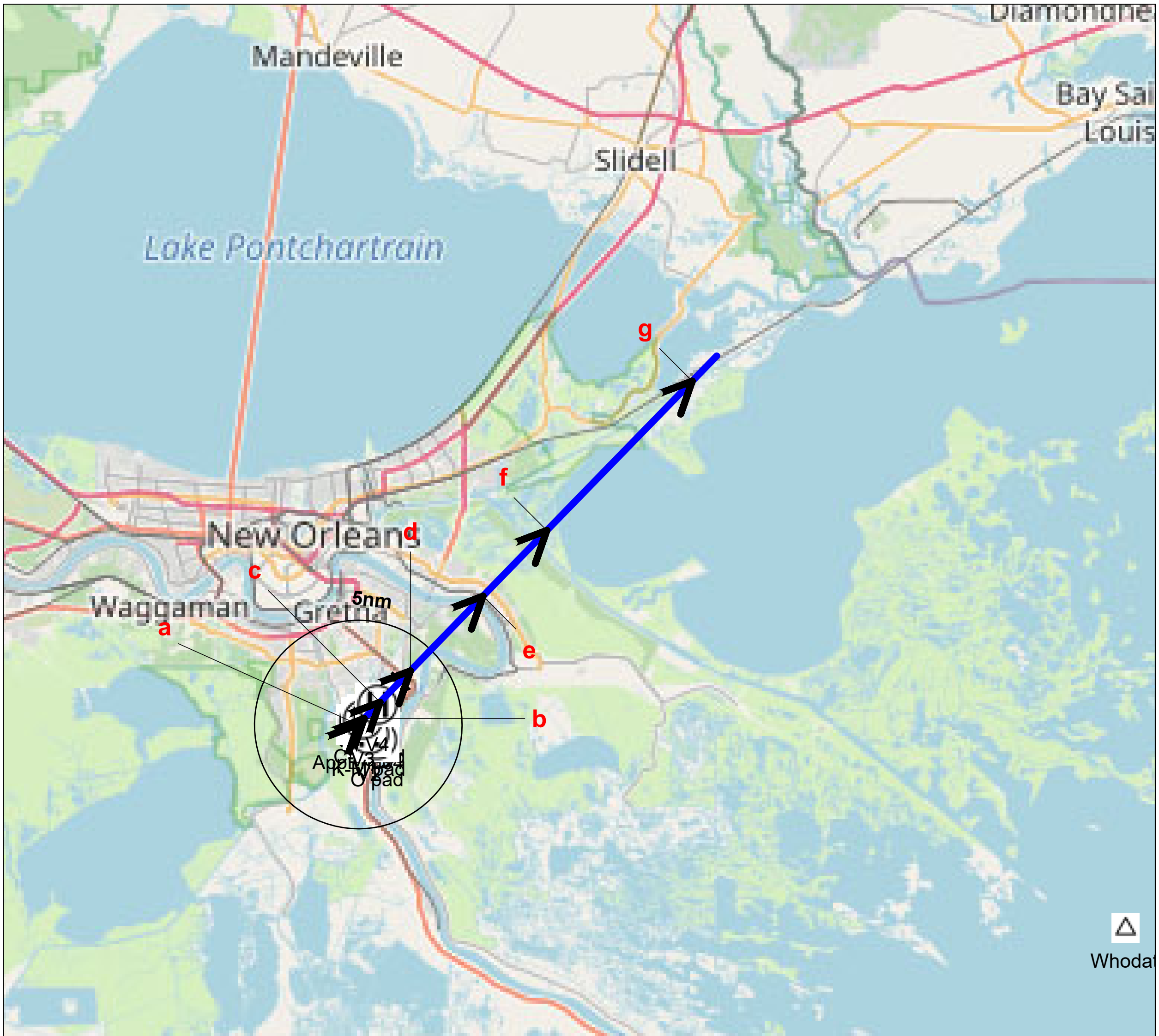
Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	150,000	10,000 MSL	80 Variable	350	-5.2	-2800	152	
b	73,057	3,000 MSL	70 Variable	250	-3.1	-1200	51	
c	54,685	2,000 MSL	80 Variable	180	0.0	0	78	
d	31,596	2,000 MSL	80 Variable	170	-3.8	-1100	92	FAF MARA
e	6,076	300 AGL	80 Variable	160	-2.5	-700	23	
f	0	30 AGL	70 Variable	150				

Transient Fighter 2 - Flight Profile TF2_A_04

On Runway 4 - Runway 4, Flight Track T-SI-04

Scale in Feet 1:358,000 (1 inch = 29,800 feet)





Flight Profile TF2_D_04

Point	Distance ft	Height ft	Power % NC	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	0	0 AGL	104 Max A/B	0	0.0	0	18
b	2,491	0 AGL	105 Afterburner	160	6.9	2800	17
c	9,114	800 AGL	104 Variable	300	9.8	5700	23
d	21,874	3,000 MSL	95 Variable	350	13.0	8200	51
e	52,255	10,000 MSL	80 Variable	350	0.0	0	45
f	78,990	10,000 MSL	85 Variable	350	9.3	5800	103
g	139,751	20,000 MSL	80 Variable	350			

Transient Fighter 2 - Flight Profile TF2_D_04

On Runway 4 - Runway 4, Flight Track T-Dept-S-04

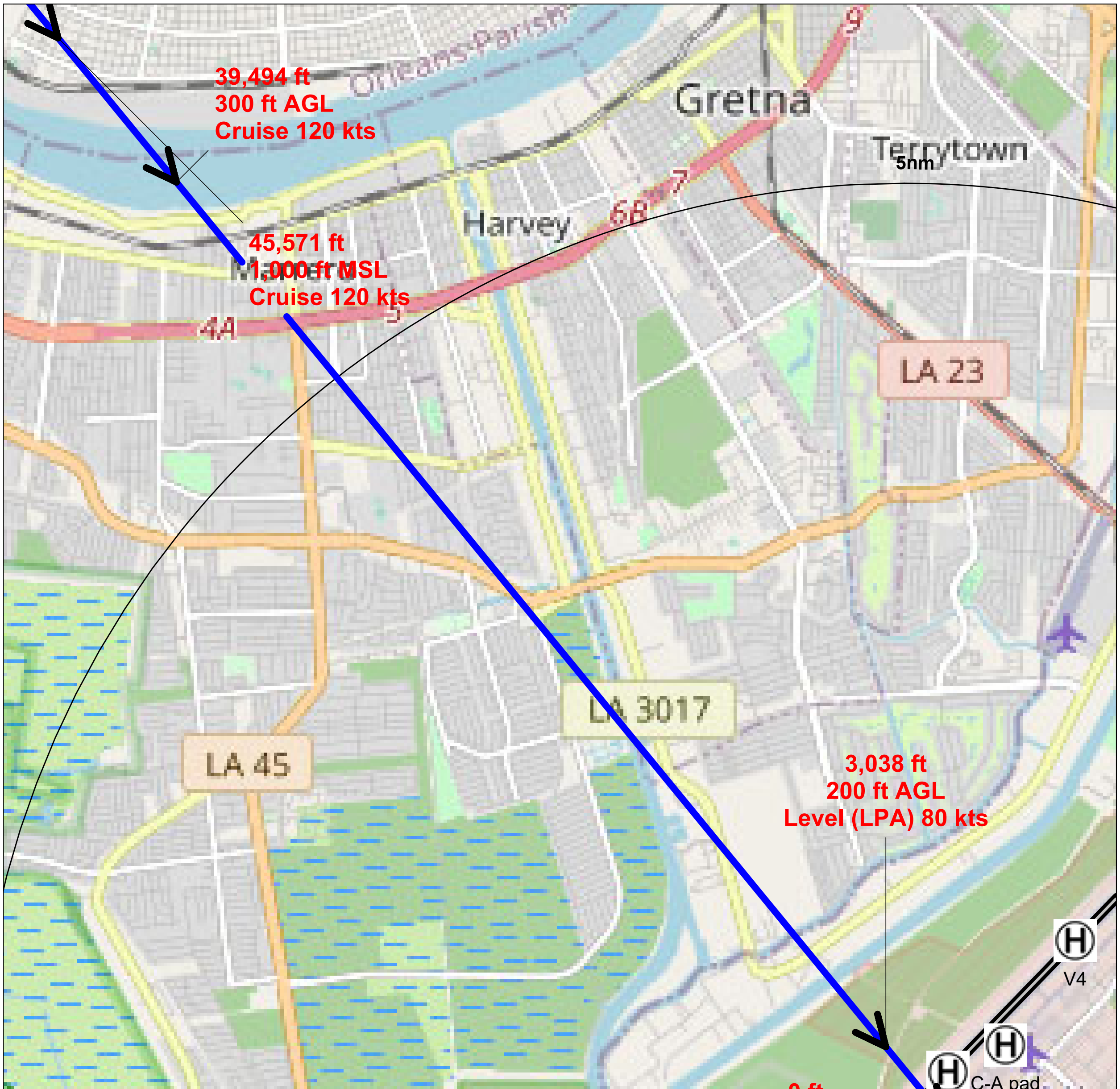
0 40,000 80,000 120,000 160,000 200,000

Scale in Feet 1:717,000 (1 inch = 59,800 feet)

N

Transient Heavy Helo (Modeled as CH-53E)

This page intentionally left blank.



Flight Profile THH_A_14

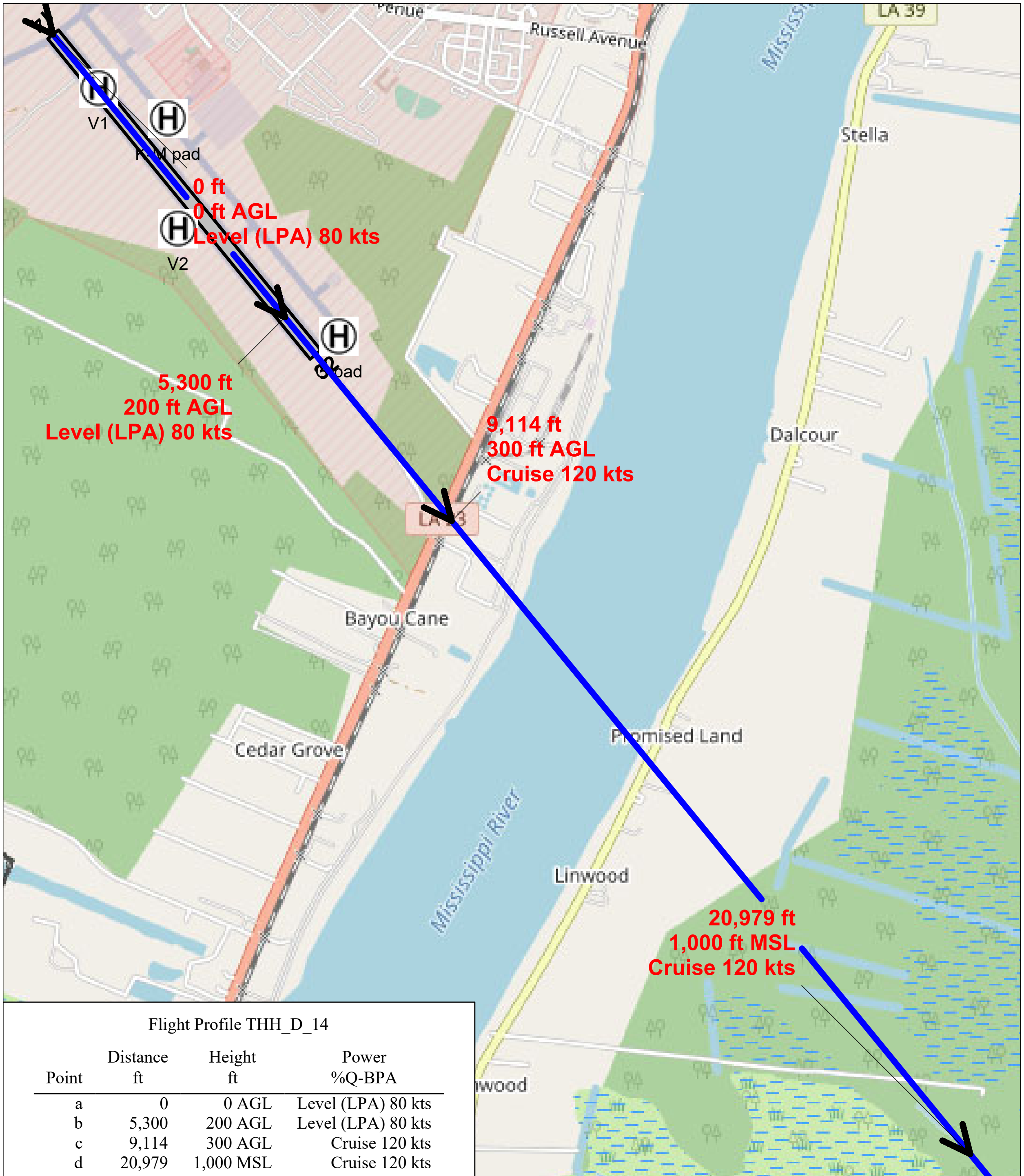
Point	Distance ft	Height ft	Power %Q-BPA
a	45,571	1,000 MSL	Cruise 120 kts
b	39,494	300 AGL	Cruise 120 kts
c	3,038	200 AGL	Level (LPA) 80 kts
d	0	0 AGL	Level (LPA) 80 kts

Transient Heavy Helo - Flight Profile THH_A_14
On Runway 14 - Runway 14, Flight Track T-SI-14

0 4,000 8,000 12,000 16,000 20,000 24,000

Scale in Feet 1:77,400 (1 inch = 6,450 feet)

N



Flight Profile THH_D_14

Point	Distance ft	Height ft	Power %Q-BPA
a	0	0 AGL	Level (LPA) 80 kts
b	5,300	200 AGL	Level (LPA) 80 kts
c	9,114	300 AGL	Cruise 120 kts
d	20,979	1,000 MSL	Cruise 120 kts

Transient Heavy Helo - Flight Profile THH_D_14

On Runway 14 - Runway 14, Flight Track T-Dept-S-14

0 2,000 4,000 6,000 8,000 10,000

Scale in Feet 1:31,500 (1 inch = 2,620 feet)

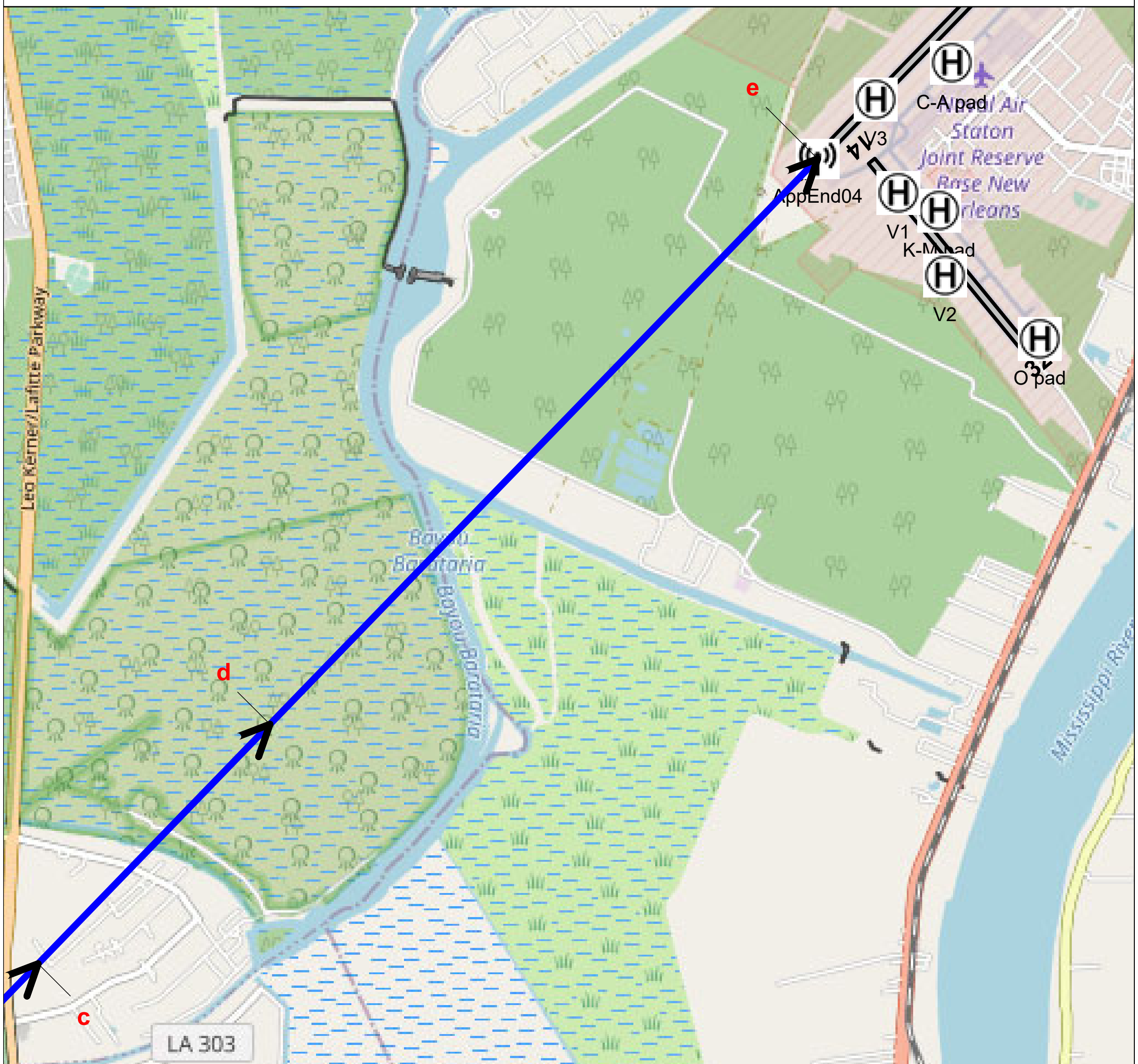
N

Transient Heavy Jet (Modeled as B-737-700)

This page intentionally left blank.

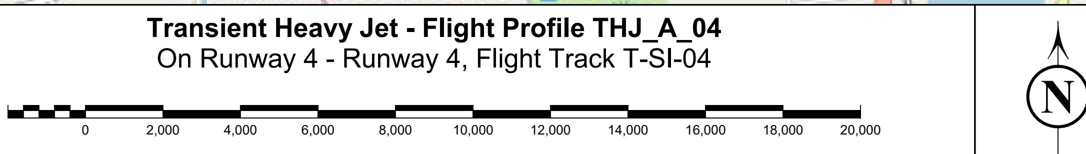
Flight Profile THJ_A_04

Point	Distance ft	Height ft	Power LBS	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	150,000	8,000 AGL	5530 Variable	220	0.0	0	60	
b	127,786	8,000 AGL	4610 Variable	220	-3.7	-1300	297	
c	27,616	1,500 AGL	5530 Parallel	180	-3.8	-1100	31	entering class D, 1500 ft AGL, gear down
d	19,403	955 AGL	5530 Parallel	135	-2.7	-600	85	
e	0	50 AGL	5530 Parallel	135				



Transient Heavy Jet - Flight Profile THJ_A_04

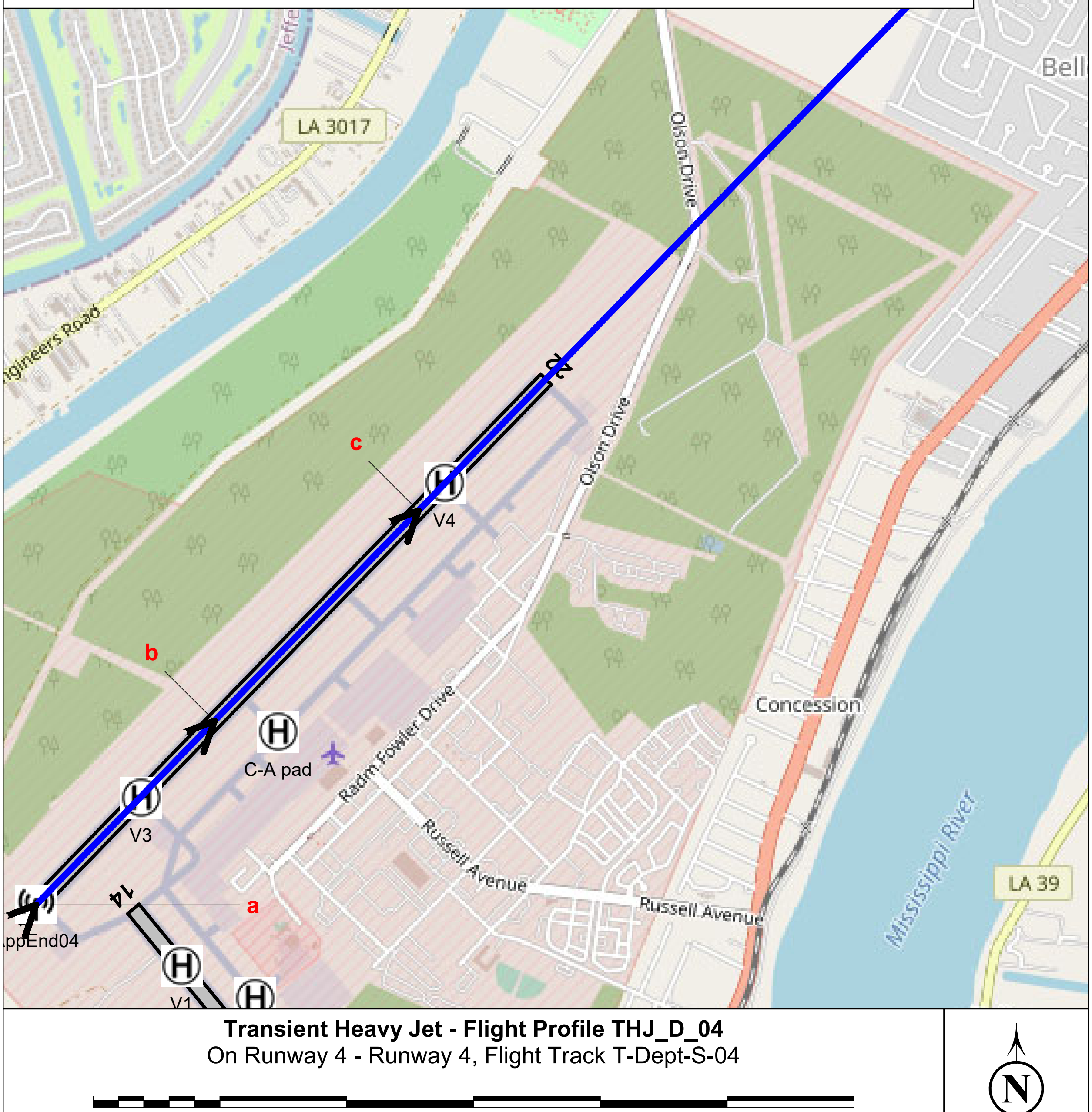
On Runway 4 - Runway 4, Flight Track T-SI-04



Scale in Feet 1:59,400 (1 inch = 4,950 feet)

Flight Profile THJ_D_04

Point	Distance ft	Height ft	Power LBS	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	0 AGL	23534 19000 Lbs	0	0.0	0	28	No preflight run-up
b	3,500	0 AGL	19204 19000 Lbs	148	5.7	1700	14	
c	7,500	400 AGL	19513 19000 Lbs	180	7.3	2500	38	
d	20,000	2,000 AGL	17941 19000 Lbs	210	6.3	2400	153	
e	74,166	8,000 AGL	17244 Variable	210	0.0	0	214	
f	150,000	8,000 AGL	17244 Variable	210				

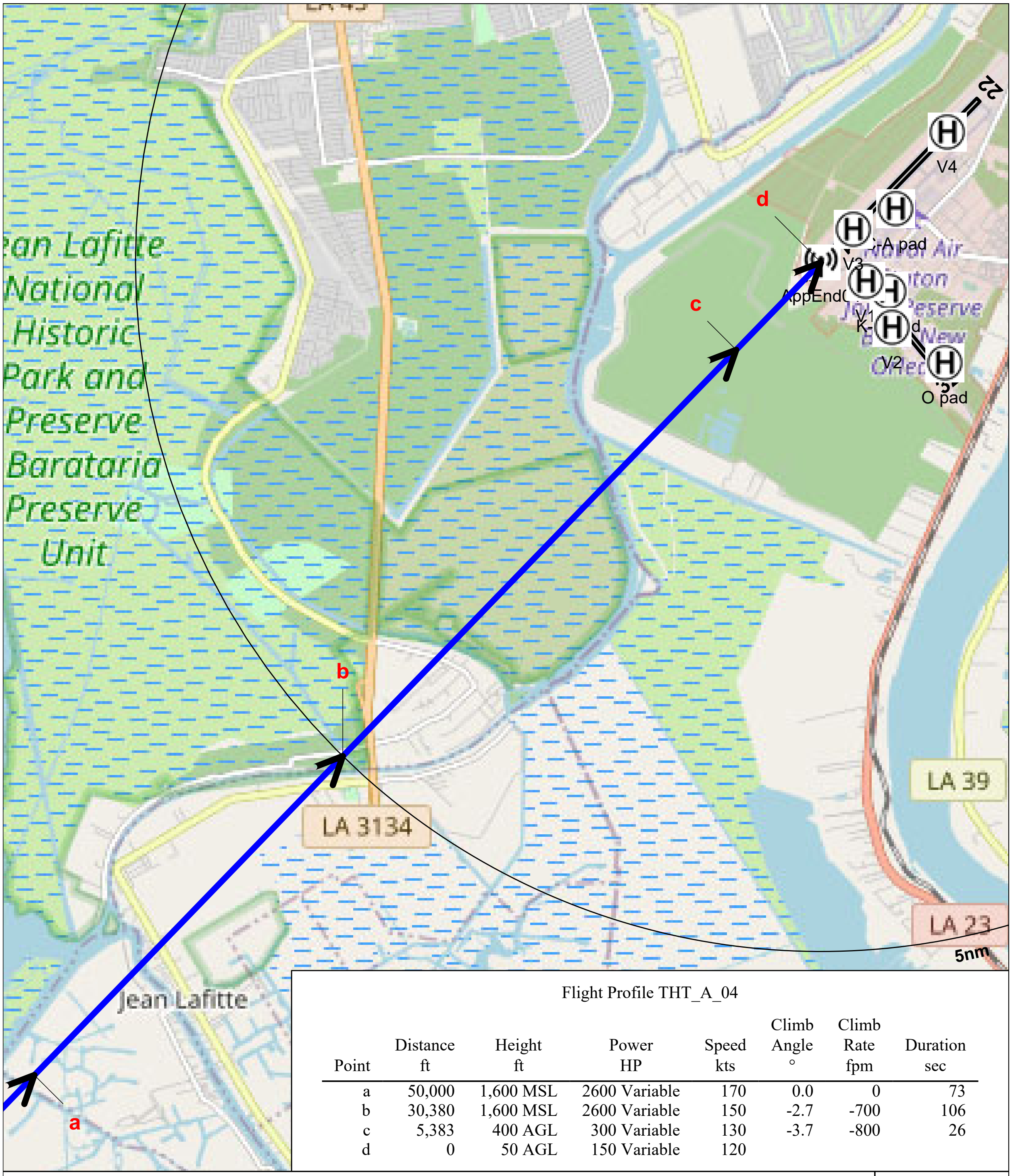


Transient Heavy Jet - Flight Profile THJ_D_04
On Runway 4 - Runway 4, Flight Track T-Dept-S-04

Scale in Feet 1:31,600 (1 inch = 2,630 feet)

Transient Heavy Turboprop (Modeled as C-130J)

This page intentionally left blank.



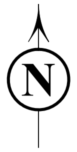
Flight Profile THT_A_04

Point	Distance ft	Height ft	Power HP	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	50,000	1,600 MSL	2600 Variable	170	0.0	0	73
b	30,380	1,600 MSL	2600 Variable	150	-2.7	-700	106
c	5,383	400 AGL	300 Variable	130	-3.7	-800	26
d	0	50 AGL	150 Variable	120			

Transient Heavy Turboprop - Flight Profile THT_A_04

On Runway 4 - Runway 4, Flight Track T-SI-04

Scale in Feet 1:94,800 (1 inch = 7,900 feet)



Flight Profile THT_D_04

Point	Distance ft	Height ft	Power HP	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	0	0 AGL	4600 Variable	0	0.0	0	31
b	3,000	0 AGL	4600 Variable	115	21.8	5400	9
c	5,000	800 AGL	4600 Variable	150	8.0	2400	19
d	10,382	1,560 AGL	4600 Variable	180	13.1	4300	10
e	13,500	2,290 MSL	4600 Variable	180	2.5	800	16
f	18,228	2,500 MSL	4600 Variable	180	0.0	0	16
g	22,977	2,500 MSL	4600 Variable	180	0.7	300	112
h	62,648	3,000 MSL	3800 Variable	240			

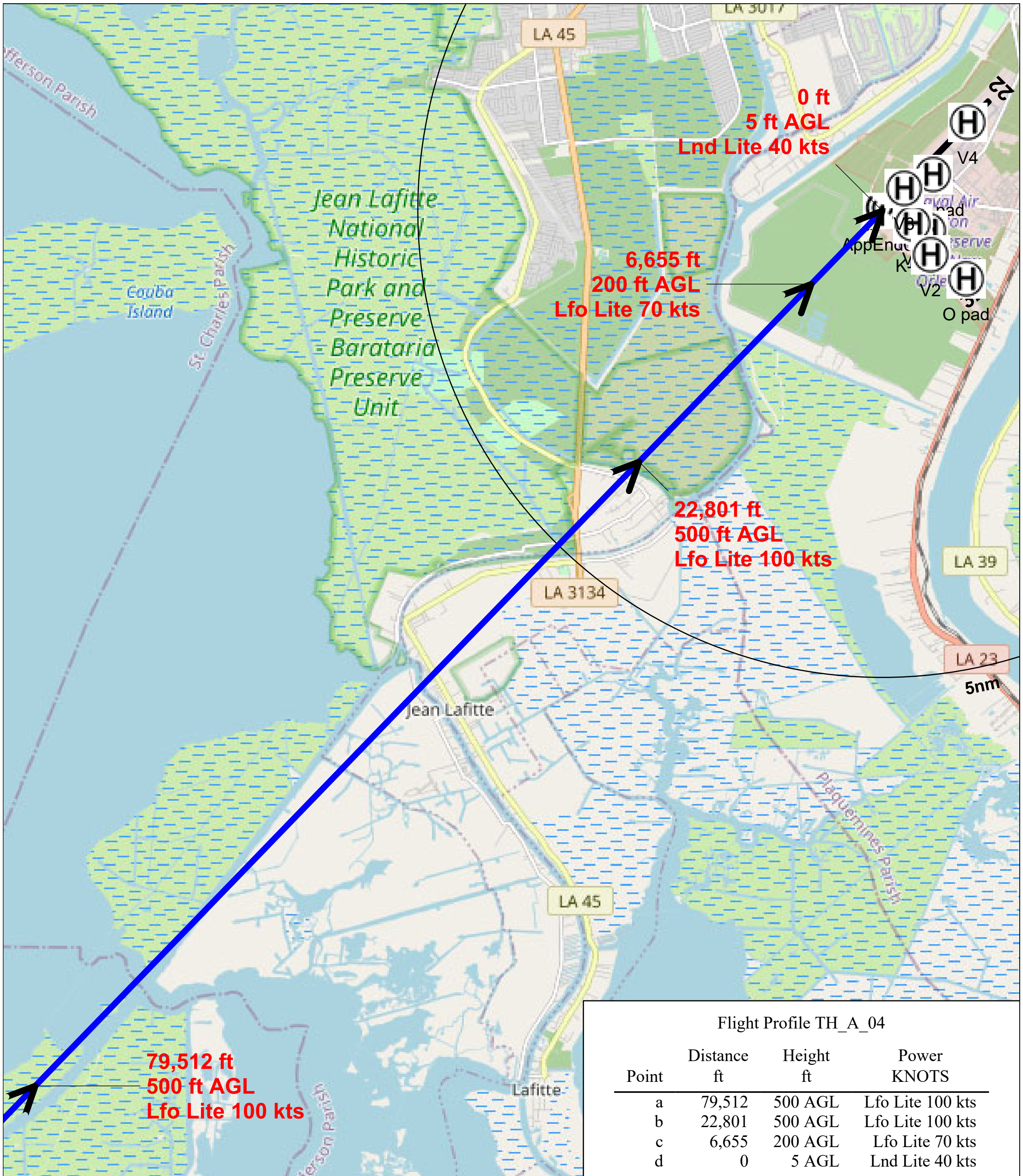
Transient Heavy Turboprop - Flight Profile THT_D_04

On Runway 4 - Runway 4, Flight Track T-Dept-S-04

Scale in Feet 1:99,100 (1 inch = 8,260 feet)

Transient Helo (Modeled as UH60A)

This page intentionally left blank.



Flight Profile TH_A_04

Point	Distance ft	Height ft	Power KNOTS
a	79,512	500 AGL	Lfo Lite 100 kts
b	22,801	500 AGL	Lfo Lite 100 kts
c	6,655	200 AGL	Lfo Lite 70 kts
d	0	5 AGL	Lnd Lite 40 kts

Transient Helo - Flight Profile TH_A_04

On Runway 4 - Runway 4, Flight Track T-SI-04

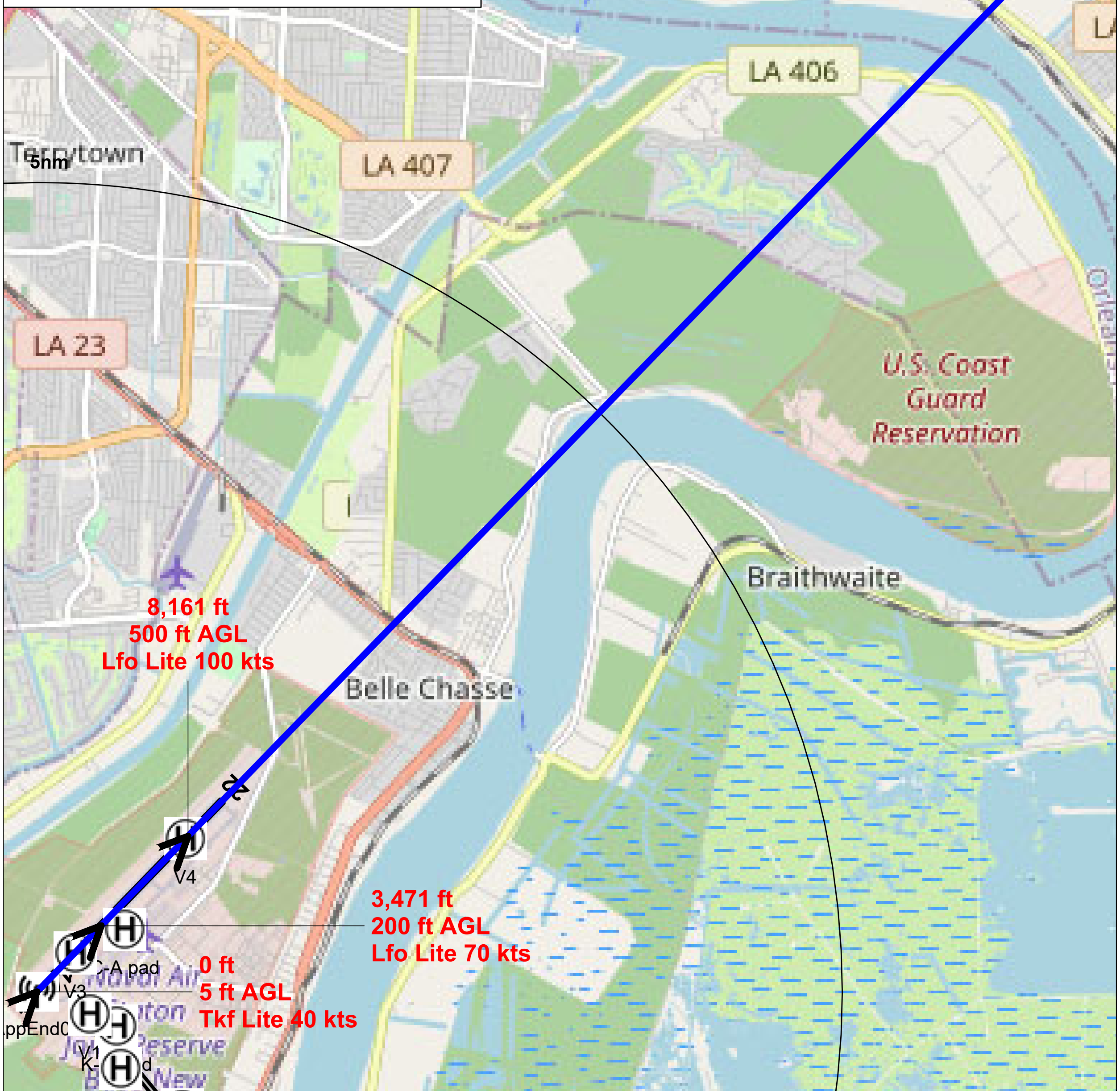
0 4,000 8,000 12,000 16,000 20,000 24,000 28,000 32,000 36,000 40,000 44,000 48,000

Scale in Feet 1:141,000 (1 inch = 11,800 feet)

N

Flight Profile TH_D_04

Point	Distance ft	Height ft	Power KNOTS
a	0	5 AGL	Tkf Lite 40 kts
b	3,471	200 AGL	Lfo Lite 70 kts
c	8,161	500 AGL	Lfo Lite 100 kts
d	56,479	500 AGL	Lfo Lite 100 kts



Transient Helo - Flight Profile TH_D_04

On Runway 4 - Runway 4, Flight Track T-Dept-S-04

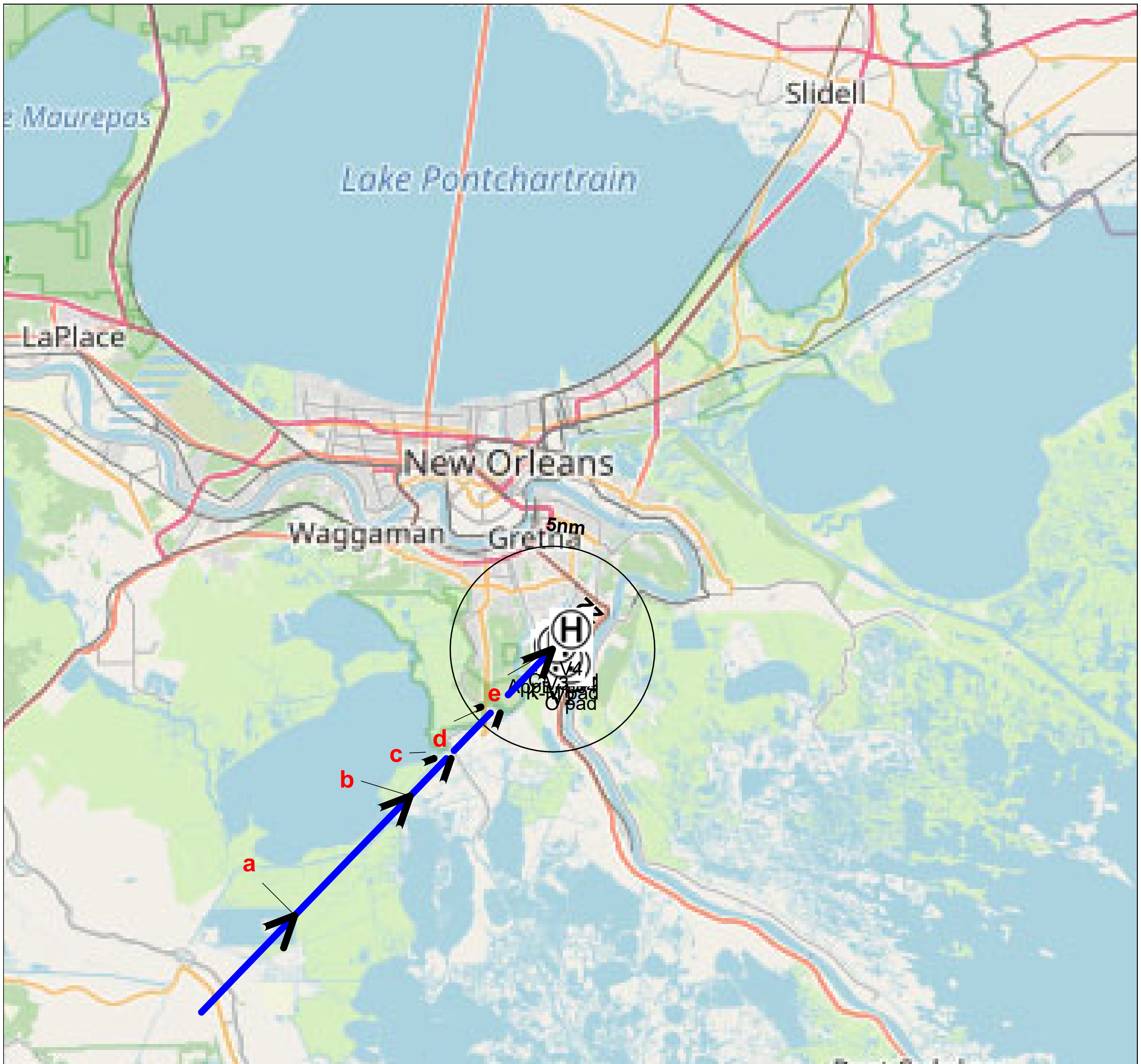
0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:89,300 (1 inch = 7,440 feet)

N

Transient Light Jet (Modeled as Citation X)

This page intentionally left blank.



Flight Profile TLJ_A_04

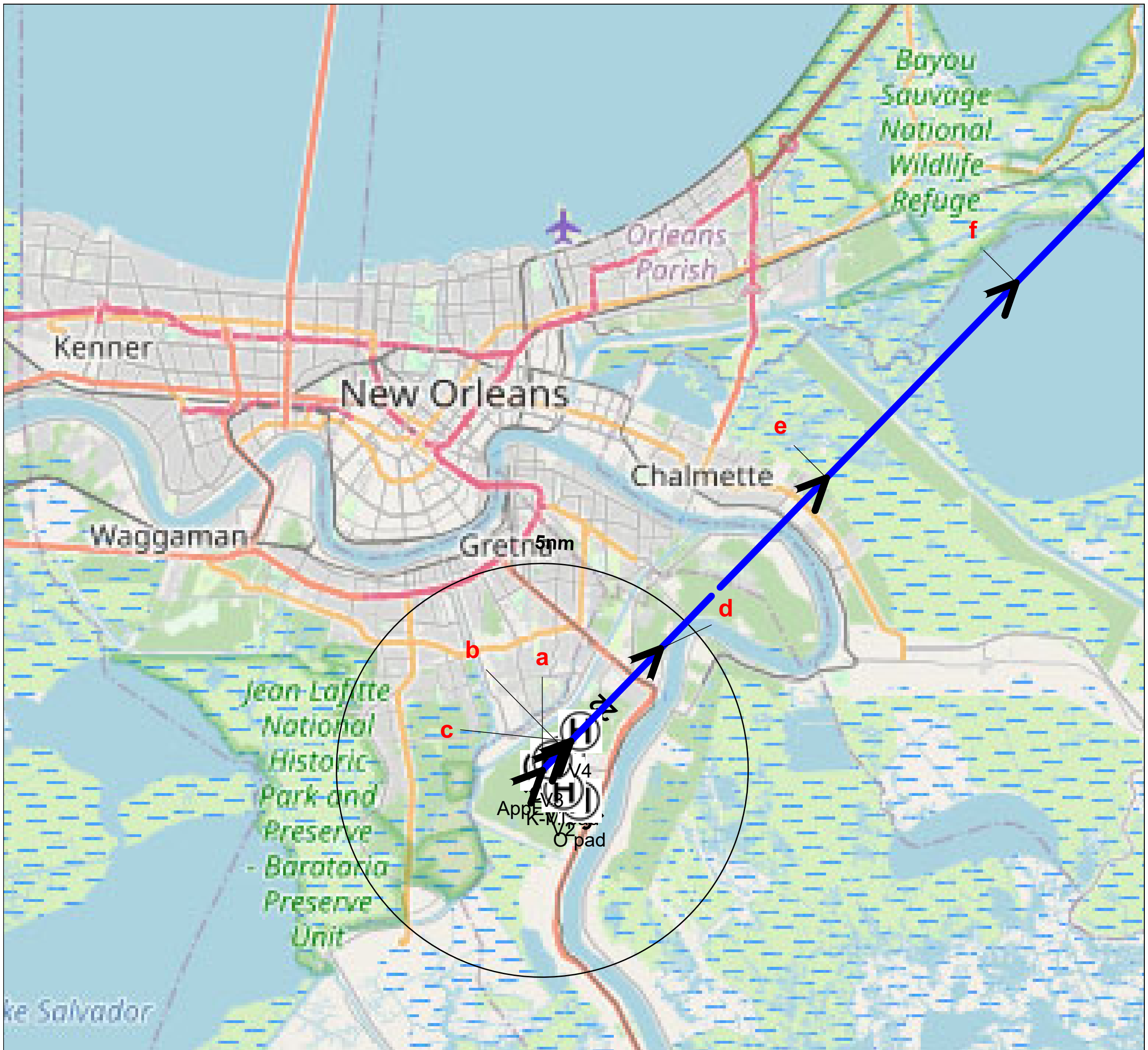
Point	Distance ft	Height ft	Power LBS	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	110,000	6,000 MSL	1000 Variable	300	-3.9	-1600	127	
b	60,705	2,600 MSL	2000 Variable	160	0.0	0	73	level at 2600' MSL prior to initial point
c	42,099	2,600 MSL	2000 Variable	140	-4.1	-1000	97	Initial at pt B
d	20,000	1,000 MSL	3000 Variable	130	-2.7	-600	91	Catch 3 deg glide slope
e	0	50 AGL	3000 Variable	130				threshold crossing

Transient Light Jet - Flight Profile TLJ_A_04

On Runway 4 - Runway 4, Flight Track T-SI-04

0 40,000 80,000 120,000 160,000 200,000

Scale in Feet 1:717,000 (1 inch = 59,800 feet)

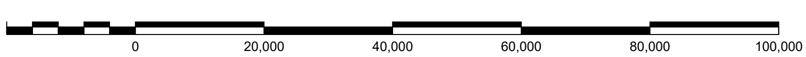


Flight Profile TLJ_D_04

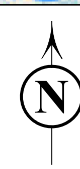
Point	Distance ft	Height ft	Power LBS	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec	Notes
a	0	0 AGL	6000 Variable	0	0.0	0	36	
b	4,500	0 AGL	6000 Variable	150	7.6	2000	6	rotate
c	6,000	200 AGL	5000 Variable	150	6.0	1800	66	reach 200 ft AGL
d	25,000	2,200 MSL	5000 Variable	190	6.2	2500	90	
e	60,000	6,000 MSL	4500 Variable	270	5.7	2900	83	
f	100,000	10,000 MSL	4500 Variable	300				

Transient Light Jet - Flight Profile TLJ_D_04

On Runway 4 - Runway 4, Flight Track T-Dept-S-04

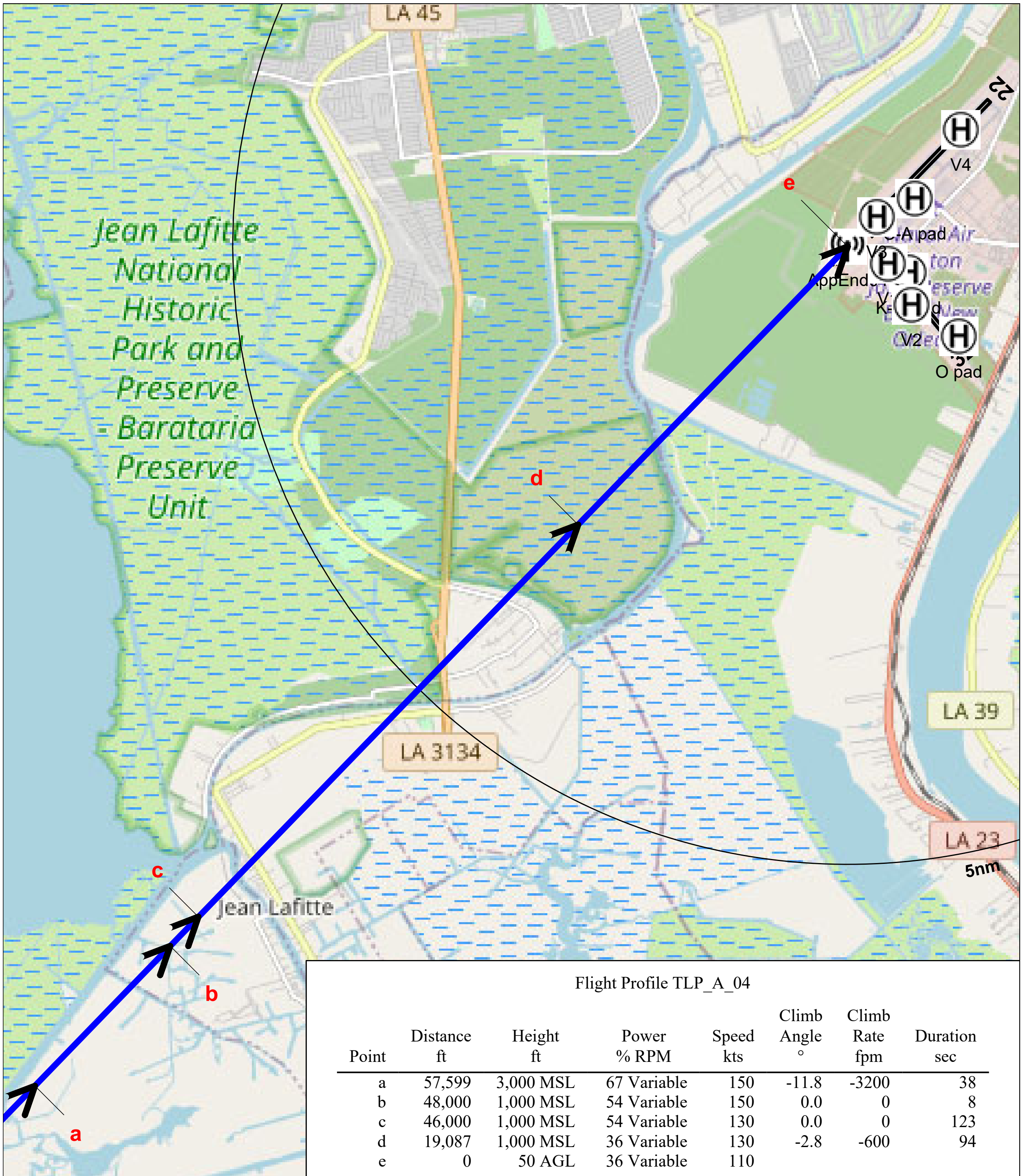


Scale in Feet 1:358,000 (1 inch = 29,800 feet)



Transient Light Prop (Modeled as C-12)

This page intentionally left blank.



Flight Profile TLP_A_04

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	57,599	3,000 MSL	67 Variable	150	-11.8	-3200	38
b	48,000	1,000 MSL	54 Variable	150	0.0	0	8
c	46,000	1,000 MSL	54 Variable	130	0.0	0	123
d	19,087	1,000 MSL	36 Variable	130	-2.8	-600	94
e	0	50 AGL	36 Variable	110			

Transient Light Prop - Flight Profile TLP_A_04
On Runway 4 - Runway 4, Flight Track T-SI-04

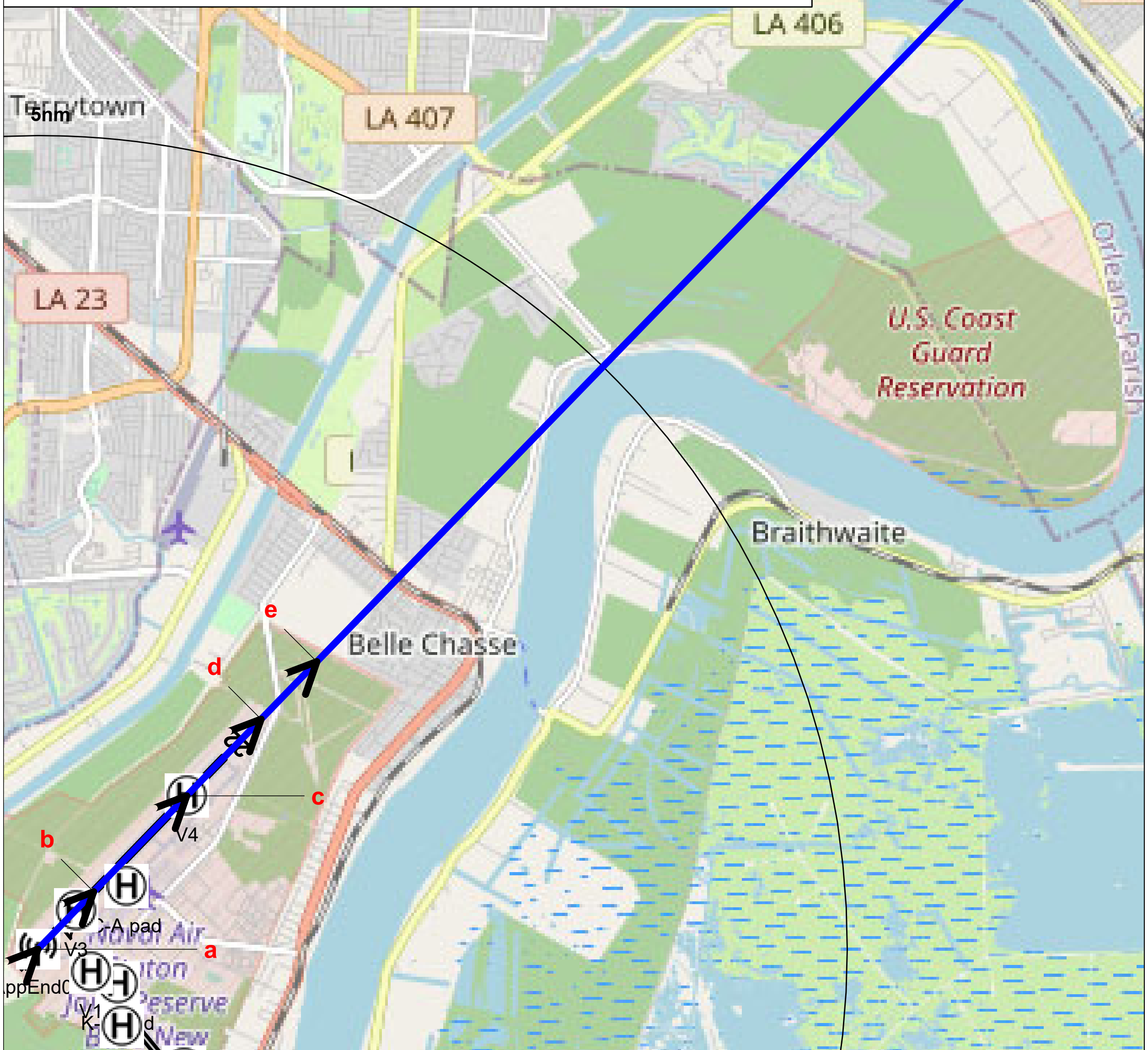
0 4,000 8,000 12,000 16,000 20,000 24,000 28,000 32,000 36,000

Scale in Feet 1:107,000 (1 inch = 8,900 feet)

N

Flight Profile TLP_D_04

Point	Distance ft	Height ft	Power % RPM	Speed kts	Climb Angle °	Climb Rate fpm	Duration sec
a	0	0 AGL	98.1 Variable	0	0.0	0	36
b	3,000	0 AGL	100 Variable	100	5.7	1300	24
c	8,000	500 AGL	100 Variable	150	7.1	1900	16
d	12,000	1,000 MSL	100 Variable	150	0.0	0	11
e	15,000	1,000 MSL	67 Variable	170	0.0	0	148
f	57,599	1,000 MSL	67 Variable	170			



Transient Light Prop - Flight Profile TLP_D_04

On Runway 4 - Runway 4, Flight Track T-Dept-S-04

0 4,000 8,000 12,000 16,000 20,000 24,000 28,000

Scale in Feet 1:91,100 (1 inch = 7,590 feet)

N