

115 FW - MADISON, WI



WI1.0 115TH FIGHTER WING INSTALLATION OVERVIEW

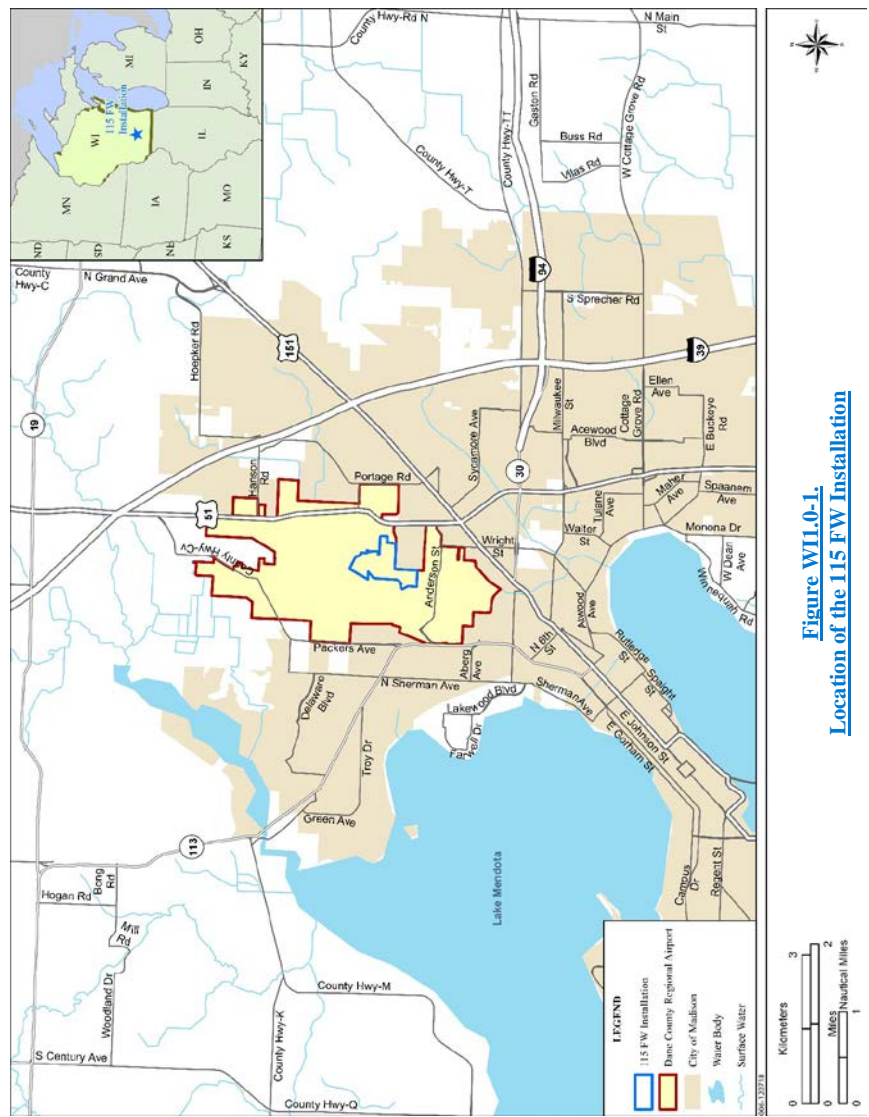
This section presents an overview of the 115th Fighter Wing (115 FW), Madison, Wisconsin; the specifics of the Proposed Action as it relates to both the airfield and the associated airspace; construction and facility modifications required at the installation; and changes to personnel that would result if the F-35A was beddown at the 115 FW installation.

The 115 FW installation (also known as Truax Field) of the Wisconsin Air National Guard (WIANG) is located within the boundaries of Dane County Regional Airport, Wisconsin (Figure WI1.0-1). The installation is approximately 5 miles northeast of the Madison central business district. The 115 FW installation is approximately 155 acres in size (comprised of federally fee-owned land and land leased from Dane County, both of which are licensed by the federal government to the state of Wisconsin for use by the WIANG) and has over 40 buildings/structures (WIANG 2017).

The 115 FW is tasked to carry out ~~two distinct~~[both federal and state](#) missions. The federal mission is to staff and train flying and support units to augment Air Combat Command's (ACC's) general-purpose fighter forces to effectively and rapidly deliver F-16 combat power anywhere in the world to perform wartime or peacetime missions, as well as operations other than war. Additionally, the 115 FW provides an Aerospace Control Alert commitment for the region under the North American Aerospace Defense Command and in cooperation with civilian aviation and law enforcement agencies. The 115 FW maintains mobilization readiness and conducts training in support of Total Force capabilities as directed by gaining commands. The state mission is to provide trained and equipped units to protect life and property and to preserve peace, order, and public safety as directed by the Governor of Wisconsin (WIANG 2017). ~~The 115 FW currently operates 18 F-16C/D Primary Aircraft Authorized (PAA) aircraft and 1 RC-26B aircraft.~~

In the sections that follow, WI2.0 presents the installation-specific description of the Proposed Action at the 115 FW installation. Section WI3.0 addresses the affected environment and environmental consequences that could result if the 115 FW installation was selected as one of the F-35A beddown locations. Refer to Chapter 3 for a complete and detailed definition of resources and the methodology applied to identify potential impacts. Section WI4.0 identifies other, unrelated past, present, and reasonably foreseeable future actions in the affected environment and evaluates whether these actions would cause cumulatively significant effects when considered along with the F-35A beddown actions. This section also represents the irreversible and irretrievable resources that would be committed if the beddown was implemented at the 115 FW installation.





WI2.0 115TH FIGHTER WING ALTERNATIVE-

WI2.1 —115TH FIGHTER WING INSTALLATION

There are four components of this action at the 115 FW installation: (1) conversion from F-16s to F-35As, (2) operations conducted by F-35A aircraft, (3) construction and modification projects to support beddown of the F-35A, and (4) personnel changes to meet F-35A requirements. Each element is explained in more detail below.

WI2.1.1- Aircraft Conversion

Under this alternative, 18 F-35A aircraft would be based at the 115 FW installation. The beddown would begin in 2023 with delivery of the first F-35A aircraft. The full complement of 18 F-35As would be based at the installation by 2024. Drawdown of the 115 FW's F-16Cs would ~~match~~be complete approximately 6 months before the arrival of the ~~F-35As approximately on a one-for-one basis~~35A.

WI2.1.2- Airfield Operations

The 115 FW is an integral component of the Combat Air Forces (CAF). The CAF defends the homeland of the U.S., as well as deploys forces worldwide to meet threats to ensure the security of the U.S. To fulfill this role, the 115 FW pilots must train as they would fight.

Under this alternative, the National Guard Bureau (NGB) anticipates that by 2024, all 18 F-35A aircraft would be flying up to 6,222 operations per year at the airfield, compared to 4,900 annual operations currently with the F-16C (Table WI2.1-1). Additionally, 968 F-16C annual airfield operations would be expected to continue temporarily to fulfill the alert mission while the F-35A becomes mission capable. This would represent a 47 percent increase in 115 FW operations at the airfield. Once the alert mission transfers to the F-35A, the additional 968 operations would be reduced to zero and the alert sorties would then be inclusive in the 6,222 annual F-35A operations. This would represent a 27 percent increase in 115 FW operations over the long term. In total, Dane County Regional Airport currently supports about 89,885 operations annually (including the military operations), with approximately 90 percent consisting of commercial and civilian flights operating 365 days per year. Based on proposed requirements and deployment patterns under CAF, the F-35A operational aircraft would fly some operations for exercises at other locations during deployments or in preparation for deployments. During such periods, home station flying operations would be reduced accordingly. Some of the home station missions could involve inert ordnance delivery training (within the scope of existing National Environmental Policy Act [NEPA] documentation) at approved ranges.

Table WI2.1-1. Current and Proposed Annual Airfield Operations at Dane County Regional Airport

	<i>Total Current Operations</i>	<i>Proposed F-35A Operations</i>
Based F-16	4,900	968 ¹
Proposed F-35A	-	6,222
Other Aircraft	84,985	84,985
Total Airfield Operations	89,885	92,175
Percent Change at Airfield	N/A	3%

Note: ¹The alert mission would continue to be flown by up to four F-16 aircraft at Dane County Regional Airport on a temporary basis for an undetermined period of time.

Legend: N/A = not applicable.

Under this alternative, total 115 FW annual airfield operations would be expected to increase from 4,900 to 7,190, which includes the proposed F-35A and the F-16 aircraft that would continue to be expected to support the alert mission for an undetermined period of time, which would result in an increase in 115 FW operations of 47 percent, until the F-35A took over the alert mission. This change would represent an approximate 3 percent increase in total aircraft operations at the airfield.

The F-35As would employ the same departure and landing flight tracks as currently used by the F-16Cs. The 115 FW currently uses afterburner on approximately 60 percent of their take-offs at the airfield, but because the F-35A has much more thrust in military power than the F-16, the use of afterburner would be expected to be very limited. NGB anticipates that the F-35A may use afterburner for take-offs no more than 5 percent of the time. F-35A operations would adhere to existing restrictions, and noise abatement procedures currently in place at Dane County Regional Airport, which includes avoidance of Yahara River overflight below 2,000 feet. The F-16C at Dane County Regional Airport currently fly 3 percent of the time between the hours of 10 p.m. and 7 a.m. (environmental night). At this percentage, the F-16C annually fly about 168 operations during environmental nighttime hours, with the majority of the operations after 10 p.m. being associated with arrivals back to the installation. In addition, overseas deployment departures may occur during environmental night, but would be infrequent. In contrast, the civilian and commercial aircraft perform approximately 10 percent of their operations after 10 p.m., or about 8,300 operations per year. The 115 FW would plan to fly a schedule similar to what they currently do with regard to environmental night flights; although contingencies such as weather or special combat mission training may result in rare unplanned operations during this period. Typically, all required “after dark” operations could be achieved prior to 10 p.m.

WI2.1.3- Construction

To support the proposed F-35A operations, additional infrastructure and facilities would be required at the 115 FW installation (Table WI2.1-2). Nineteen infrastructure improvement projects would be needed to support the F-35A beddown. Some of these construction projects also have several options that could be implemented. Table WI2.1-2 describes these projects, the total

affected area in square feet (SF), and new impervious surfaces introduced. Figure WI2.1-1 identifies the construction locations for each project within the installation. It is anticipated that construction would occur between 2020 and 2023.

Table WI2.1-2. Proposed Construction and Modifications for the 115 FW Installation
(Page 1 of 2)

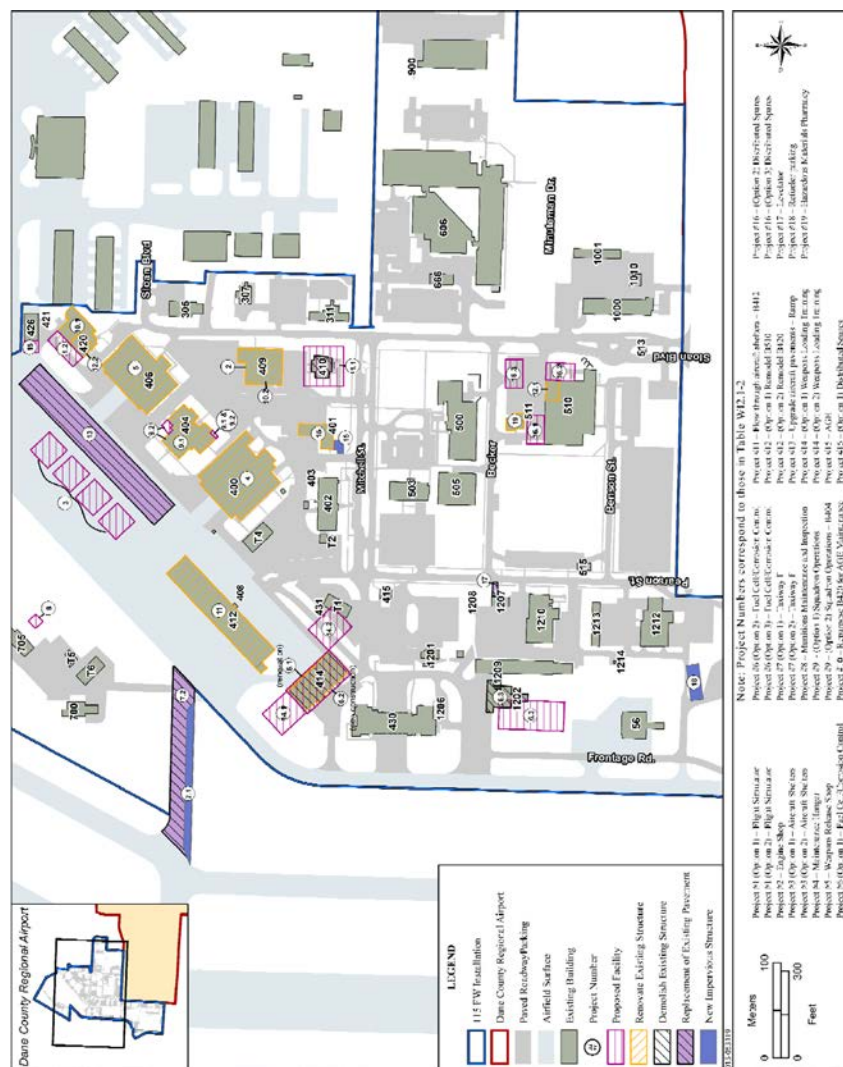
<i>Action</i>	<i>Total Area of New Ground Disturbance (SF)</i>	<i>New Impervious Surface (SF)</i>
Project #1 (Option 1) – Flight Simulator		
Construct a new 19,000 SF flight simulator building located over the current site of B410. Demolish B410 (4,646 SF).	19,000	19,000
Project #1 (Option 2) – Flight Simulator		
Construct a 6,000 SF addition to the northwest side of B420 and internal renovations to B420, including AT/FP upgrade, fire suppression, communications security upgrade, blast analysis, structural modifications to meet UFC compliance.	6,000	6,000
Project #2 – Engine Shop		
Undertake interior renovation of B409, including the modification of the doors to fit a 7-ton Gantry crane.	0	0
Project #3 (Option 1) – Aircraft Shelters		
Add four new aircraft shelters.	24,000	0
Project #3 (Option 2) – Aircraft Shelters		
Add four new aircraft shelters that are fully enclosed.	24,000	0
Project #4 – Maintenance Hangar		
Undertake interior renovations to B400, to include power/air, fall protection, ventilation of battery room, and fire protection.	0	0
Project #5 – Weapons Release Shop		
Conduct interior renovations to B406, to include installing a 1-ton crane, power/air, fall protection, ventilation of battery room, and fire protection.	0	0
Project #6 (Option 1) – Fuel Cell/Corrosion Control		
Undertake interior renovations to B414, including LPS; HVAC; electric; and fire suppression.	0	0
Project #6 (Option 2) – Fuel Cell/Corrosion Control		
This project includes construction of a new 22,700 SF building within the footprint of B414. B414 would be demolished.	23,000	23,000
Project #6 (Option 3) – Fuel Cell/Corrosion Control		
This project includes construction of a new 22,700 SF building within the footprint of the “Hush House” (B1202). The Hush House is a piece of equipment that would be demolished.	22,700	22,700
Project #7 (Option 1) – Taxiway F		
Widen Taxiway F from 50 feet to 75 feet.	15,200	15,200
Project #7 (Option 2) – Taxiway F		
Replace Taxiway F, to include a new Taxiway that is 75 feet wide.	45,600	15,200
Project #8 – Munitions Maintenance and Inspection		
Construct a 1,183 SF munitions maintenance and inspection facility.	1,183	1,183
Project #9 – (Option 1) Squadron Operations		
Undertake interior modifications to B404 F-16 FMS simulator area for ALIS. In addition, a 300 SF addition would be added to B404.	300	300
Project #9 – (Option 2) Squadron Operations – B404		
Construct ALIS 1,000 SF addition to Squadron Operations and remodel interior of B404 to meet mission needs. A 300 SF addition to the southwest corner of B404 would be constructed.	1,300	1,300

Table WI2.1-2. Proposed Construction and Modifications for the 115 FW Installation
(Page 2 of 2)

<i>Action</i>	<i>Total Area of New Ground Disturbance (SF)</i>	<i>New Impervious Surface (SF)</i>
Project #10 – (Option 1) Repurpose B420 for AGE Maintenance		
Remodel interior of B420 for new AGE Maintenance or remodeled Avionics space (B409), assuming Project #1 Option #1 is selected.	0	0
Project #10 – (Option 2) Repurpose B409 for AGE Maintenance		
Remodel interior of Avionics space (B409), assuming Project #1 Option #1 is selected.	0	0
Project #11 – Flow Through Aircraft Shelters – B412		
Undertake interior renovations to B412, including power/air, fall protection, and fire protection.	0	0
Project #12 – Remodel B510 (Option 1)		
Remodel a portion of B510 that would be vacated by the consolidation in XGFG139001 ADAL CERFP Medical MILCON project for Deployable Spares Kit.	3,400	0
Project #12 – Remodel B420 (Option 2)		
Remodel a portion of B420 for Deployable Spares Kit.	3,400	0
Project #13 – Upgrade Aircraft Pavements – Ramp		
Upgrade aircraft pavements to support aircraft taxi as a result of new aircraft shelters (Project 3 – either option).	67,500	0
Project #14 – Weapons Loading Training (Option 1)		
Construct a new weapons loading training facility adjacent to B414.	11,500	0
Project #14 – Weapons Loading Training (Option 2)		
Construct a new weapons loading training facility northwest of facility T1.	11,500	0
Project #15 – AGE		
This project includes a 2,000 SF addition to B426 as well as adding new doors and 1,500 SF of new asphalt driveway to B401.	3,500	3,500
Project #16 – Distributed Spares (Option 1)		
This project includes a 6,000 SF addition to the northeast side of B510.	6,000	1,000
Project #16 – Distributed Spares (Option 2)		
This project includes a 6,000 SF addition to the east side of B510.	6,000	3,000
Project #16 – Distributed Spares (Option 3)		
Construction of a new 6,000 SF facility.	6,000	0
Project #17 – Levelator		
A levelator would be added to the loading dock of B1207. A levelator is an apparatus that connects the truck to the loading dock and helps with the transfer of goods from the truck to the loading dock. In addition, the asphalt adjacent to the building would be replaced.	1,200	0
Project #18 – Refueler parking		
Two parking spots would be added for the refueler vehicles.	5,700	5,700
Project #19 – Hazardous Materials Storage Facility		
Internal renovations to B511 to install new fire suppression system.	0	0

Legend: ADAL = Addition or Alteration; AGE = Aerospace Ground Equipment; ALIS = Autonomic Logistics Information System; AT/FP = Anti-terrorism/Force Protection; B = Building; CERFP = Chemical, Biological, Radiological, Nuclear and High Yield Explosive Enhanced Response Force Package; FMS = Full Mission Simulator; HVAC = heating, ventilation, and air conditioning; LPS = Lightning Protection System; MILCON = military construction; SF = square feet; UFC = Unified Facilities Criteria.





WI2.1.4 Personnel

The 115 FW supports 230 federal technician civilian employees, 183 Active Guard Reserve (AGR), and 701 traditional guardsmen (WIANG 2017). Additionally, there are 22 Total Force Integration airmen, and 67 state employees. It is expected that the overall number of Air National Guard (ANG) personnel at the 115 FW installation would remain effectively static following conversion to the F-35A. There may be some retraining that occurs, but overall, the number of ANG personnel is expected to remain approximately the same as it currently is at the 115 FW installation. However, as a component of this proposal, a U.S. Air Force (USAF) Active Duty Associate Unit would be installed at the two selected alternatives.

The 115 FW currently has a USAF Active Duty Associate Unit of 4 pilots and 17 maintenance staff in place. As a component of the Proposed Action, this USAF Active Duty Associate Unit would be increased to be comprised of up to 5 pilots, 40 maintenance staff, and approximately 5 other support staff. Therefore, the 115 FW would add up to 1 Active Duty pilot, 23 maintenance staff, and 5 other support staff to their existing USAF Active Duty Associate Unit, resulting in an associate unit of up to approximately 50 total personnel. For more information on the USAF Active Duty Associate Unit, see Section 2.2.1.4. In addition, up to approximately 35 new personnel would be added at each installation to provide security and contract oversight for Full Mission Simulator (FMS) and the Autonomic Logistics Information System (ALIS) (broken down approximately by 7 field service, 15 ALIS support, 10 training, and 3 security personnel).

WI2.2 115TH FIGHTER WING: TRAINING AIRSPACE AND RANGES

The 115 FW uses several airspace units (Table WI2.2-1 and Figure WI2.2-1), including overland Military Operations Areas (MOAs), overlying Air Traffic Control Assigned Airspace (ATCAAs), and Restricted Areas. Section 2.2.2.1 provides definitions of these airspace units. The beddown action would not require changes in Special Use Airspace (SUA) attributes, volume, or proximity; and the type and number of ordnance employed at the ranges is expected to remain the same or decrease. ~~However, the ANG would need to work with the Federal Aviation Administration (FAA) to modify the Letter of Agreement associated with the ATCAAs to permit use of higher altitudes.~~ The F-35As are permitted to utilize the Volk Airspace Complex above flight level (FL) 300 for 8 weeks (2 weeks/quarter) each year. The remainder of high altitude training requirements will be met in other existing high altitude ATCAAs as available.

Table W12.2-1. 115 FW Military Training Airspace

<i>Airspace</i>	<i>Floor (feet MSL)¹</i>	<i>Ceiling (feet MSL)¹</i>
Volk East MOA	8,000	To BNI 18,000
Volk West MOA	500	To BNI 18,000
Volk South MOA	500	To BNI 18,000
Volk Falls MOA	500	To BNI 18,000
R-6904 A	150 feet AGL	23,000
R-6904 B	Surface	23,000
Black River ATCAA ²	18,000	21,000
Volk West ATCAA ²	18,000	28,000
Volk East ATCAA	18,000	28,000
Oshkosh ATCAA	18,000	24,000
Sheboygan East ATCAA	18,000	28,000
Sheboygan West ATCAA	18,000	28,000

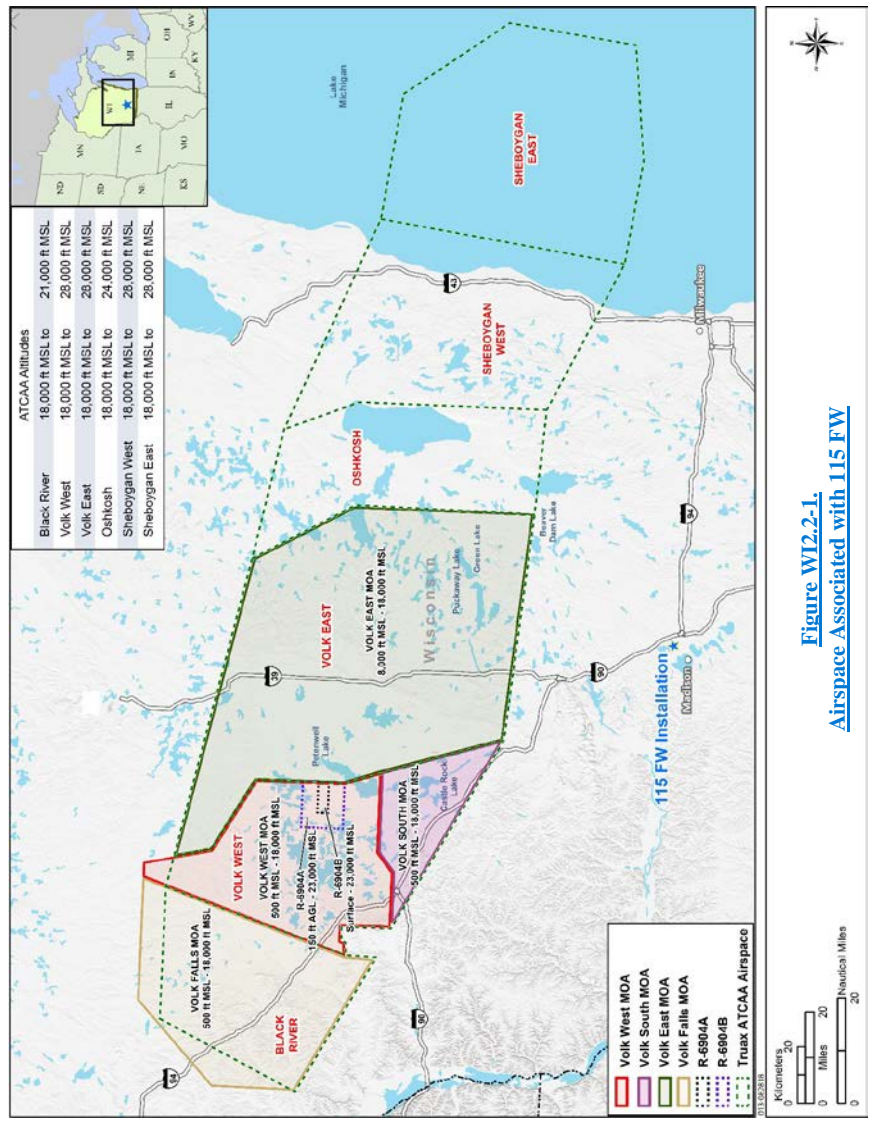
Notes: ¹MSL is the elevation (on the ground) or altitude (in the air) of an object, relative to the average sea level. The elevation of a mountain, for example, is marked by its highest point and is typically illustrated as a small circle on a topographic map with the MSL height shown in either feet or meters or both. Because aircraft fly across vast landscapes, where points above the ground can and do vary, MSL is used to denote the “plane” on which the floors and ceilings of SUA are established and the altitude at which aircraft must operate within that SUA.

² Ceiling for ATCAA’s is as assigned per FAA per Memorandum of Understanding.

Legend: AGL = above ground level; ATCAA = Air Traffic Control Assigned Airspace; BNI = but not including (all MOAs extend to 18,000 feet -MSL) unless -otherwise- noted; -MOA = Military Operations Area; -MSL = mean sea level; -R- = Restricted Area.

Source: [Federal Aviation Administration \(FAA\) 2017](#).





WI2.2.1- Airspace Use

As the replacement for fighter aircraft, the F-35As would conduct missions and training programs necessary to fulfill its multi-role responsibilities (refer to Chapter 2). All F-35A flight activities would take place in existing airspace, so no airspace modifications would be required. The NGB expects that the F-35A would operate in the airspace currently used by the 115 FW. The 115 FW F-16 aircraft currently conduct up to 2,400 annual sorties (or 200 monthly sorties) lasting between 30-60 minutes in the airspace. Under the Proposed Action, the F-35A aircraft would conduct up to 3,061 annual sorties (approximately 250 monthly sorties) lasting 30-60 minutes in the airspace. Based on this, there would be an increase of approximately 25 percent in the amount of time spent in the airspace under the Proposed Action.

Although the F-35As would perform the F-16 missions, they represent a different aircraft with different capabilities and would fly somewhat differently. Pilots would adapt training activities, where necessary, to ensure their accomplishment within available airspace. No changes to airspace structure are anticipated. The differences in utilization of the existing airspace include use of higher altitudes overall, combined use of existing airspace, and generally higher altitudes for supersonic flights that occur.

The Volk ~~MOA~~Airspace Complex ~~and Restricted Area (R-) 6904 support~~ supports 99 percent of training operations by the F-16s from the 115 FW. Within these airspace units, the 115 FW accounts for about 71 percent of the activity.

The F-35A would be expected to fly more of the time at higher altitudes than the F-16 (Table WI2.2-2), operating more than 90 percent of the time above 10,000 feet mean sea level (MSL), compared to about 62 percent for the F-16C. This would result in the F-35A aircraft conducting most of their operations in ~~the~~ ATCAAs and higher altitude regimes ~~of the airspace~~. Regardless of the altitude structure and percent use indicated in Table WI2.2-2, F-35A aircraft (as do existing military aircraft) would adhere to all established floors and ceilings of airspace units.

Table WI2.2-2. Approximate 115 FW Current and Proposed Altitude Distribution

Altitude (feet)	Percentage Use F-16C Multi-role	Percentage Use F-35A Multi-role
500-2,000 AGL	11%	1%
2,000-5,000 AGL	7%	1%
5,000-10,000 MSL	20%	5%
10,000 MSL-18,000 MSL	50%	24%
18,000 MSL-30,000 MSL	11%	58%
Above 30,000	1%	11%

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

Table WI2.2-3 shows current operations in the airspace used by the 115 FW. It reflects the total number of flight operations and includes the WIANG aircraft, as well as other USAF, Navy, and transient aircraft operations.

Table WI2.2-3. Approximate 115 FW Current and Proposed Airspace Operations

<i>Airspace Unit</i>	<i>All Aircraft Current Airspace Operations</i>	<i>F-16C Current Airspace Operations</i>	<i>Proposed All Aircraft Airspace Operations</i>	<i>Proposed F-35A Airspace Operations</i>
Volk East MOA	2,701	1,728	3,177	2,204
Volk West MOA	2,701	1,728	3,177	2,204
Volk South MOA	2,401	1,536	2,824	1,959
Volk Falls MOA	2,501	1,600	2,942	2,041
R-6904 A	556	386	662	492
R-6904 B	556	386	662	492
Black River ATCAA	2,251	1,440	2,648	1,837
Volk West ATCAA	2,431	1,555	2,859	1,984
Volk East ATCAA	2,431	1,555	2,859	1,984
Oshkosh ATCAA	1,351	864	1,589	1,102
Sheboygan East ATCAA	1,351	864	1,589	1,102
Sheboygan West ATCAA	1,351	864	1,589	1,102

Legend: ATCAA = Air Traffic Control Assigned Airspace; MOA = Military Operations Area; R- = Restricted Area.

Like the F-16, the F-35A would fly approximately 90-minute long missions, including take-off, transit to and from the training airspace, training activities, and landing. Depending upon the distance, speed, and type of training activity, the F-35A would spend approximately 30-60 minutes in the training airspace. On occasion during an exercise, the F-35A may spend up to 90 minutes in one or more airspace units.

To train with the full capabilities of the aircraft, the F-35A would employ supersonic flight at altitudes, and within airspace, already authorized for such activities. Due to the F-35A's mission and the aircraft's capabilities, the NGB anticipates that approximately 10 percent of the time spent in air combat training would involve supersonic flight. ~~The Hardwood Complex does not allow~~ Supersonic flight ~~is not allowed in the Volk Airspace Complex~~ below 30,000 feet MSL, so all proposed F-35A supersonic activity would occur above that altitude. Supersonic operations are not approved for the Volk Airspace Complex on a full-time basis. Due to an insufficient flight ceiling in Oshkosh and Sheboygan ATCAAs, only Volk ~~MOAs~~ATCAAs are used for supersonic flight above 30,000 feet MSL.

WI2.2.2 Ordnance Use and Defensive Countermeasures

Most air-to-ground training would be simulated, where nothing is released from the aircraft, and target scoring is done electronically. As was discussed in Chapter 2, Section 2.2.2.7, however, the F-35A (like the F-16) is capable of carrying and employing several types of air-to-air and air-to-ground ordnance (including strafing) and pilots would need training in their use. As the NGB currently envisions, the type and number of ordnance is expected to remain the same or

decrease from that currently employed by the F-16s. F-35A pilots would only use ranges and airspace authorized for the type of ordnance being employed and within the number already approved at a range and/or target. If in the future the NGB identifies weapons systems that are either new or could exceed currently approved levels, appropriate NEPA documentation would need to occur prior to their employment.

Hardwood Range ([Restricted Area \[R-\] 6904A/B](#)) contains varied target sets for supporting laser and practice/inert air-to-ground weapons training. No live-weapons training is permitted at Hardwood Range. It is expected that any live-fire training would be conducted during formal training exercises conducted remotely from the 115 FW installation.

Like the F-16, the F-35A would employ chaff and flares as defensive countermeasures in training. Chaff and flares are the principal defensive mechanisms dispensed by military aircraft to avoid attack by enemy air defense systems. Use of chaff and flares are permitted in all airspace units identified in Table WI2.2-3 and proposed for use by the F-35A. Flares are not permitted to be released below 2,000 feet above ground level (AGL) over non-government-owned or -controlled property. For the purposes of this analysis, it is estimated that F-35A chaff and flare expenditure would not exceed use by legacy F-16s on a per operation basis for the 115 FW.

Based on the emphasis on flight at higher altitudes for the F-35A, roughly 90 percent of flare releases would occur above 15,000 feet MSL. At this altitude, most flares would be released more than seven times higher than the minimum release altitude permitted (2,000 feet AGL) over non-government-owned or -controlled property and ensure complete burnout before reaching the ground.

WI2.3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES AT THE 115 FW INSTALLATION

Analysis of affected environment provides a benchmark that enables decision-makers to evaluate the environmental consequences of the proposed beddown alternatives at each installation. For each resource, this installation-specific section uses description of the affected environment and the evaluation of the No Action Alternative. Changes to the affected environment that are attributable to the Proposed Action are then examined for each resource. Thus, the change (increase or decrease) in the resource at each installation can be compared for all alternative locations.

WI2.4 PERMITS, AGENCY CONSULTATIONS, AND GOVERNMENT-TO-GOVERNMENT CONSULTATIONS

The 115 FW operates under agreements with a series of environmental permitting agencies for such resources as air, water, and cultural resources.

Permitting. The following section describes the permits that would be required to implement at this alternative location.

- Facilities that discharge stormwater from certain activities (including industrial activities, construction activities, and municipal stormwater collection systems) require Clean Water Act (CWA) Section 402 National Pollutant Discharge Elimination System (NPDES) permits.
 - For construction activities disturbing ~~greater than 1 acre~~ or more acres, the project would require the application for, and compliance with Wisconsin's general stormwater permit, "General Permit to Discharge under the WPDES - Land Disturbing Construction Activities." Site-specific stormwater pollution controls would control plans will be included developed, and practices implemented, in conformance with the permit, as required by and State Regulations NR 151 and 216.
 - The 115 FW installation has industrial activities as defined in 40 Code of Federal Regulations (CFR) 122, and is covered as a co-permittee under Dane County Regional Airport's Wisconsin Pollutant Discharge Elimination System (WPDES) permit (WPDES Permit No. WI-0048747-04-0) (WIANG 2016). The conditions of the permit are intended to comply with existing water quality standards contained in Chapters NR 102 and NR 105 of the Wisconsin Administrative Code. The permit also regulates stormwater point discharges and wastewater discharges to the airport's separate storm sewer system and requires periodic reporting by the Dane County Regional Airport. As required by the installations WPDES stormwater discharge permit specifically, the 115 FW installation has developed and implemented a Stormwater Pollution Prevention Plan (SWPPP) (WIANG 2016) with the purpose to provide a management and engineering strategy specific to the 115 FW installation to improve the quality of stormwater runoff and thereby improve the quality of receiving waters. The existing SWPPP (WIANG 2016), already in place for the installation, would be amended, as necessary, to reflect post-construction operations and potentially new best management practices (BMPs).
 - Additionally, the discharge from two ~~one~~ oil/water separators (OWSs) separator (OWS) operated by WIANG that ~~discharged discharges to Madison Metropolitan Sewerage District sanitary sewer would be~~ Starkweather Creek is covered under the ~~City of Madison's General~~ 2015 Dane County Regional Airport WPDES ~~Storm Water Tier 2 Permit (WPDES Permit No. WI-S067857-3)-permit.~~
- Federal projects with a footprint larger than 5,000 SF must maintain predevelopment hydrology and prevent any net increase in stormwater runoff as outlined in Unified Facilities Criteria (UFC) 3-210-10, *Low Impact Development*, and consistent with the U.S. Environmental Protection Agency's (USEPA's) *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects* under Section 438 of the Energy Independence and Security Act (EISA) of 2007.
- Control of stormwater flow and pollution controls would be applied in accordance with

Chapter 14 of the Dane County Ordinances: Erosion Control Permits and Stormwater
Control Permit (Chapter 14, Subchapter II: *Erosion Control and Stormwater*)

~~Control Permit (Chapter 14, Subchapter II: Erosion Control and Stormwater Management)~~. Chapter 14 regulates stormwater pollution and flow for construction activity that disturbs more than 4,000 SF of land area and/or creates more than 20,000 SF of impervious surface. In addition, a cumulative soil annual loss rate of less than or equal to 7.5 tons per acre from construction activity areas will be achieved in accordance with the Dane County Erosion Control and Stormwater Management Manual, by following procedures outlined in Chapter 2, *Erosion Control*, of the Manual.

- The 115 FW will coordinate with the USEPA, Region V and Wisconsin Department of Natural Resources (WDNR) regarding proposed construction near Environmental Restoration Program (ERP) sites on the 115 FW installation.
- A conformity applicability determination is required for federal actions occurring in nonattainment or maintenance areas for criteria pollutants when the total direct and indirect stationary and mobile source emissions of nonattainment pollutants or their precursors exceed *de minimis* thresholds. Because the 115 FW installation is located within an area in attainment for all criteria pollutants, a conformity applicability analysis is not necessary.
- Personnel conducting construction and/or demolition activities will strictly adhere to all applicable occupational safety requirements during construction activities.
- Sampling for asbestos-containing materials (ACMs) and lead-based paint (LBP) would occur prior to demolition and renovation activities for those buildings not previously tested; all materials would be handled in accordance with USAF policy. If ACMs or LBP is present, the 115 FW would employ appropriately trained and licensed contractors to perform the ACM and/or LBP removal work and would notify the construction contractors of the presence of ACMs and/or LBP so that appropriate precautions could be taken to protect the health and safety of the workers.

Some of the construction and modifications would require prior [Federal Aviation Administration \(FAA\)](#) approval of a change to the airport's Airport Layout Plan. Before providing such approval, the FAA would have to comply with NEPA.

Consultation. An initial consultation letter was sent to the Wisconsin State Historic Preservation Office (SHPO) in February 2018. Consultation will continue through the Environmental Impact Analysis Process (EIAP).

Government-to-Government. An initial phone call to Tribal offices to verify contact information and current Senior-level Tribal Officials before any materials were mailed to the American Indian Tribe was completed in late October/early November 2017. An initial government-to-government consultation letter was sent to 11 federally-recognized American Indian Tribes with ancestral ties to the 115 FW installation and lands beneath the associated airspace in February 2018. These 11 American Indian Tribes included Bad River Band of Lake Superior Chippewa, Forest County [Potawatomi Community](#), Ho-Chunk Nation, Lac Courte Oreilles Band of Lake Superior

~~Potawatomi Community, Ho Chunk Nation, Lac Courte Oreilles Band of Lake Superior~~ Chippewa, Lac du Flambeau Band of Lake Superior Chippewa, Menominee Indian Tribe of Wisconsin, Stockbridge-Munsee Community Band of Mohican Indians, Oneida Nation of Wisconsin, Red Cliff Band of Lake Superior Chippewa, St. Croix of Lake Superior Chippewa Community, and Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians). After the initial government-to-government consultation letter was sent, NGB followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event an American Indian Tribe would have any concerns regarding the Proposed Action or land below the potentially affected airspace areas. No American Indian reservations underlie the airspace associated with the 115 FW. To date, no responses have been received from the federally-recognized American Indian Tribes associated with the 115 FW.

WI2.5 PUBLIC INVOLVEMENT / AGENCY CONCERNS

WI2.5.1 Scoping

A scoping meeting was held on March 8, 2018 in Madison, Wisconsin. There were 356 people that attended the scoping meeting and 595 comments were received from the public and agencies prior to close of the scoping period.

Most comments received were in support of the F-35A beddown at the 115 FW installation. The primary issue was concern about noise generated from the airport. Of the 594 general public comments, 445 were in support of the proposed beddown, 115 expressed concerns about noise. Some of the questions/concerns that the public expressed during the scoping period included:

- Aircraft noise concerns related to:
 - General annoyance
 - Hearing loss
 - Property values
 - Domestic pets
 - Wildlife
 - Sleep interference
 - Impacts to outdoor activities
 - Request for noise mitigation
- Air quality concerns from operation of the F-35A.
- Many of the lower income housing areas are located near the airfield.
- Concern regarding fuel and other toxic chemicals that could leach into aquifers.
- Consideration of other alternative locations.
- There was not enough notification for the meetings, nor was it given in a timely manner. Suggestion for use of social media such as Twitter, Facebook, etc.

- Safety/crash concerns.

- Confusion about why the non-preferred alternatives are still being considered.
- The F-35A aircraft are too expensive and not necessary.
- General opposition to the F-35A beddown.
- General support for the F-35A beddown.

WI2.5.2 Draft Environmental Impact Statement Public Comment Period

Official notification of the F-35A Operational Beddown Air National Guard Draft Environmental Impact Statement (EIS) public comment period began with the Notice of Availability (NOA) announcement. This marked the start of the 45-day minimum review period. Dates and locations for the public hearings will be announced in local newspapers, via public service announcements, and will be posted on the project website www.ANGF35EIS.com.

A Draft Environmental Impact Statement (EIS) public meeting was held on September 12, 2019 in Madison, Wisconsin. There were over 585 people that attended the meeting and 5,706 comments were received from the public and agencies with regard to the Proposed Action at Madison prior to close of the comment period. See Section 1.6 of the EIS for more details on the public involvement process. The following are the most prevalent comments received from the Madison public on the Draft EIS. See Appendix A6 for a summary of responses to comments on the Draft EIS.

- 1) General support or opposition to the proposed beddown.
- 2) General complaints about noise.
- 3) Disagreements about how noise is modeled, e.g., Day-Night Average Sound Level (DNL) is not “what one hears.”
- 4) General concerns about Environmental Justice communities.
- 5) There was no obvious use of maximum sound level (L_{max}), while previous F-35A Beddown EIS’s contained tables of L_{max} .
- 6) General disbelief that 5 percent afterburner use would be sufficient; thus, requests to model noise at varying levels of afterburner.
- 7) Disagreement/disbelief in number of “home station” operations.
- 8) Concern about increased noise causing health concerns.
- 9) Suggestions to identify less urban areas for the F-35A aircraft.
- 10) The public demonstrated concern that “incompatible” meant “uninhabitable” with respect to anticipated noise increases in residential areas. Text has been added to the Land Use Definition of Resource section to clarify the difference.
- 11) The public requested more elaboration on potential mitigation.
- 12) Concern about the nuclear capability of the F-35A.
- 13) Concern about a decrease in property values and tax base.
- 14) Perfluorooctane sulfonate (PFOS)/perfluorooctanoic acid (PFOA) issues.
- 15) Concern about noise impacts to people with post-traumatic stress disorder (PTSD), autism,

etc. (special needs).

16) Request to translate the document, portions of the document, or public affairs materials into Spanish/Hmong.

17) Concern because the venue for the public meeting(s) was not closer to the airport.

WI2.6 MITIGATION

~~Under the National Defense Authorization Act, as amended,~~ The USAF does not have authority to expend appropriated funds on facilities that are not under the direct control of the USAF. However, the FAA has a program that addresses noise and compatible land use near airports. Title 14, CFR, Part 150 - *Airport Noise Compatibility Planning*, the implementing regulations of the *Aviation Safety and Noise Abatement Act of 1979*, as amended, provides a voluntary process an airport sponsor can use to mitigate significant noise impacts from airport users. It is important to note that the Part 150 program is not a guarantee that sound mitigation or abatement will take place. Eligibility for sound insulation in noise-sensitive land uses through the FAA's Airport Improvement Program requires that the impacted property is located within a ~~Day-Night Average Sound Level (DNL)~~DNL 65 decibels (dB) or higher noise contour and meet various other criteria in FAA guide documents used for sound mitigation.

Noise Exposure Maps (NEMs) can and do change over time. NEMs include an existing year and a future year (5 years forward in time). These NEMs have to be updated every 5 years or certified to the FAA that they are current. Non-compatible land uses (i.e., residences) can become compatible if the DNL 65 dB noise contour changes shape or becomes smaller due to changes in operational procedures, fleet mix, or nighttime operations.

Upon completion of the Final EIS, a mitigation plan will be prepared in accordance with 32 CFR 989.22(d). The mitigation plan will address specific mitigations identified and agreed to during the EIAP, as discussed in the EIS and identified in the Record of Decision (ROD). The Mitigation and Monitoring Plan will be developed for those installations chosen, and will include metrics to track and monitor those activities that are identified to minimize the impacts. These could include afterburner usage, flight tracks, number of operations, etc. The Mitigation and Monitoring Plan will identify who is responsible for implementing specific mitigation procedures, who is responsible for funding them, and who is responsible for tracking these measures to ensure compliance.

WI3.0 115TH FIGHTER WING AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

WI3.1 NOISE

The following sections present the noise environment created by military and civil/commercial aircraft operations around the airfield, followed by an evaluation of the noise generated by military aircraft in training airspace. Both the affected environment and the Proposed Action Alternative (environmental consequences) are analyzed and the results presented. For purposes of this analysis, the No Action Alternative is the same as the affected environment, whereby no F-35A aircraft would be beddown at the installation and current operations would continue.

WI3.1.1 Installation

The USAF and ANG specify use of the NOISEMAP software program suite to model noise exposure at and around military air bases for military aircraft activity, while the FAA requires the Aviation Environmental Design Tool (AEDT) to model commercial and civil aircraft operations at and around airfields. To comply with both ~~organizations~~[organizations](#)' requirements, the noise analysis utilized both software models at the 115 FW installation.

The civil/commercial aircraft data, derived from the 2016 Integrated Noise Model and converted to AEDT, includes modifications (e.g., to replace some aircraft types with others) requested by Dane County Regional Airport personnel. Civilian aircraft operational information relied on radar data and manual updates provided by FAA representatives at the Dane County Regional Airport. Interviews with members of the 115 FW provided updates to the military flight operations to reflect current operational conditions.

Noise modeling utilized annual average day (AAD) aircraft operations computed by dividing the total yearly airport operations by 365 days per year. The noise modeling relies on aircraft's flight tracks (paths over the ground) and profiles (which includes altitude, airspeed, power settings, and other flight conditions). The noise analysis considers 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 static locations on the ground (e.g., pre- and post-flight and maintenance activities). A team primarily made up of representatives from the installation's flying squadrons and air traffic controllers, as well as the NGB, developed this data through iterative meetings and discussions subsequently compiled into a data validation package. The NGB team reviewed the data validation package and approved the operational details for modeling (115 FW 2019a).

WI3.1.1.1 Affected Environment

For the noise analysis at and around the 115 FW installation, the affected environment is the area that experiences noise generated by aircraft operations. These areas include along taxiways, runways, engine run sites, and in adjacent airspace where aircraft operating at the airfield transit along flight routes, approach or depart the airfield, and conduct closed pattern operations.

Table WI3.1-1 summarizes the modeled annual military flight operations of aircraft based at the 115 FW installation as well as transient military aircraft that visit the airfield on a temporary basis, referred to as ‘transients.’ Table WI3.1-2 summarizes the modeled current annual civil/commercial (e.g., 737, 757, A300s, regional jets) flight operations that operate out of Dane County Regional Airport. In 2016, there were 89,885 flight operations at Dane County Regional Airport, just over 90 percent of which (81,333) were civil/commercial aircraft. Based and transient military aircraft account for under 10 percent of the total flight operations. Of the military aircraft, the F-16C conducts the most flight operations (4,900), or about 5 percent of the total for the airport. The F-16C currently utilizes afterburner for 60 percent of departures and military power for the remaining. Individual flight profiles have been modeled for the two departure types.

Table WI3.1-1. Annual Airfield Operations for Based and Transient Military Aircraft at Dane County Regional Airport – Current

<i>Aircraft Type</i>	<i>Modeled As</i>	<i>Arrivals Day</i>	<i>Arrivals Night</i>	<i>Departures Day</i>	<i>Departures Night</i>	<i>Closed Patterns Day</i>	<i>Closed Patterns Night</i>	<i>Total Day</i>	<i>Total Night</i>	<i>Total</i>
Based Military Aircraft										
F-16C	F-16C	2,280	120	2,352	48	100	0	4,732	168	4,900
RC-26	C-23	114	6	118	2	0	0	232	8	240
C-26	C-23	248	2	248	2	0	0	496	4	500
UH-60M	UH-60A	1,282	68	1,336	14	0	0	2,618	82	2,700
	Subtotal Based	3,924	196	4,054	66	100	0	8,078	262	8,340
Transient Military Aircraft										
Fighter	F-16C	43	0	43	0	0	0	86	0	86
Heavy Cargo	C-17	26	0	26	0	0	0	52	0	52
Heavy Prop	C-130H/N/P	15	0	15	0	0	0	30	0	30
Tanker	KC-135R	22	0	22	0	0	0	44	0	44
	Subtotal Transient	106	0	106	0	0	0	212	0	212
	Total Military Aircraft	4,030	196	4,160	66	100	0	8,290	262	8,552

Notes: Day = 7 a.m. to 10 p.m., Night = 10 p.m. to 7 a.m.
For total airfield operations, a closed pattern includes two operations (one departure and one arrival).
Totals may be off due to rounding.

**Table WI3.1-2. Annual Airfield Operations for Civil/Commercial Aircraft at
Dane County Regional Airport – Current**

<i>Aircraft Type</i>	<i>Arrivals Day</i>	<i>Arrivals Night</i>	<i>Departures Day</i>	<i>Departures Night</i>	<i>Closed Patterns Day</i>	<i>Closed Patterns Night</i>	<i>Total Day</i>	<i>Total Night</i>	<i>Total</i>
717200	1,144	0	1,144	0	0	0	2,288	0	2,288
737800	208	208	104	208	0	0	312	416	728
757PW	156	104	156	156	0	0	312	260	572
A300B4-203	156	0	156	0	0	0	312	0	312
A319-131	312	260	520	104	0	0	832	364	1,196
A320-211	312	208	416	52	0	0	728	260	988
BEC33	58	7	58	7	0	0	116	14	130
BEC58P	2,024	223	2,024	223	2,138	101	6,186	547	6,733
CL600	1,350	149	1,349	149	0	0	2,699	298	2,997
CL601	1,196	104	1,508	0	0	0	2,704	104	2,808
CNA172	3,600	400	3,600	400	5,700	299	12,900	1,099	13,999
CNA206	900	98	900	98	950	50	2,750	246	2,996
CNA20T	45	5	45	5	0	0	90	10	100
CNA441	450	50	450	50	0	0	900	100	1,000
CNA500	584	65	584	65	0	0	1,168	130	1,298
CNA750	180	20	180	20	0	0	360	40	400
CRJ9-ER	3,068	572	2,912	572	0	0	5,980	1,144	7,124
EMB145	2,600	520	2,756	364	0	0	5,356	884	6,240
EMB170	312	0	312	0	0	0	624	0	624
EMB175	936	52	1,040	0	0	0	1,976	52	2,028
GASEPF	1,181	131	1,181	131	2,315	122	4,677	384	5,061
GASEPV	2,249	249	2,249	249	7,125	288	11,623	786	12,409
GII	675	74	675	74	0	0	1,350	148	1,498
GIV	111	12	111	12	0	0	222	24	246
MD88	1,248	208	1,092	312	0	0	2,340	520	2,860
PA28	584	65	584	65	0	0	1,168	130	1,298
PA31	1,530	170	1,530	170	0	0	3,060	340	3,400
Total	27,169	3,954	27,636	3,486	18,228	860	73,033	8,300	81,333

Notes: Day = 7 a.m. to 10 p.m., Night = 10 p.m. to 7 a.m.
For total airfield operations, a closed pattern includes two operations (one departure and one arrival).
Totals may be off due to rounding.

Noise Exposure

Noise exposure computed with the NOISEMAP software program is presented graphically in a plot of contour lines of DNL, a table of DNL at specific noise-sensitive representative locations, and counts of on- and off-airport acreages within each noise contour.

Figure WI3.1-1 and Table WI3.1-3 present a graphical depiction and tabular description of the 16 points of interest (POIs), representing a cross section of nearby schools, places of worship, and daycare centers, which inform on the adjacent residential area conditions. [This is not intended to be an exhaustive list of POIs, but rather representative.](#) Only the Richardson School location, which is located on airport property, currently exceeds 65 A-weighted decibels (dBA) DNL. Northside Kinder Care, Ridgeway Church, Chapel of Faith, and the residential areas [near Packers](#)

near Packers Avenue and Quincy Avenue are currently exposed to DNL between 60 and 65 dB. The remaining POI locations experience DNL less than 60 dB.

Table WI3.1-3. DNL at Representative Points of Interest – Current

Map ID	Description	DNL (dBA)
1	Play Haven Child Care	56
2	Northside Kinder Care	62
3	Smartie Pants Early Learning Center (former)	55
4	UW Health at the American Center	52
5	Holy Transfiguration Orthodox Mission	53
6	Bashford United Methodist Church	55
7	Burke Lutheran Church	54
8	Ridgeway Church	61
9	Chapel of Faith Anglican Church	60
10	Lake View Elementary	58
11	Portage Road at Hoepker Road	53
12	Packers Avenue at Wheeler Road	62
13	Milwaukee Street at Farwell Street	56
14	The Richardson School	68
15	Madison Baptist Academy	57
16	Quincy Avenue and Carpenter Street	62

Legend: dBA = A-weighted decibel; DNL = Day-Night Average Sound Level.
 Source: 115 FW 2019a.

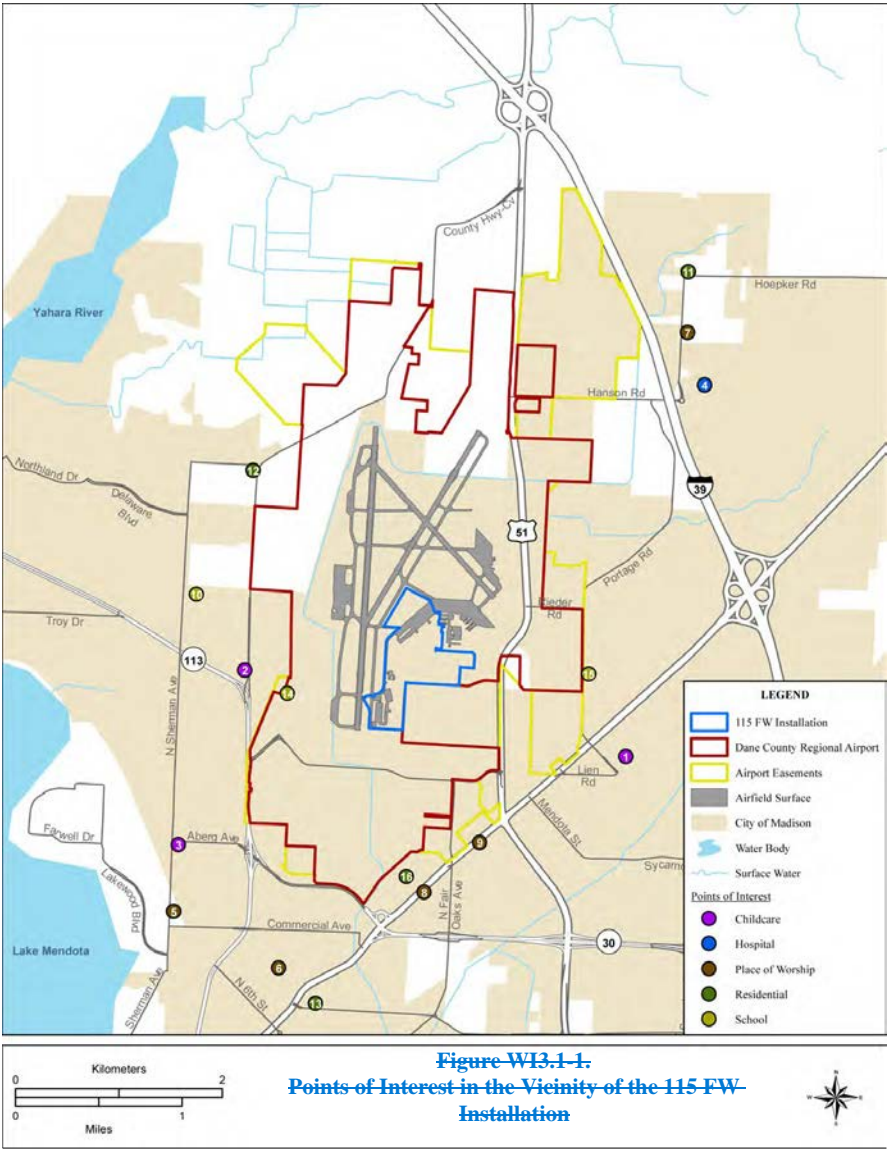
Figure WI3.1-2 shows the DNL contours for the affected environment at Dane County Regional Airport, in 5 dB increments from 65 to 85 dB DNL. As shown, the 65 dB DNL contour extends outside of the airport boundary approximately 0.2 mile to the north and northwest, and remains within the airport boundary to the south.

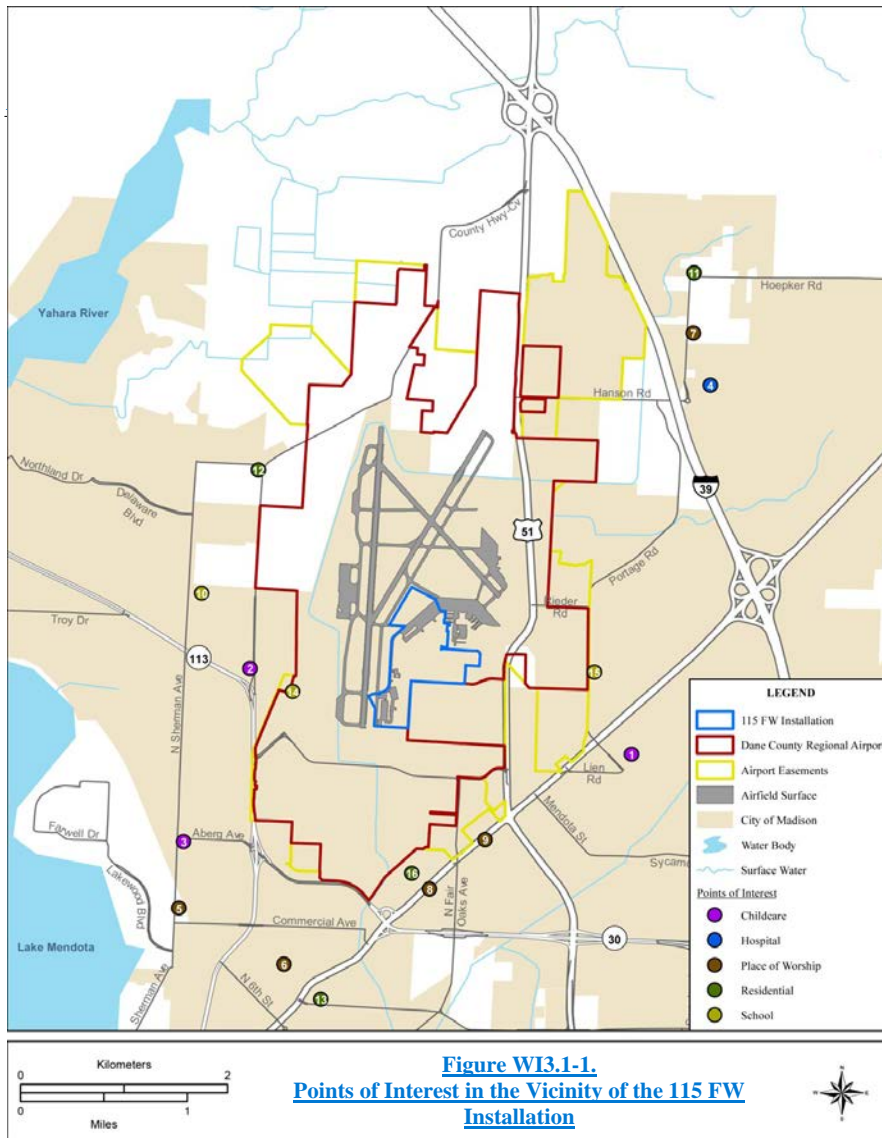
Table WI3.1-4 lists the acreage lying within noise contours of 65 to 85 dB DNL under the affected environment. There are 600 acres within the current 65 dB DNL contour off airport property with 507 of those exposed to 65 to 70 dB and 93 acres exposed to 70 to 75 dB. The airport owns aviation easements on 248 of the acres exposed to 65 to 70 dB and 89 of the acres exposed to 70 dB or greater.

Table WI3.1-4. Acreage Within Noise Contour Bands – Current

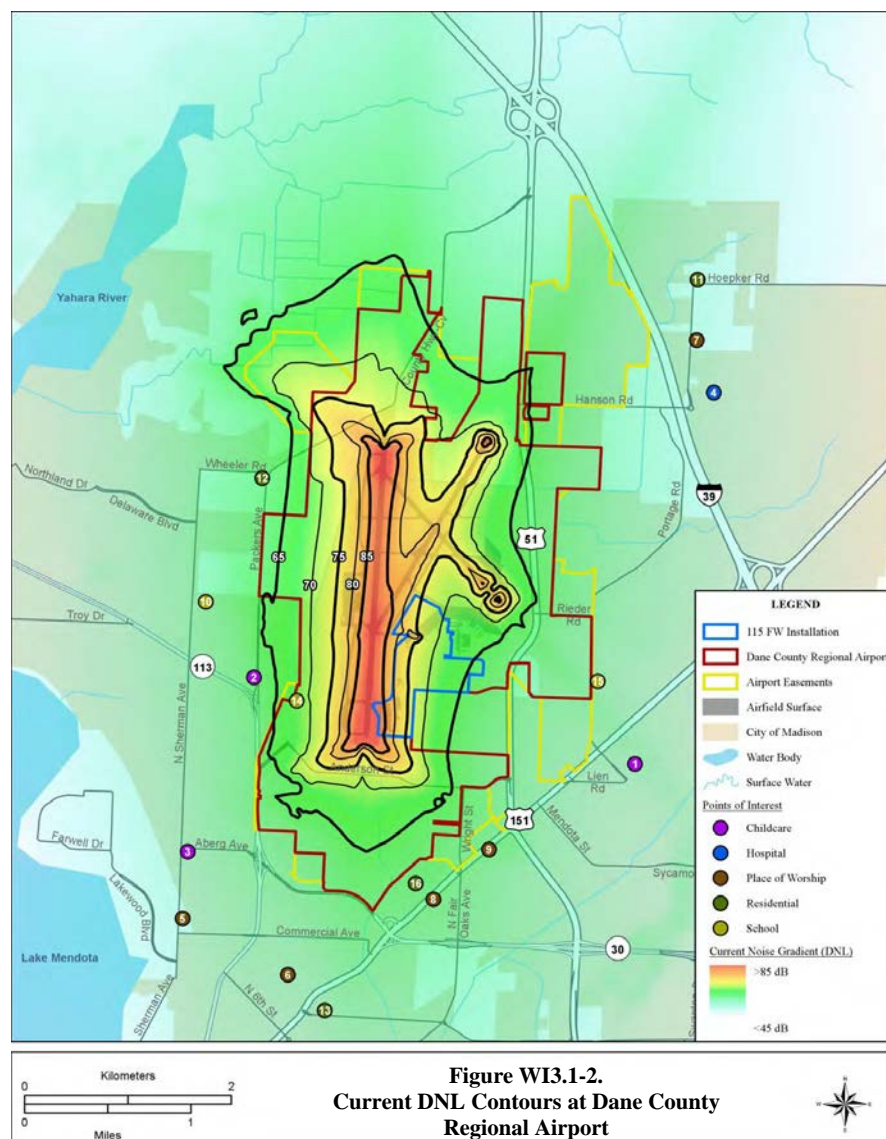
DNL Level (dBA)	On Airport Property	Off-Airport Property	Total
65–70	718	507	1225
70–75	534	93	627
75–80	392	0	392
80–85	220	0	220
85+	195	0	195
Total	2,059	600	2,659

Note: Totals may be off due to rounding.
 Legend: dBA = A-weighted decibel; DNL = Day-Night Average Sound Level.
 Source: 115 FW 2019a.





Source: 115 FW 2019a.



Source: 115 FW 2019a.

Table WI3.1-5 presents noise exposure within each DNL contour band for off-airport acreage, population, and households. According to the U.S. Census Bureau, households are defined as a house, an apartment, a mobile home, a group of rooms, or a single room occupied (or if vacant, intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live separately from any other people in the building and that have direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated people sharing living quarters (U.S. Census Bureau 2010). Contour bands were overlaid over aerial imagery and household buildings within each 5 dB contour band were counted manually. Buildings intersected by contour lines were counted as if exposed to the higher of the two bands. The number of people per household was determined independently for each U.S. Census block group (from the American Community Survey, 5-year estimates and U.S. Census Bureau 2010). Adopting this methodology gives a more accurate estimate of the number of people who may be exposed to noise levels within the noise contour band. Exposure to noise levels of 65 dB DNL and greater includes an estimated 551 people and 299 households.

**Table WI3.1-5. Off-Airport Noise Exposure within Contour Bands at
Dane County Regional Airport – Current**

<i>Contour Band (dB DNL)</i>	<i>Population</i>	<i>Households</i>
65–70	551	299
70–75	0	0
75–80	0	0
80–85	0	0
85+	0	0
Total	551	299

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

Supplemental Metrics

To supplement the cumulative metric analysis, the greatest single-event sound exposure levels (SELs) are provided for each POI, as listed in Table WI3.1-6. SEL accounts for both the magnitude and duration of individual events, making it a good metric to compare disparate noise events. Table WI3.1-6 also includes the corresponding number of weekly events as well as the DNL values for reference. For instance, at POI #2 (Northside Kinder Care) the current DNL is 62 dB with a maximum SEL of 105 with less than one event per week. The loudest events tend to occur closest to the airfield and nearest the flight tracks that align with the airport runways. All of the loudest SELs are due to the based F-16C aircraft at the 115 FW installation. The greatest SEL of 110 occurs at the Richardson School, which is on airport property. Quincy Avenue and Ridgeway Church are located to the southeast under the southern departure path and experience SELs up to 108 and 107, respectively.

Table WI3.1-6. Loudest Events at Each POI, Calculated in SEL – Current

Map ID	Named Point of Interest	DNL	SEL (dBA)	Average Events per Week Day	Average Events per Week Night
1	Play Haven Child Care	56	95	3.6	0.1
2	Northside Kinder Care	62	105	0.1	0
3	Smartie Pants Early Learning Center (former)	55	98	0.1	0
4	UW Health at the American Center	52	100	1.8	0
5	Holy Transfiguration Orthodox Mission	53	97	0.1	0
6	Bashford United Methodist Church	55	100	0.1	0
7	Burke Lutheran Church	54	102	1.8	0
8	Ridgeway Church	61	107	5.4	0.1
9	Chapel of Faith Anglican Church	60	105	5.4	0.1
10	Lake View Elementary	58	100	0.1	0
11	Portage Road at Hoepker Road	53	103	1.8	0
12	Packers Avenue at Wheeler Road	62	105	6.7	0.1
13	Milwaukee Street at Farwell Street	56	100	0.1	0
14	The Richardson School	68	110	0.1	0
15	Madison Baptist Academy	57	97	3.6	0.1
16	Quincy Avenue and Carpenter Street	62	108	5.4	0.1

Legend: dB = decibel; dBA = A-weighted decibel; DNL = Day-Night Average Sound Level; POI = Point of Interest; SEL = Sound Exposure Level.

Classroom Speech Interference. To evaluate the potential for classroom learning interference, the exterior Equivalent Noise Level (L_{eq}) was computed for daytime events occurring during school hours for the identified POIs. Table WI3.1-7 lists the computed L_{eq} as well as the Number of Events Above (NA) 50 dB and time above 50 dB for an average school day. Six of the 16 POIs identified near the installation are schools or child care centers. Under the affected environment, the greatest L_{eq} of 69 dB occurs at the Richardson School followed by 63 dB at Northside Kinder Care. All other POIs are below 60 dB L_{eq} .

Table WI3.1-7. Classroom Speech Interference – Current

POI Number	Named POI	Exterior $L_{eq(8)}$ (dBA)	Speech Interfering Events per School Day (hour) ¹	Time above 50 dBA per 8-hour school day (minutes) ¹
1	Play Haven Child Care	56	3	1
2	Northside Kinder Care	63	4	1
3	Smartie Pants Early Learning Center (former)	56	2	1
10	Lake View Elementary	59	3	1
14	The Richardson School	69	6	2
15	Madison Baptist Academy	57	4	1

Note: ¹Assumes even distribution of daytime operations throughout the day.

Legend: dBA = A-weighted decibel; $L_{eq(8)}$ = 8-Hour Equivalent Noise Level; POI = Point of Interest.

Source: 115 FW 2019a.

The NA represents the average number of potential speech interfering events per hour during a typical 8-hour school day, which exceed 50 dB indoors. As depicted in Table WI3.1-7, the number

of current speech interference events range from two at the former Smartie Pants Early Learning Center to six at the Richardson School.

The time above metric is calculated to show the total number of minutes per day that the noise level exceeds 50 dB in the classroom with windows open. Under the affected environment, the maximum of 2 minutes of speech interfering events occurs at the Richardson School and all other POIs experience approximately 1 minute.

Residential Speech Interference. Residential speech interference considers the number of hourly interruptions likely to interfere with speech-related activities (i.e., conversation and watching television) during a 15-hour day (from 7 a.m. until 10 p.m.). Interior levels of 50 dB represent the threshold for interference during the daytime. This analysis uses standard values for attenuation of 15 dB for windows open and 25 dB for windows closed conditions. Table WI3.1-8 summarizes the results of this analysis for all 16 POIs. Typically, this metric is applied only to residential locations but many location types (i.e., school and places of worship) are located within or adjacent to residential areas so their computed results represent the nearby residences.

Table WI3.1-8. Residential Speech Interference Events per hour (Daytime) – Current

<i>POI Number</i>	<i>Named POI</i>	<i>Windows Open^{1,2}</i>	<i>Windows Closed^{1,3}</i>
1	Play Haven Child Care	3	1
2	Northside Kinder Care	4	1
3	Smartie Pants Early Learning Center (former)	2	0
4	UW Health at the American Center	2	0
5	Holy Transfiguration Orthodox Mission	1	0
6	Bashford United Methodist Church	2	0
7	Burke Lutheran Church	2	0
8	Ridgeway Church	2	0
9	Chapel of Faith Anglican Church	2	0
10	Lake View Elementary	3	0
11	Portage Road at Hoepker Road	1	0
12	Packers Avenue at Wheeler Road	4	1
13	Milwaukee Street at Farwell Street	2	1
14	The Richardson School	6	2
15	Madison Baptist Academy	4	1
16	Quincy Avenue and Carpenter Street	3	1

Notes: ¹Assumes even distribution of daytime operations throughout the day.

²Assumes 15 dB attenuation.

³Assumes 25 dB attenuation.

Legend: POI = Point of Interest

Source: 115 FW 2019a.

In the “windows closed” condition, there are currently two events per average hour occurring at the Richardson School, while six POIs experience one event per hour and the remaining nine POIs experience none. With windows open, the number of residential speech interference events range from a high of six in the vicinity of the Richardson School (POI #14) to a low of one in the vicinity of the Portage Road (POI #11) and the Holy Transfiguration Orthodox Mission (POI #5).

Sleep Disturbance. A common concern in residential areas exposed to environmental noise is the potential for sleep disturbance. Sleep disturbance only applies to residential areas but the analysis has been computed for all POIs because many other types of POIs (schools and places of worship) are located near residential areas. Table WI3.1-9 shows the probability of awakening for each POI based on the American National Standards Institute (ANSI) S12.9 standard, which takes into account all of the nighttime events (10 p.m. through 7 a.m.). The table shows the cumulative probability of awakening at least once during that period for both windows closed and windows open. While residences may not be present at each of the POIs, the points are good representations of the noise environment in their immediate vicinity.

Table WI3.1-9. Probability of Awakening – Current

<i>POI Number</i>	<i>Named POI</i>	<i>Windows Open¹</i>	<i>Windows Closed²</i>
1	Play Haven Child Care	1%	<1%
2	Northside Kinder Care	1%	<1%
3	Smartie Pants Early Learning Center (former)	1%	<1%
4	UW Health at the American Center	<1%	<1%
5	Holy Transfiguration Orthodox Mission	<1%	<1%
6	Bashford United Methodist Church	1%	<1%
7	Burke Lutheran Church	<1%	<1%
8	Ridgeway Church	1%	1%
9	Chapel of Faith Anglican Church	1%	<1%
10	Lake View Elementary	1%	<1%
11	Portage Road at Hoepker Road	<1%	<1%
12	Packers Avenue at Wheeler Road	1%	<1%
13	Milwaukee Street at Farwell Street	1%	1%
14	The Richardson School	3%	2%
15	Madison Baptist Academy	1%	<1%
16	Quincy Avenue and Carpenter Street	2%	1%

Notes: ¹Assumes 15 dB attenuation.

²Assumes 25 dB attenuation.

Legend: POI = Point of Interest.

Source: 115 FW 2019a.

Under the affected environment, the Richardson School has a probability of awakening of 2 percent for windows closed, while the remaining POIs do not exceed 1 percent. With windows open, the greatest probability of awakening of 3 percent occurs at the Richardson School followed by 2 percent at Quincy Avenue and Carpenter Street. The other 14 POIs do not exceed 1 percent probability of awakening for windows open. Civil aircraft are the main cause of potential sleep disturbance due to the minimal nighttime flights by military aircraft.

Potential for Hearing Loss. Potential for Hearing Loss (PHL) applies to people living in high noise environments. The threshold for assessing PHL is exposure to noise greater than 80 dB DNL. Under the affected environment, there are no residential areas on or adjacent to the airfields that are exposed to contour bands of 80 dB DNL and greater (see Table WI3.1-6), so PHL does not apply.

Occupational Noise. USAF occupational noise exposure prevention procedures, such as hearing protection and monitoring, are currently used and comply with all applicable Occupational Safety and Health Administration (OSHA) and USAF occupational noise exposure regulations.

Other Noise Sources. Other generators of noise, such as general vehicle traffic, and other maintenance and landscaping activities, are a common ongoing occurrence at Dane County Regional Airport. While these sources may contribute to the overall noise environment, they are not distinguishable from aircraft-generated noise at and adjacent to the airport. For this reason, other noise sources were not considered under the affected environment and they are not analyzed under environmental consequences.

WI3.1.1.2 Environmental Consequences

Proposed Action

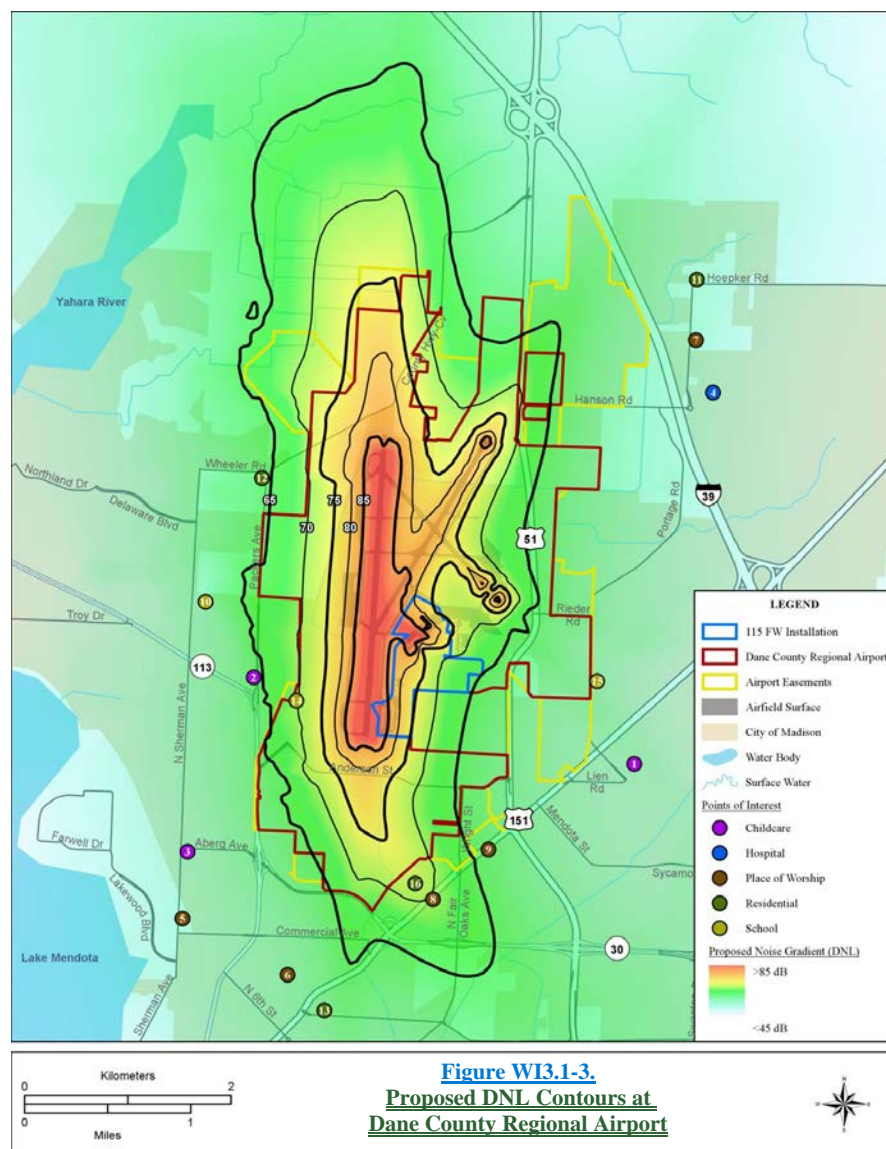
The Proposed Action Alternative involves the beddown of 18 F-35A aircraft at the 115 FW installation and drawdown of 18 F-16s. Proposed annual F-35A flight operations total 6,222, an increase of 2,290 operations when compared to current operations (or the No Action Alternative). The F-35A aircraft would account for approximately 7 percent of total aircraft (military and civil/commercial) operations at Dane County Regional Airport. Civil operations were determined to remain relatively constant between the affected environment and the Proposed Action implementation.

Other than occasional arrivals and departures, F-35As would not be expected to operate after 10 p.m. or before 7 a.m. NGB estimates F-35A would only require afterburner on up to 5 percent of departures and military power for the remaining 95 percent. Individual flight profiles have been modeled for the two departure types. The F-35A engine is capable of high speed low thrust operation for maintenance and repair allowing static run-ups to occur on the ramp rather than in the Hush House, which would be demolished under the Proposed Action.

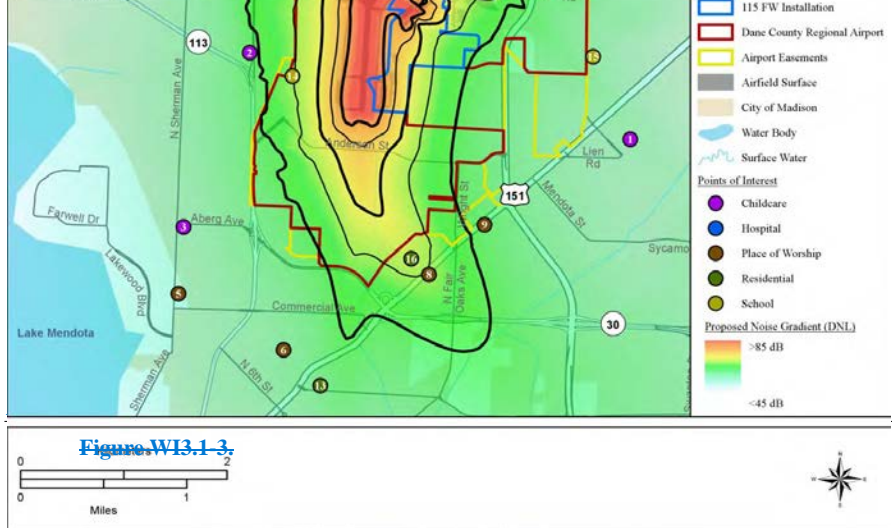
Noise Exposure

Figure WI3.1-3 shows the DNL contour bands for the Proposed Action Alternative at Dane County Regional Airport in 5 dB increments from 65 to 85 dB DNL. The gradient coloring provides a ‘heat map’ of sound from low to high levels to supplement the discrete contour lines. As shown, the 65 dB DNL contour would extend outside of the airport boundary approximately 1.3 miles to the north, 0.6 mile to the northwest, and approximately 0.8 mile to the south. To the northwest, the 70 and 75 dB DNL contours would extend off the airport boundary. To the south, the 70 dB DNL contour also would extend off the airport property to Highway 151. Figure WI3.1-4 compares the No Action and Proposed Action DNL contour bands. The primary cause for the growth to the north and south would be due to the F-35A departures, which are louder than the F-16C it would replace, as well as an increase in military aircraft operations. Both the afterburner and military departure profiles produce roughly similar noise levels along the departure flight tracks to the north and south because afterburner power use would be completed shortly after liftoff while the aircraft is still over the runway within the base boundary.

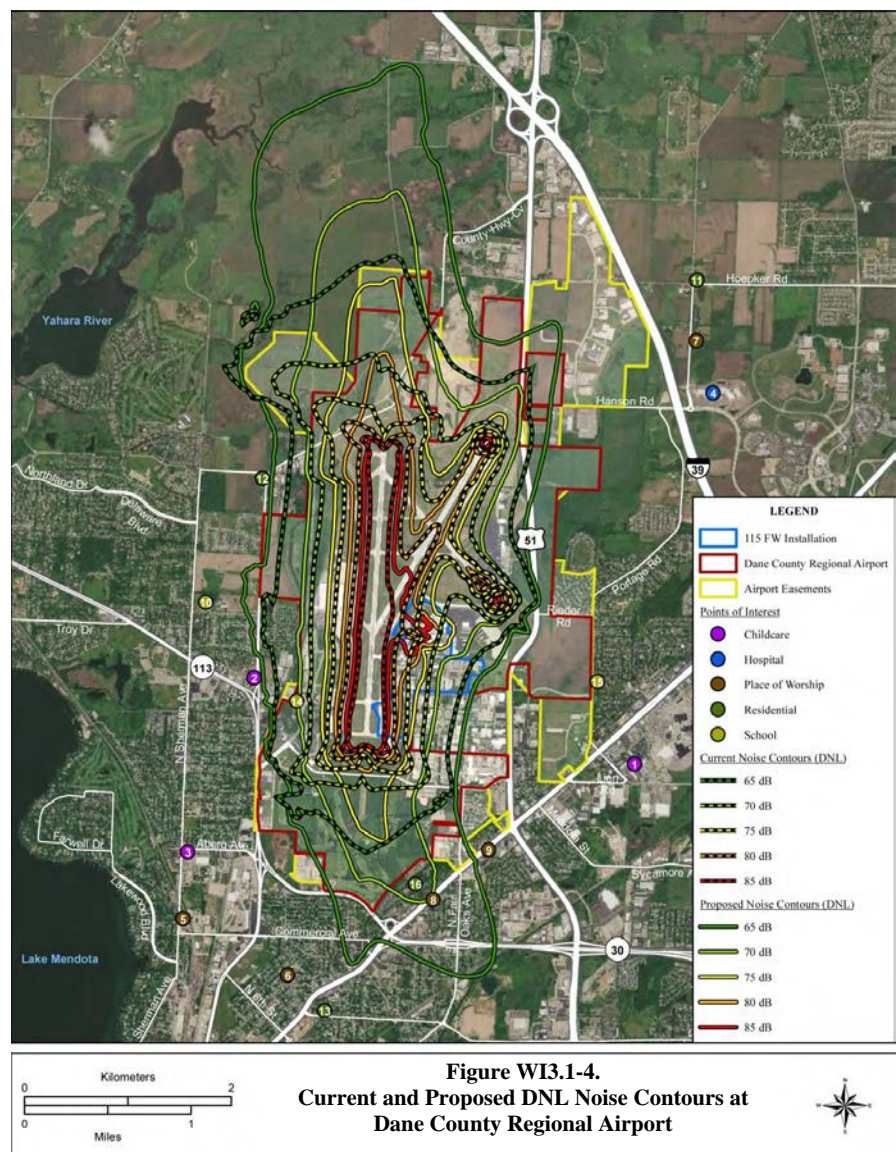
Table WI3.1-10 lists the computed DNL for each of the 16 POIs under the Proposed Action Alternative. This table also shows the change in DNL when compared to the No Action conditions above. Under the Proposed Action Alternative, DNL values at the POIs would range from 53 dB to 71 dB. Of the 16 POI locations, two would experience noise levels equal to 70 dB DNL (Richardson School and Ridgeway Church) and one residential POI (Quincy Avenue at Carpenter Street) would be exposed to 71 dB. The Richardson School is on airport property approximately a half mile west of the runway and in close proximity to aircraft taking off from the runway while Ridgeway Church and Quincy Avenue are located under a southern departure flight track that crosses Highway 151. The largest increase of 9 dB DNL would be experienced by the Ridgeway Church and Quincy Avenue due to their close proximity to the southern departure flight path. Twelve of the remaining POIs would experience an increase of 1 to 4 dB DNL; Play Haven Child Care would experience no change and Lake View Elementary a decrease of 1 dB. The F-35A generates sound levels up to 6 dB greater than the F-16C during departures, which is the primary cause for the increases at POIs. The secondary cause of the increase in DNL would be due to the increase in operations.



Source: 115 FW 2019a.



W
I
4
2



Source: 115 FW 2019a.

Table WI3.1-10. Proposed Action Alternative DNL at Points of Interest

<i>POI Number</i>	<i>Description</i>	<i>Proposed Action Alternative DNL (dB)</i>	<i>Change from No Action Alternative in DNL (dB)</i>
1	Play Haven Child Care	56	0
2	Northside Kinder Care	64	+2
3	Smartie Pants Early Learning Center (former)	56	+1
4	UW Health at the American Center	53	+1
5	Holy Transfiguration Orthodox Mission	55	+2
6	Bashford United Methodist Church	58	+3
7	Burke Lutheran Church	56	+2
8	Ridgeway Church	70	+9
9	Chapel of Faith Anglican Church	63	+3
10	Lake View Elementary	57	-1
11	Portage Road at Hoepker Road	56	+3
12	Packers Avenue at Wheeler Road	64	+2
13	Milwaukee Street at Farwell Street	60	+4
14	The Richardson School	70	+2
15	Madison Baptist Academy	58	+1
16	Quincy Avenue and Carpenter Street	71	+9

Legend: dB = decibel; DNL = Day-Night Average Sound Level; POI = Point of Interest.
 Source: 115 FW 2019a.

Table WI3.1-11 shows the acreage of the areas defined by the various noise contour bands under the Proposed Action Alternative, and compares those to the values for the affected environment. Most of the growth in contours from the Proposed Action Alternative appear to the north and south direction due to the F-35A being louder in the immediate runway environment and on departure than the F-16C. When compared to the affected environment, 949 more acres outside of the airport property would be newly exposed to 65 to 70 dB DNL, 320 more acres to 70 to 75 dB, and 51 more acres exposed to 75 to 80 dB DNL. The airport owns aviation easements on 71 acres of the area newly exposed to 70 to 75 dB and 34 of the acres newly exposed to 75 to 80 dB DNL. Under the Proposed Action, a total of 1,318 households and 2,766 people would be within the 65 dB DNL, an increase of 1,019 households and 2,215 people from the affected environment. This would be considered a significant impact to those persons affected.

Table WI3.1-11. Proposed Action Off-Airport Noise Exposure

<i>DNL (dB)</i>	<i>Proposed Action Alternative Acreage</i>	<i>Proposed Action Alternative Estimated Population</i>	<i>Proposed Action Alternative Households</i>	<i>Change from Current Acreage</i>	<i>Change from Current Estimated Population</i>	<i>Change from Current Households</i>
65 – 70	1,456	2,474	1,186	+949	+1,923	+887
70 – 75	413	292	132	+320	+292	+132
75 – 80	51	0	0	+51	0	+0
80 – 85	0	0	0	0	0	0
85+	0	0	0	0	0	0
Total	1,920	2,766	1,318	+1,320	+2,215	+1,019

Legend: dB = decibel; DNL = Day-Night Average Sound Level.
 Source: 115 FW 2019a.

Supplemental Metrics

Consistent with the affected environment supplemental analysis, single-event SELs are provided at each POI. Table WI3.1-12 shows the events producing the highest SELs, and lists the number of day and night events per week for each. Also included are the DNL values, which demonstrate that some “loud” events may occur in an area of a lower DNL. Under the Proposed Action Alternative, the loudest SELs at most POIs would be generated by F-35A events while F-16C (from the alert mission) would remain the top contributor at five POIs. The maximum SEL would increase by 1 to 8 dB at ten POIs.

Classroom Learning Interference. As noted under the affected environment, 6 of the 16 POIs identified near Dane County Regional Airport are schools. Table WI3.1-13 lists these points along with the outdoor L_{eq} , number of indoor speech interfering events per hour, and duration of time above 50 dB. Under the Proposed Action, four schools would experience increases of 1 to 2 dB L_{eq} . The Richardson School would reach 71 dB L_{eq} followed by Northside Kinder Care at 65 dB L_{eq} . Other school locations would remain below 60 dB L_{eq} . The Richardson School would be impacted the most due to its location on airport property. Lake View Elementary would experience a decrease of 2 dB L_{eq} . The school is located to the west of the airfield and was primarily affected by F-16C afterburner take-offs for the affected environment and the F-35A would utilize afterburner less often, decreasing the impacts to that location.

Approximately 80 to 90 percent of the interfering events under the Proposed Action would continue to be caused by civil aircraft operations. In the Proposed Action Alternative, the number of interfering events per hour would remain similar to the affected environment except Lake View Elementary and the Richardson School would experience one additional event per average hour. The time above 50 dB would increase by 1 to 2 minutes at all POIs except Play Haven, which would not change from the affected environment. The maximum time above of 4 minutes would occur at the Richardson School due to its location on airport property closest to the runways.

Residential Speech Interference. Residential speech interference examines the speech interfering events above 50 dB as tabulated in Table WI3.1-14. Under the Proposed Action, the majority of locations would experience an increase of one additional event per hour for either windows open or windows closed. Only the Richardson School would exceed one interfering event per average hour with windows closed while all 16 locations would experience greater than one with windows open, ranging from two to seven per hour. The majority of interfering events would continue to be caused by civil aircraft.

Table WI3.1-12. Loudest Events at Each POI, Measured in SEL – Proposed Action Alternative

<i>Map ID</i>	<i>Named Point of Interest</i>	<i>Current DNL</i>	<i>Current SEL (dBA)</i>	<i>Current Average Events Per Week (Daytime)</i>	<i>Current Average Events Per Week (Night)</i>	<i>Proposed Action DNL</i>	<i>Proposed Action SEL (dBA)</i>	<i>Proposed Action Average Events Per Week (Daytime)</i>	<i>Proposed Action Average Events Per Week (Night)</i>
1	Play Haven Child Care	56	95	3.6	0.1	56	98	0.7	0
2	Northside Kinder Care	62	105	0.1	0	64	106	0.6	0
3	Smartie Pants Early Learning Center (former)	55	98	0.1	0	56	98	0.1	0
4	UW Health at the American Center	52	100	1.8	0	53	100	1.8	0
5	Holy Transfiguration Orthodox Mission	53	97	0.1	0	55	97	0.1	0
6	Bashford United Methodist Church	55	100	0.1	0	58	101	0.1	0
7	Burke Lutheran Church	54	102	1.8	0	56	103	1.8	0
8	Ridgeway Church	61	107	5.4	0.1	70	114	7.4	0.2
9	Chapel of Faith Anglican Church	60	105	5.4	0.1	63	107	7.4	0.2
10	Lake View Elementary	58	100	0.1	0	57	100	0.1	0
11	Portage Road at Hoepker Road	53	103	1.8	0	56	105	1.8	0
12	Packers Avenue at Wheeler Road	62	105	6.7	0.1	64	105	0.7	0
13	Milwaukee Street at Farwell Street	56	100	0.1	0	60	104	0.8	0
14	The Richardson School	68	110	0.1	0	70	111	1.1	0
15	Madison Baptist Academy	57	97	3.6	0.1	58	97	0.5	0
16	Quincy Avenue and Carpenter Street	62	108	5.4	0.1	71	116	7.4	0.2

Legend: dBA = A-weighted decibel; DNL = Day-Night Average Sound Level; POI = Point of Interest; SEL = Sound Exposure Level.

Table WI3.1-13. Classroom Speech Interference – Proposed Action Alternative

<i>POI Number</i>	<i>Named POI</i>	<i>Outdoor Leq(8) (dBA) Current</i>	<i>Outdoor Leq(8) (dBA) Proposed</i>	<i>Outdoor Leq(8) (dBA) Change Relative to Current</i>	<i>Number of Events Interrupting Speech per School Day (hour)¹</i>	<i>Time above 50 dBA per 8-hour School Day (minutes)¹</i>
1	Play Haven Child Care	56	57	+1	3	1
2	Northside Kinder Care	63	65	+2	4	2
3	Smartie Pants Early Learning Center (former)	56	56	0	2	2
10	Lake View Elementary	59	57	-2	4	3
14	The Richardson School	69	71	+2	7	4
15	Madison Baptist Academy	57	58	+1	4	2

Note: ¹Assumes even distribution of daytime operations throughout the day.

Totals may be off due to rounding.

Legend: dBA = A-weighted decibel; Leq(8) = 8-Hour Equivalent Noise Level; POI = Point of Interest.

Source: 115 FW 2019a.

Table WI3.1-14. Residential Speech Interference – Proposed Action Alternative

<i>POI Number</i>	<i>Named POI</i>	<i>Windows Open² Proposed Action</i>	<i>Windows Closed³ Proposed Action</i>	<i>Windows Open² Change</i>	<i>Windows Closed³ Change</i>
1	Play Haven Child Care	3	1	0	0
2	Northside Kinder Care	4	1	0	0
3	Smartie Pants Early Learning Center (former)	2	1	0	+1
4	UW Health at the American Center	3	0	+1	0
5	Holy Transfiguration Orthodox Mission	2	0	+1	0
6	Bashford United Methodist Church	2	1	0	+1
7	Burke Lutheran Church	2	1	0	+1
8	Ridgeway Church	3	1	+1	+1
9	Chapel of Faith Anglican Church	3	1	+1	+1
10	Lake View Elementary	4	1	+1	+1
11	Portage Road at Hoepker Road	2	1	+1	+1
12	Packers Avenue at Wheeler Road	5	1	+1	0
13	Milwaukee Street at Farwell Street	3	1	+1	0
14	The Richardson School	7	2	+1	0
15	Madison Baptist Academy	4	1	0	0
16	Quincy Avenue and Carpenter Street	3	1	0	0

Notes: ¹Assumes even distribution of daytime operations throughout the day.

²Assumes 15 dB attenuation.

³Assumes 25 dB attenuation.

Legend: POI = Point of Interest.

Source: 115 FW 2019a.

Sleep Disturbance. Table WI3.1-15 shows the probability of awakening for each POI by if it is consistent with the ANSI standard S12.9 methodology used in the affected environment analysis. Note that while residences may not be present at each of the POIs, the points serve as good representations of the noise environment in the immediate vicinity, which often include residences.

Under the Proposed Action Alternative, six locations would experience a probability of awakening of 2 and 4 percent for windows open. With windows closed, the Richardson School and Quincy Avenue would experience a probability of awakening of 2 percent while the other 14 POIs would be 1 percent or less. The small increase in the probability of awakening of up to 1 percent would be due to the relatively low number of night flight operations for both the affected environment and the Proposed Action. Civil aircraft would remain the primary cause of the potential for awakening.

Table WI3.1-15. Probability of Awakening – Proposed Action Alternative

<i>POI Number</i>	<i>Named POI</i>	<i>Windows Open¹</i>	<i>Windows Closed²</i>
1	Play Haven Child Care	1%	1%
2	Northside Kinder Care	2%	1%
3	Smartie Pants Early Learning Center (former)	1%	1%
4	UW Health at the American Center	1%	<1%
5	Holy Transfiguration Orthodox Mission	1%	1%
6	Bashford United Methodist Church	1%	1%
7	Burke Lutheran Church	1%	<1%
8	Ridgeway Church	2%	1%
9	Chapel of Faith Anglican Church	1%	1%
10	Lake View Elementary	1%	1%
11	Portage Road at Hoepker Road	1%	<1%
12	Packers Avenue at Wheeler Road	2%	1%
13	Milwaukee Street at Farwell Street	2%	1%
14	The Richardson School	4%	2%
15	Madison Baptist Academy	1%	1%
16	Quincy Avenue and Carpenter Street	3%	2%

Notes: ¹Assumes 15 dB attenuation.

²Assumes 25 dB attenuation.

Legend: POI = Point of Interest.

Potential for Hearing Loss. Under the Proposed Action Alternative, no residential areas on or adjacent to Dane County Regional Airport would be exposed to DNL greater than or equal to 80 dB. Therefore, a PHL is not anticipated. This conclusion is justified because hearing loss due to noise exposure would generally require daily exposure over 40 years, or longer, to DNL greater than 80 dB.

Occupational Noise. NGB occupational noise exposure prevention procedures, such as hearing protection and monitoring, would continue to be applied under the Proposed Action Alternative. These procedures would comply with all applicable OSHA and NGB occupational noise exposure regulations and ensure no significant adverse impacts under the Proposed Action Alternative.

Other Noise Sources. Noise is an unavoidable, short-term byproduct of construction activities. The major noise events for this construction would take place inside airport boundaries at the 115 FW installation with only a negligible increase in traffic noise caused by vehicles entering and exiting the airport for construction deliveries and work force arrivals and departures. During

construction, steps would be taken to minimize any impacts. These include making sure all equipment is in good operating condition, with an emphasis on maintenance of mufflers, bearings, and moving machinery parts. Stationary equipment with a potential to emit noise would be placed away from sensitive noise receivers. Whenever possible, noise events would be scheduled to avoid noise-sensitive times. Construction workers would comply with OSHA exposure regulations to ensure no significant adverse effects from noise exposure.

No Action Alternative

Under the No Action Alternative, the acoustic environment at and around the airport would not differ from the conditions presented under the affected environment. Therefore, refer to Section WI3.1.1.1 for noise exposure and supplemental noise metrics. Impacts under the No Action Alternative would not be significant.

WI3.1.2 Airspace

The U.S. Government prescribes the use of the Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}) for aircraft noise analysis in the SUA environment. L_{dnmr} is based on the month with the most aircraft activity in each airspace unit to account for the sporadic nature of operations. L_{dnmr} is similar to the DNL except that an additional penalty is applied to account for the startle effect of aircraft operating at low altitudes and at high rates of speed (over 400 knots) generating quick sound level increases. The penalty is calculated from the rate of increase in sound level and varies from 0 to 11 dB. Noise modeling, using the MR_NMAP, was accomplished by 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.

BOOMAP was used to calculate the C-weighted DNL (CDNL) resulting from the proposed supersonic operations in the Volk MOA Complex. This metric captures the impulsive characteristics of supersonic noise as DNL. Supersonic flight activity only occurs where authorized.

In rural and open areas, the analysis of effects is vastly different compared to areas near population centers. In these areas, public concerns can include effects to wildlife, domestic animals, natural sounds, and outdoor recreation. Each of these effects can be difficult to assess because of limited research. Many studies have been conducted on noise impacts to animals. However, if the animal of concern has not been included in any of these studies, biological expertise is required to determine if additional research is required or a surrogate animal can be used for the assessment of impacts. See Section WI3.11, *Biological Resources*, for a discussion of noise impacts to wildlife.

WI3.1.2.1 Affected Environment

The 115 FW uses the Volk MOA Complex, including overlying ATCAAs, for training during each mission (see Figure WI2.2-1). Under the affected environment, there are up to 2,400 sorties per year in the Volk Airspace Complex attributable to the F-16s of the 115 FW. In addition to local sorties generated by the 115 FW, the Volk Airspace Complex has transient users that make up about 35 percent of the total activity. The complex also hosts up to two Northern Lightning exercises per year for 2 weeks each. The number of aircraft participating in each exercise varies, but in all cases creates higher than normal flight activity during the 2-week exercise period. An Environmental Assessment (EA) was completed in 2016, which evaluated the modification and extension of the Volk MOAs. The operational numbers used in that EA formed the baseline for this analysis. The distribution of aircraft in each MOA and the aircraft profiles (times spent at various altitudes and power settings) are also the same (NGB 2016).

Noise Exposure

Subsonic. Table WI3.1-16 shows the L_{dnmr} levels for the affected environment within each of the respective MOAs/ATCAAs/Restricted Areas. Noise levels in areas under the MOAs range from 36 to 56 dB L_{dnmr} , which includes the ATCAAs directly over them. Note that the listed ATCAAs without modeled MOAs beneath them are listed as “<35 dB” because the computed L_{dnmr} caused by aircraft activity is likely below the ambient sound level. In these areas with aircraft flying at higher altitudes, the noise contribution from subsonic flight activity is negligible on the ground.

Table WI3.1-16. L_{dnmr} Beneath SUA – Affected Environment

Description	L_{dnmr} (dB)
Volk Falls MOA	50
Volk West MOA/Volk West ATCAA	51
Volk South MOA	56
Volk East MOA/Volk East ATCAA	36
Black River ATCAA	50
R-6904A/B	52
Oshkosh ATCAA	<35
Sheboygan W ATCAA	<35
Sheboygan E ATCAA	<35

Legend: ATCAA = Air Traffic Control Assigned Airspace; dB = decibel;
 L_{dnmr} = Onset-Rate Adjusted Day-Night Average Sound Level;
 MOA = Military Operations Area; R- = Restricted Area.

Source: 115 FW 2019a.

Supersonic. Supersonic operations are not approved for the Volk Airspace Complex on a full-time basis. Due to an insufficient flight ceiling in Oshkosh and Sheboygan ATCAAs, only Volk MOAs are other eligible ATCAAs will be used for supersonic flight above 30,000 feet MSL as available. A busy month for supersonic flight operations occurs during the Northern Lightning exercise, when 120 F-16C sorties and 60 “other” sorties would engage in air-to-air training that involves supersonic flight. The current data for

The current data for calculation of CDNL noise contours (due to sonic booms) result from these 180 sorties in the complex.

Table WI3.1-17 shows the CDNL highest levels calculated for affected environment within each of the respective MOA/ATCAAs. The highest concentration of sonic boom activity (and resulting in maximum CDNL) is in the area where the borders of Volk East and West MOAs and the R-6904C meet, which is 47 and 48 C-weighted decibels (dBC). Normal land use restriction recommendations start when CDNL is at 62 and greater dBC; therefore, a level at 48 dBC is well below the recommended land use restrictions level.

Table WI3.1-17. CDNL Beneath SUA – Affected Environment

<i>Description</i>	<i>CDNL (dBC)</i>
Volk Falls MOA	43
Volk West MOA/Volk West ATCAA	47
Volk South MOA	45
Volk East MOA/Volk East ATCAA	48
Black River ATCAA	43
R-6904A/B	47
Oshkosh ATCAA	36
Sheboygan W ATCAA	<35
Sheboygan E ATCAA	<35

Legend: ATCAA = Air Traffic Control Assigned Airspace; CDNL = C-weighted Day-Night Average Sound Level; dBC = C-weighted decibel; MOA = Military Operations Area; R- = Restricted Area.

Source: 115 FW 2019a.

WI3.1.2.2 Environmental Consequences

Proposed Action

This section presents noise conditions in the airspace and ranges that would be used by F-35A aircraft under the 115 FW alternative. Under the Proposed Action Alternative, there would be an increase of approximately 28 percent of sorties, with each sortie lasting 30-60 minutes. Therefore, there would be an approximately 28 percent increase in time spent in the Volk Airspace Complex by 115 FW aircraft. Although the F-35A would be expected to operate more often at higher altitudes than the F-16, no other changes in airspace or airspace use are proposed. The noise analysis accounts for subsonic flight operations and supersonic operations in airspace that is authorized for supersonic flight. Subsonic noise is quantified by dB L_{dnmr} ; the cumulative sonic boom environment is quantified by CDNL and by the number of booms per month that would be heard on the surface.

Noise Exposure

Subsonic. Table WI3.1-18 shows the L_{dnmr} levels for the Proposed Action Alternative conditions within each of the respective MOAs/ATCAAs/Restricted Areas in addition to the level of change

between the two alternatives. The areas under the MOAs range from 40 to 57 dB. These include the ATCAAs directly over them. Note that the listed ATCAAs are the ones without modeled MOAs beneath them, and they are simply listed as “<35 dB.” Depending on the location, the increases range from 1 to 4 dB due to the increased sortie rate of the F-35A. The largest change would be under the Volk East MOA, which would still be near the background noise level, even with the increase. No areas would reach or exceed 65 dB L_{dnmr} .

The noise levels computed in Table WI3.1-18 represent only the military aircraft contributions to sound levels and does not consider other sources, such as road traffic and wind. Typical ambient L_{dnmr} for ‘quiet suburban residential’ areas range from 49 to 52 dB while rural is typically less than 49 dB (ANSI 2013). Although Volk East MOA would experience an increase of 4 dB L_{dnmr} due to aircraft noise, the proposed level likely would not exceed current ambient levels due to other noise sources.

Table WI3.1-18. Comparison of the Proposed Action Alternative L_{dnmr} Beneath SUA to the Affected Environment

Description	Current L_{dnmr} (dB)	Proposed Action Alternative L_{dnmr} (dB)	Change in L_{dnmr} (dB)
Volk Falls MOA	50	51	1
Volk West MOA/Volk West ATCAA	51	52	1
Volk South MOA	56	57	1
Volk East MOA/Volk East ATCAA	36	40	4
Black River ATCAA	50	52	1
R-6904A/B	52	54	2
Oshkosh ATCAA	<35	<35	N/A
Sheboygan W ATCAA	<35	<35	N/A
Sheboygan E ATCAA	<35	<35	N/A

Legend ATCAA = Air Traffic Control Assigned Airspace; dB = decibel; L_{dnmr} = Onset-Rate Adjusted Day-Night Average Sound Level; MOA = Military Operations Area; N/A = not applicable; R- = Restricted Area.

Source: 115 FW 2019a.

Supersonic. Supersonic operations are not approved for the Volk Airspace Complex on a full-time basis and cannot be performed in Oshkosh and Sheboygan ATCAAs at any time due to insufficient ceiling altitudes. A busy month for supersonic flight operations would occur during the Northern Lightning exercises. Table WI3.1-19 shows the CDNL highest levels calculated for the Proposed Action Alternative within each of the respective MOAs/ATCAAs/Restricted Area. The highest concentration of sonic boom activity (and resulting in maximum CDNL) is in the same area as found under the No Action Alternative—where the borders of Volk East and West MOAs and the R-6904C meet—and would experience a CDNL of 49 dB, an increase of up to 2 dB. Under the Proposed Action Alternative, increases would range from 1 to 2 dBC in the SUA. These levels would not exceed the normal land use restriction recommendations, which start when CDNL is at 62 and greater dBC, nor change dramatically from the affected environment.

Table WI3.1-19. Comparison of the Proposed Action Alternative L_{dnmr} Beneath SUA to the Affected Environment

<i>Description</i>	<i>Current CDNL (dBC)</i>	<i>Proposed Action Alternative CDNL (dBC)</i>	<i>Change in CDNL (dBC)</i>
Volk Falls MOA	43	44	1
Volk West MOA/Volk West ATCAA	47	49	2
Volk South MOA	45	47	2
Volk East MOA/Volk East ATCAA	48	49	1
Black River ATCAA	43	44	1
R-6904A/B	47	49	2
Oshkosh ATCAA	36	37	1
Sheboygan W ATCAA	<35	<35	N/A
Sheboygan E ATCAA	<35	<35	N/A

Legend: ATCAA = Air Traffic Control Assigned Airspace; CDNL = C-weighted Day-Night Average Sound Level; dBC = C-weighted decibel; MOA = Military Operations Area; R- = Restricted Area.

Source: 115 FW 2019a.

No Action Alternative

Under the No Action Alternative, the acoustic environment in the airspace would not differ from the conditions presented under the affected environment (refer to Section WI3.1.2.1 for noise exposure). Therefore, impacts under the No Action Alternative would not be significant.

WI3.1.3 Summary of Impacts

Under the Proposed Action at the 115 FW installation, F-35A aircraft operations at the airfield would increase off-base acreage contained within the 65 dB DNL and greater noise contours by 1,320 acres. There would be an estimated addition of 1,019 households and 2,215 people would reside within the 65 dB DNL contour, where residential land use is considered conditionally compatible. Predicted changes in the DNL at POIs range from -1 to +9 dB with levels at three representative POIs exceeding 65 dB. Two of the POI schools located within the Region of Influence (ROI) would experience an increase in the number of events causing speech interference with levels reaching up to seven per hour at the Richardson School with windows open. The predicted increase in L_{dnmr} in SUA would range from <1 to 4 dB with the highest L_{dnmr} remaining below 60 dB. Increases in the CDNL resulting from the addition of supersonic activity would be 3 or 4 dB with levels remaining at or below 50 dBC. [Additional discussion regarding noise impacts on factors such as health effects and noise-induced vibration effects can be found in Appendix B, Noise Modeling, Methodology, and Effects.](#) Based on context and intensity, the change in the noise environment associated with the Proposed Action would be considered significant in the area surrounding the airfield but would not be significant in the SUA.

~~Under the National Defense Authorization Act, as amended,~~ The USAF does not have authority to expend appropriated funds on facilities that are not under the direct control of the USAF. However, the FAA has a program that addresses noise and compatible land use near airports. Title 14, CFR, Part 150 - Airport Noise Compatibility Planning, ~~the implementing regulations of the Aviation~~

*United States Air Force F-35A Operational Beddown – Air National Guard Environmental Impact Statement
Draft – Palgrave 2020*

Safety and Noise Abatement Act of 1979, as amended, provides a voluntary process an airport

[the implementing regulations of the Aviation Safety and Noise Abatement Act of 1979, as amended, provides a voluntary process an airport](#) sponsor can use to mitigate significant noise impacts from airport users. It is important to note that the Part 150 program is not a guarantee that sound mitigation or abatement will take place. Eligibility for sound insulation in noise-sensitive land uses through the FAA's Airport Improvement Program requires that the impacted property is located within a DNL 65 dB or higher noise contour and meet various other criteria in FAA guide documents used for sound mitigation.

[A Mitigation and Monitoring Plan will be developed for those installations chosen, and will include metrics to track and monitor those activities that are identified to minimize the impacts. These could include afterburner usage, flight tracks, number of operations, etc. The Mitigation and Monitoring Plan will identify who is responsible for implementing specific mitigation procedures, who is responsible for funding them, and who is responsible for tracking these measures to ensure compliance.](#)

Dane County Regional Airport has proactively engaged in development of aviation easements within the vicinity of the airport. Numerous aviation easements have been purchased by Dane County Regional Airport in residential areas affected by airport operations.

WI3.2 AIRSPACE

WI3.2.1 Installation

WI3.2.1.1 Affected Environment

The 115 FW installation is located within the boundaries of Dane County Regional Airport, a joint-use airport, located approximately 5 miles northeast of the Madison, Wisconsin central business district. It is publicly owned and operated by Dane County with the FAA providing air traffic control (ATC) services for pilots operating in the local airspace. Chicago Air Route Traffic Control Center (ARTCC) provides approach/departure service when Madison Approach Control is closed. Dane County Regional Airport has three bi-directional runways: Runway 18/36, Runway 03/21, and Runway 14/32. The majority of military fixed-wing aircraft operations are on Runway 18/36 with a north/south traffic flow, while the civilian traffic use all runways. The Dane County Regional Airport lies within Class C airspace. There are three public airports that lie within the airports Class C airspace: Waunakee, Blackhawk, and Middleton-Morey. Verona Airport lies to the southwest just outside of Class C airspace.

The 115 FW currently flies and maintains 18 F-16C aircraft in support of its mission for the WIANG. In 2016, there were 89,885 annual operations conducted at Dane County Regional Airport, including 8,552 military operations and 81,333 civilian operations. The F-16Cs have-

flown in this airspace environment since 1992 and accounted for 4,900 of the annual military operations.

WI3.2.1.2- Environmental Consequences

Proposed Action

The one-for-one replacement of F-16 aircraft assigned to the 115 FW installation would not require changes in local airspace or airfield management. Eventual replacement of F-16 aircraft by the F-35A would result in a 47 percent increase in military operations (this would drop to 27 percent

once the F-35A adopts the alert mission) and an approximate 3 percent increase in total airfield operations when compared to the affected environment (Table WI3.2-1). This increase in airfield operations would have no effect on the local air traffic environment. No changes to the Dane County Regional Airport terminal airspace arrival or departure procedures would be required to accommodate the F-35A aircraft performance or airfield operations. Therefore, impacts on airspace use in the local air traffic environment would not be significant.

Table WI3.2-1. Comparison of Current and Proposed Annual Airfield Operations

<i>Aircraft</i>	<i>Current</i>	<i>Proposed Airfield Operations</i>
Based F-16C ¹	4,900	968
Based RC-26	240	240
Based C-26	500	500
UH-60	2,700	2,700
Military Transient ²	212	212
Proposed F-35A	0	6,222
Civilian/Commercial	81,333	81,333
Total	89,885	92,175
Percent Change from Current	-	3%

Note: ¹Alert mission would continue to be supported by F-16 aircraft at Dane County Regional Airport until the USAF determines the F-35A can take over the mission.

²Transients include F-16C, C-17, C-130 and KC-135R.

Source: 115 FW 2019a.

No Action Alternative

Under the No Action Alternative, the F-16s would continue to fly from Dane County Regional Airport. Negligible changes to the frequency of operations, or use of arrival or departure routes, would occur. Operations would remain as described in Section WI3.2.1.1. There would be no change in use of local airspace; therefore, no significant impacts would occur.

WI3.2.2 Airspace

As noted in Chapter 2, Section 2.1.2, F-35A aircraft would not use Military Training Routes, either to access the training airspace or conduct training. Therefore, this aspect of airspace use is not addressed in this EIS.

WI3.2.2.1 Affected Environment

The 115 FW uses several airspace units that consist of MOAs, Restricted Areas, and ATCAAs (see Table WI2.2-1 and Figure WI2.2-1). These same airspace units would continue to be used by the F-35A. The 115 FW F-16 aircraft currently conduct up to 2,400 annual sorties (or 200 monthly sorties) lasting 30-60 minutes in the airspace. In addition to local sorties generated by the 115 FW, the Volk Airspace Complex has transient users (A-10, B-1, B-2, B-52, C-130, F-15, 1 F-16, F-18,

and F-35) that make up about 35 percent of the total activity. The complex also hosts up to two Northern Lightning exercises per year for 2 weeks each.

The scheduling agency for the Volk Falls, Volk West, Volk South, and Volk East MOAs is the Volk Field Combat Readiness Training Center; the primary using agency for R-6904 is Volk Field. The controlling agency for the entire Volk Airspace Complex is the FAA, Minneapolis ARTCC. The public is notified of designated use of the Volk Falls, Volk East, and Volk West MOAs by a Notice to Airmen (NOTAM) at least 4 hours in advance. R-6904A/B use is designated from 8 a.m. to 4 p.m. Tuesday through Saturday, with use at other times designated by NOTAM.

There are eight Air Traffic Service Routes within the affected environment (Table WI3.2-2). Victor (V) route V-345 transits the Volk Falls, Volk West, and Volk South MOAs; V-24 and V-246 transit the Volk Falls MOA; and V-9341 transits the southeast corner of the Volk East MOA. There are no V routes within R-6904A/B and no published Tango (T) routes occur within the Volk Airspace Complex. There are four high altitude Jet (J) routes, J-538, J-70, J-68, and J-89 that traverse the area located above the MOAs. J-70 has a Minimum Enroute Altitude (MEA) of 25,000 feet MSL; no minimum altitude is associated with the other routes. There are no published Q routes above the MOAs although Q-440 lies just to the north of the Volk Airspace Complex.

Table WI3.2-2. Air Traffic Service Routes in the Vicinity of the Training Airspace

<i>Route Name</i>	<i>MEA¹</i>	<i>Associated Airspace</i>
V-345	None	Volk Falls, Volk West/Volk South MOA
V-24	None	Volk Falls MOA
V-246	None	Volk Falls MOA
V-9341	None	Volk East MOA
J-538	None	Volk ATCAA Complex
J-70	25,000 MSL	Volk ATCAA Complex
J-68	None	Volk ATCAA Complex
J-89	None	Volk ATCAA Complex

Note: MEA as published in the vicinity of the training airspace.

Legend: ATCAA = Air Traffic Control Assigned Airspace; MEA = Minimum Enroute Altitude; MOA = Military Operations Area; MSL = mean sea level.

As depicted in Table WI3.2-3, there are 35 airports located beneath the Volk Airspace Complex: 11 public and 24 private. The Volk Airspace Complex excludes the airspace at and below 1,500-

feet AGL within a 3-nautical mile (NM) radius of the Black River Falls, Neillsville Municipal, Mauston-New Lisbon Union, Bloyer Field, Necedah, and Neillsville municipal airports. In addition, several private airports lie beneath the Volk Airspace Complex.

Table WI3.2-3. Public and Private Airports in the Vicinity of the Training Airspace
(Page 1 of 2)

<i>Airport Name</i>	<i>Airport Ownership</i>	<i>Associated MOA</i>	<i>Based Aircraft</i>	<i>Annual Operations</i>
Black River Falls Area Airport	Public	Volk Falls MOA	17 – Single Engine 2 – Multi-Engine 3 – Ultralights	12,320
Neillsville Municipal Airport	Public	Volk West MOA	31 – Single Engine	7,520
Marshfield Municipal Airport	Public	Volk East MOA	12 – Single Engine 3 – Multi-Engine 1 – Jet	22,950
Alexander Field South Wood County Airport	Public	Volk East MOA	42 – Single Engine 4 – Multi-Engine 8 – Ultralights	9,050
Stevens Point Municipal Airport (STE)	Public	Volk East MOA	37 – Single Engine 2 – Multi-Engine 3 – Jet 1 – Helicopter 2 – Ultralights	23,250
Waupaca Municipal Airport	Public	Volk East MOA	33 – Single Engine 2 – Multi-Engine 2 – Jet 1 – Helicopter 4 – Ultralight	20,160
Wautoma Municipal Airport	Public	Volk East MOA	37 – Single Engine 10 – Ultralights	12,400
Adams County Legion Field Airport	Public	Volk East MOA	17 – Single Engine 1 – Helicopter 1 – Ultralight	7,070
Necedah Airport	Public	Pike West MOA	9 – Single Engine	8,950
Mauston-New Lisbon Union Airport	Public	Pike West MOA	21 – Single Engine 1 – Ultralight	10,110
Wild Rose Idlewild (W23)	Public	Volk East MOA	6 – Single Engine 6 – Ultralights	7,000
Stoiber Airport	Private	Steelhead MOA	None Reported	Not Reported
Cunningham	Private	Pike West MOA	None Reported	Not Reported
Lewis Airport (7W14)	Private	Volk Falls	1 – Single Engine	150
Blair Airport (W149)	Private	Volk Falls	2 – Single Engine	900
Whittlesey Cranberry Co Airport	Private	Volk West MOA	None Reported	Not Reported
Winch Airfield Airport	Private	Volk East MOA	None Reported	Not Reported
Gottschalk Field Airport	Private	Volk West MOA	None Reported	Not Reported
Jennie's Field Airport (NR-2)	Private	Volk East MOA	None Reported	Not Reported
Swan Field Airport (WS36)	Private	Volk East MOA	None Reported	Not Reported
Plainfield International Airport	Private	Volk East MOA	None Reported	Not Reported
Lake Ell Field Airport	Private	Volk East MOA	None Reported	Not Reported
Timberline Airport	Private	Volk East MOA	None Reported	Not Reported
Plantation Pine Airport	Private	Volk East MOA	None Reported	Not Reported
Buzzards Roost Airport (1W17)	Private	Volk East MOA	None Reported	Not Reported
Bennett Field Airport	Private	Volk East MOA	None Reported	Not Reported

Table WI3.2-3. Public and Private Airports in the Vicinity of the Training Airspace
(Page 2 of 2)

<u>Airport Name</u>	<u>Airport Ownership</u>	<u>Associated MOA</u>	<u>Based Aircraft</u>	<u>Annual Operations</u>
Snow Crest Ranch Airport	Private	Volk East MOA	None Reported	Not Reported
Cacic Airport	Private	Volk East	2 – Single Engine	300
Clearwater Aero Estates Airport	Private	Volk East MOA	2 – Single Engine	Not Reported
Wood Tick Strip Airport (WI12)	Private	Volk East MOA	None Reported	Not Reported

Table WI3.2.2. Public and Private Airports in the Vicinity of the Training Airspace
(Page 2 of 2)

<i>Airport Name</i>	<i>Airport Ownership</i>	<i>Associated MOA</i>	<i>Based Aircraft</i>	<i>Annual Operations</i>
Bulldog Ranch Airport	Private	Volk East MOA	None Reported	Not Reported
Nowatzki Field Airport	Private	Volk East MOA	None Reported	Not Reported
Broken Prop Airport	Private	Volk East MOA	None Reported	Not Reported
Bucky's Airpark Airport	Private	Volk East MOA	None Reported	Not Reported
Gaffney Airport	Private	Volk East MOA	None Reported	Not Reported

Legend: MOA = Military Operations Area.

Source: Skyvector 2018.

WI3.2.2.2 Environmental Consequences

Proposed Action

Selection of the 115 FW installation for beddown of 18 operational F-35As would not result in adverse impacts on airspace use and management throughout the region. This alternative would not require any changes to the current lateral or vertical configuration of the MOAs, Restricted Areas, or ATCAAs, nor would it alter their normally scheduled times of use. The existing agreements in place between the FAA, scheduling agencies, and 115 FW would be sufficient to support F-35A flight operations. Under the Proposed Action, the F-35A aircraft would conduct up to 3,061 annual sorties (approximately 250 monthly sorties) lasting 30-60 minutes each. There would be an increase of approximately 28 percent in the amount of time spent in the airspace under the Proposed Action.

Impacts to civil and commercial aviation traffic in the training airspace used by the 115 FW could result in increases of F-35A operations, but effects would be minimal. The existing procedures and altitude structure would continue to support use of the Air Traffic Service Routes traversing the training airspace and airports located beneath the airspace. Additionally, although the F-35A would operate more frequently at higher altitudes, the traffic on the high altitude routes J-538, J-70, J-68, and J-89 are within Class A airspace (over 18,000 feet MSL) where flight operations would continue to be controlled by Minneapolis ARTCC. Airspace at and above 18,000 feet MSL for use in military training would continue to be released by the FAA only when not needed for other air traffic purposes and can be recalled when needed for commercial operations.

Use of existing procedures and continued close coordination for scheduling use of the MOAs, Restricted Areas, and ATCAAs would continue to ensure safe air traffic operations throughout this region. Radio-equipped aircraft can monitor Very High Frequency (VHF) Channel 134.35 for MOA activity advisories. Air traffic traveling near these airspace units would not conflict with-

military flight activities. In addition, this 115 FW Proposed Action represents a continuation of current activities with minimal increases in operations, and no comments were received during the

public scoping period identifying conflicts with civil or commercial aviation. Therefore, no significant impacts to airspace use and management would be expected.

No Action Alternative

Under the No Action Alternative, the F-16s would continue to fly from Dane County Regional Airport and use the same training airspace as they do today. No changes to the number of operations or frequency of use of the training airspace would occur. Operations would remain as described in Section WI3.2.1.1. There would be no change in use of training airspace and therefore, no significant impacts would occur.

WI3.2.3 Summary of Impacts

The one-for-one replacement of F-16 military aircraft with F-35A aircraft assigned to the 115 FW would not require changes in local airspace or airfield management. Eventual replacement of F-16 aircraft at the installation with F-35As would result in an approximate 47 percent increase in military airfield operations (this would drop to 27 percent once the F-35A adopts the alert mission) and an approximately 3 percent increase in total operations when compared to the affected environment. This minor increase in airfield operations would have a minimal effect on the local air traffic environment. Time spent in the SUA would be expected to increase approximately 28 percent. The existing procedures and altitude structure would continue to support use of the Air Traffic Service Routes traversing the training airspace and airports located beneath the airspace. Additionally, although the F-35A would operate more frequently at higher altitudes, the traffic on the high altitude routes J-538, J-70, J-68, and J-89 are within Class A airspace (over 18,000 feet MSL) where flight operations would continue to be controlled by Minneapolis ARTCC. Close coordination of scheduling and use of the SUA by the 115 FW with the scheduling agencies would continue to ensure safe air traffic operations throughout the region. Therefore, impacts to airspace around Dane County Regional Airport and the SUA associated with the 115 FW would not be significant as a result of the F-35A beddown.

WI3.3 AIR QUALITY

WI3.3.1 Installation

The following section describes the affected environment and examines the extent to which the beddown of the F-35A at the 115 FW installation would be consistent with federal, state, and local air quality regulations.

WI3.3.1.1 Affected Environment

The affected environment for the air quality analysis is Dane County, Wisconsin, which is part of the Southern Wisconsin Intrastate Air Quality Control Region (AQCR) (40 CFR 81.158). Dane County is in attainment for all criteria pollutants and has no designated maintenance areas, so the General Conformity Rule does not apply to the air quality analysis performed for this location.

Table WI3.3-1 presents the 2014 emission inventory for Dane County, which includes the city of Madison and Dane County Regional Airport.

Table WI3.3-1. 2014 Criteria Pollutant Emissions for Dane County, Wisconsin (tons/year)

Location	VOCs	NO _x	CO	SO ₂	PM _{2.5}	PM ₁₀
Dane County, Wisconsin	19,941	16,444	98,671	295	2,651	5,354

Legend: CO = carbon monoxide; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; VOC = Volatile Organic Compound.

Source: USEPA 2018a.

In the Dane County, Wisconsin region, the summers are warm and wet; the winters are cold, dry, and windy; and it is partly cloudy much of the year. Over the course of the year, the temperature typically varies from 13 degrees Fahrenheit (°F) to 82°F and is rarely below -7°F or above 90°F. Rain falls throughout the year in Dane County. The rainy period of the year lasts for 11 months, from February 8 to January 3, with a sliding 31-day rainfall of at least 0.5 inch. The most rain falls during the 31 days centered around June 15, with an average total accumulation of 4.2 inches during this period. The snowy period of the year lasts for 5 months, from November 9 to April 8. The most snow falls during the 31 days centered around December 21, with an average accumulation of 5 inches during this period (Weather Spark 2018).

Over the last half century, average annual precipitation in most of the Midwest has increased by 5 to 10 percent. Rainfall during the four wettest days of the year has increased about 35 percent. Most of the state of Wisconsin has warmed 2 to 3°F in the last century (USEPA 2016).

Airfield operations are performed by the 115 FW, which currently flies 18 F-16C aircraft that are scheduled to be replaced by the F-35A. For the air quality analysis, only the aircraft to be replaced have been analyzed, as all other aircraft and their activities would remain the same. The annual operations for the F-16C aircraft include 2,400 landings and take-offs and 100 closed pattern operations. Other sources of air emissions associated with aircraft operations include airfield equipment such as tow tractors, and aircraft engine testing. Table WI3.3-2 presents the annual F-16C emissions for the 115 FW at Dane County Regional Airport. Emission estimates were developed for 18 F-16C aircraft, using the F110-GE-100 engine. Emission estimates were derived manually using installation-specific data and include landings and take-offs, closed patterns, and annual engine testing. F-16 aircraft emissions are based on operations data provided by the installation, and represent the most recent data available on flight operations. Aerospace ground

equipment (AGE) operations emissions estimates were derived from the USAF's Air Conformity Applicability Model (ACAM), where a number of default values were used.

**Table WI3.3-2. Annual F-16C Emissions Estimates for the 115 FW
at Dane County Regional Airport (tons/year)**

<i>Emission Source</i>	<i>VOCs</i>	<i>NO_x</i>	<i>CO</i>	<i>SO₂</i>	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>CO_{2e}</i>
F-16C Operations	5.84	34.12	64.92	3.72	6.29	4.23	9,263

Legend: CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; VOC = Volatile Organic Compound.

WI3.3.1.2 Environmental Consequences

Proposed Action

Air quality impacts within the affected environment were reviewed relative to federal, state, and local air pollution standards and regulations. Refer to Section 3.4 for a detailed discussion of air quality resource definitions and the analytical methodology for evaluating impacts. Since Dane County is in attainment for all criteria pollutants and has no designated maintenance areas, the General Conformity Rule does not apply.

Potential impacts to air quality are evaluated with respect to the extent, context, and intensity of the impact in relation to relevant regulations, guidelines, and scientific documentation. The Council on Environmental Quality (CEQ) defines significance in terms of context and intensity in 40 CFR 1508.27. This requires that the significance of an action be analyzed in respect to the setting of the action and based relative to the severity of the impact. For attainment area criteria pollutants, the project air quality analysis uses the USEPA's Prevention of Significant Deterioration (PSD) permitting threshold of 250 tons per year as an initial indicator of the local significance of potential impacts to air quality. It is important to note that these indicators only provide a clue to the potential impacts to air quality. In the context of criteria pollutants for which the proposed project region is in attainment of a National Ambient Air Quality Standards (NAAQS), the analysis compares the annual net increase in emissions estimated for each project alternative to the 250 tons per year PSD permitting threshold. The PSD permitting threshold represents the level of potential new emissions below which a new or existing minor non-listed stationary source may acceptably emit without triggering the requirement to obtain a permit. Thus, if the intensity of any net emissions increase for a project alternative is below 250 tons per year in the context of an attainment criteria pollutant, the indication is the air quality impacts will be insignificant for that pollutant. In the case of criteria pollutants for which the proposed project region does not attain a NAAQS, the analysis compares the net increase in annual direct and indirect emissions to the applicable pollutant *de minimis* threshold(s). If the net direct and indirect emissions from the project alternative equal or exceed an applicable *de minimis* threshold, then a

A positive general conformity determination is required before any emissions from the actions may occur.

Construction

As a result of the proposed construction, there would be up to 212,883 SF (4.9 acres) of temporary soil disturbance, including up to 71,883 SF (1.7 acres) of new impervious surface at the 115 FW installation. All proposed construction is within the footprint of the developed installation and would occur beginning in 2020. The following assumptions were used for construction projects at the 115 FW installation:

- New building foundations require excavation of at least 1 foot of grade soil.
- All buildings are single story.
- All new buildings require at least 100 feet of utility trenching.
- All new impervious surfaces are assumed to be concrete unless clearly asphalt (roadways).
- All construction activities were assumed to occur in 1 year to provide a worst-case scenario for emissions. This means all construction was calculated to occur in 2020, even though some projects may last longer than 1 year.
- Where two options are under consideration, the option that would generate the greatest emissions was selected for analysis.

Construction emission estimates were prepared using the USAF air model ACAM. Emissions would primarily be generated by:

- diesel-powered construction equipment operating on-site,
- trucks removing or delivering materials from the construction areas,
- construction worker vehicles,
- application of architectural coatings, and
- dust created by grading and other bare earth construction activities.

Results of the modeling are presented in Table WI3.3-3. The 250-ton per year value serves as a comparative indicator for all criteria pollutants and precursors. Detailed information on the modeling can be found in Appendix [B.C](#).

Table WI3.3-3. Annual Construction Emissions Estimates for the 115 FW Installation at Dane County Regional Airport – 2019 (tons/year)

<i>Year</i>	<i>VOC</i>	<i>NO_x</i>	<i>CO</i>	<i>SO_x</i>	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>CO_{2e}</i>
2019	0.66	3.54	3.20	0.01	1.46	0.17	731
Comparative Indicator	250	250	250	250	250	250	NA
Exceedance (Yes/No)	No	No	No	No	No	No	NA

Legend: CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; NO_x = nitrogen oxides; SO_x = sulfur oxides; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; VOC = Volatile Organic Compound.

Based on the ACAM calculations, the emissions associated with construction of the 115 FW installation for the basing of the F-35A would not be significant. All of the criteria pollutant-

emissions are well below the comparative indicator values. A Record of Air Analysis (ROAA) has been prepared to document that the impacts would not be significant, and can be found in Appendix [BC](#).

Airfield Operations

Airfield operations for the 18 F-35A aircraft would be similar to those currently occurring with the F-16C aircraft. The primary difference would be that the annual number of landings and take-offs is projected to increase by 661, resulting in an overall increase in operations. Additionally, it is anticipated that the alert mission would continue to be flown by up to four F-16C aircraft associated with another unit until such a time as when the F-35A aircraft are determined fully operational. The net change in operation emissions at the 115 FW installation are presented in Table WI3.3-4 for 2025, when all 18 F-35A aircraft would be on-site and operational and the four F-16C aircraft are flying the alert mission. This would represent the new emission profile moving forward. The emissions account for the difference in the engine operations between the F-16C and F-35A aircraft, the increase in annual operations, and the small increase in personnel who would be assigned to the 115 FW installation as a result of basing the F-35A at the 115 FW installation.

**Table WI3.3-4. Annual Airfield Emissions Estimates for the 115 FW
at Dane County Regional Airport – 2025 (tons/year)**

<i>Emissions Source</i>	<i>VOC</i>	<i>NO_x</i>	<i>CO</i>	<i>SO_x</i>	<i>PM₁₀</i>	<i>PM_{2.5}</i>	<i>CO_{2e}</i>
F-35A Operations	6.00	71.07	22.03	14.85	2.43	2.33	21,741
F-16 Operations	5.84	34.12	64.92	3.72	6.29	4.23	9,263
Net Change	0.16	36.95	-42.89	11.12	-3.85	-1.90	12,478
Comparative Indicator	250	250	250	250	250	250	NA
Exceedance (Yes/No)	No	No	No	No	No	No	NA

Legend: CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; NO_x = nitrogen oxides; SO_x = sulfur oxides; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; VOC = Volatile Organic Compound.

The net change is the difference in emissions resulting from instituting the Proposed Action to base the F-35A as compared to not introducing the action. Under this alternative, volatile organic compounds (VOCs) and sulfur oxides (SO_x) would increase slightly and nitrogen oxides (NO_x) would increase moderately. Carbon monoxide (CO), particulate matter less than or equal to 10 microns in diameter (PM₁₀), and particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}) would decrease. All of the criteria pollutant emissions would remain well below the comparative indicator value. The increase in criteria pollutant emissions would not have a significant impact on area air quality. A ROAA has been prepared to document that the airfield operation impacts would be minimal, and can be found in Appendix [BC](#).

Greenhouse Gas Emissions

The proposed construction activities would contribute directly to greenhouse gas (GHG) emissions from fossil fuels. Demolition and construction activities would generate 731 tons of carbon-

dioxide equivalent (CO_{2e}) emissions in 2020. To put these emissions in perspective, 731 tons of GHGs is the equivalent of 143 cars driving the national average of 11,500 miles per year (USEPA 2018b). These GHG emissions would only be generated during the construction period. The operation of new facilities may result in a small increase in installation-related GHG emissions, primarily through the consumption of electricity and possibly through the combustion of fossil fuel on-site if any oil or natural gas boilers or other heating units are installed in the new facilities.

GHG emissions from airfield operations are based on the same mobile sources as the criteria pollutants: aircraft flight operations at the airfield, AGE, and jet engine testing. For the proposed F-35A basing, additional commuter emissions are included because of an increase in personnel resulting from the basing of the F-35A. The annual airfield CO_{2e} emissions would increase by approximately 12,478 tons or 135 percent. This is equivalent to adding an additional 2,438 passenger vehicles onto roads, driving 11,500 miles per year on average.

While the GHG emissions generated from the construction and F-35A airfield operations alone would not be enough to cause global warming, in combination with past and future emissions from all other sources they would contribute incrementally to the global warming that produces the adverse effects of climate change.

No Action Alternative

Under the No Action Alternative, the transition of F-16C aircraft to F-35A aircraft would not occur. There would be no construction nor alterations to the 115 FW installation in support of the F-35A beddown. Air emissions would not be notably different from those that occur today and as such, would not be significant.

WI3.3.2 Airspace

WI3.3.2.1 Affected Environment

The affected environment is the Volk Airspace Complex used by the 115 FW that consist of MOAs and ATCAAs (see Table WI2.2-1 and Figure WI2.2-1). The F-16Cs currently fly approximately 16 percent of the time below 3,000 feet AGL, which is below the mixing height and where emissions from the flying aircraft can influence ground-level air quality. None of the areas are designated by USEPA as nonattainment or maintenance areas for criteria pollutants.

WI3.3.2.2—Environmental Consequences

Proposed Action

Generally, the F-35A would fly at higher altitudes, operating at 3,000 feet AGL or higher about 99 percent of the flight time. This would be a 15 percent decrease in flight below the mixing height compared to the legacy F-16C aircraft. No new airspace or airspace reconfigurations are proposed.

or would be required to support the F-35A beddown at the 115 FW installation. The overall impact on air quality as a result of F-35A flight in the airspace would be beneficial, with fewer air pollutant emissions below the mixing height. As a result, there would be no significant impacts to air quality in the airspace as a result of the Proposed Action.

GHG emissions that occur both below and above the mixing height contribute to climate change. Aircraft training activities in the airspaces are highly variable, and it is not possible to quantitatively analyze the affected environment or Proposed Action GHG emissions in airspace. Any increases resulting from F-35A flight would be based on the number of increased operations.

No Action Alternative

Under the No Action Alternative, the transition of F-16C aircraft to F-35A aircraft would not occur and the F-16C would continue to operate from the 115 FW installation. Airspace activities would not be notably different from those that occur today, and as such would not be significant.

WI3.3.3 Summary of Impacts

Dane County is in attainment for all criteria pollutants and has no designated maintenance areas. Based on the ACAM calculations, the emissions associated with construction of the 115 FW installation for the basing of the F-35A would not be significant. Under this alternative, VOCs and SO_x would increase slightly and NO_x would increase moderately. CO, PM₁₀, and PM_{2.5} would decrease. All of the criteria pollutant emissions would remain well below the comparative indicator value. There would be an anticipated decrease of 15 percent for operations below the mixing height in the SUA, which would be a minor positive impact. Impacts to air quality associated with the proposed beddown of the F-35A at the 115 FW installation would not be significant.

WI3.4 SAFETY

WI3.4.1 Installation

WI3.4.1.1 Affected Environment

Fire/Crash Response

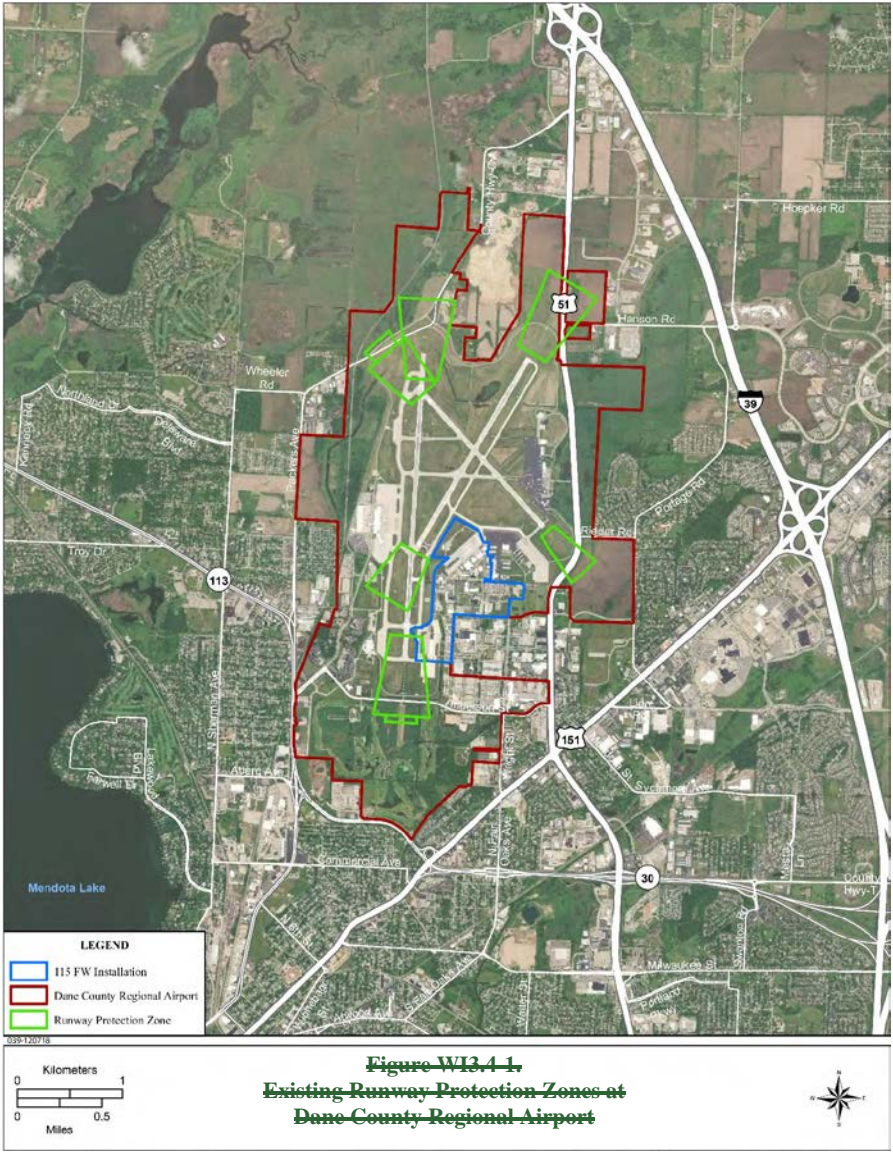
Day-to-day operations and maintenance activities conducted by the 115 FW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements. The 115 FW Fire Department has a response agreement as part of the Airfield Joint Use Agreement with Dane County Regional Airport to provide fire protection and first responder services for the installation and its aircraft. The 115 FW has a cooperative response agreement with the local Dane County Regional Airport fire department for mutual aid in fire protection, first responder-

and lifesaving services, and hazardous materials incident response. The 115 FW adheres to specific emergency response procedures contained in the Technical Order 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information*, for aircraft mishaps involving composite materials (USAF 2018). Specifically, Technical Order 00-105E-9 contains a section (Chapter 3) on Mishap Composite Awareness that provides guidance on fire response to aircraft containing composite materials.

Accident Potential Zone/Runway Protection Zone

Runway Protection Zones (RPZs) are trapezoidal zones extending outward from the ends of active runways at commercial airports and delineate those areas recognized as having the greatest risk of aircraft mishaps, most of which occur during take-off or landing (Figure WI3.4-1). Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas (see Section 3.5.1 for specific RPZ discussion and Section 3.6.1 for land use compatibilities). The RPZs lie completely within airport property and are free of development that would be incompatible with airport operations.

Facilities within the 115 FW installation are sited in Department of Defense (DoD) Clear Zones (CZs), contrary to UFC 3-260-01 guidelines, but comply with the less stringent FAA Approach Obstacle Free Zone. As such, the 115 FW operates with an airfield waiver.

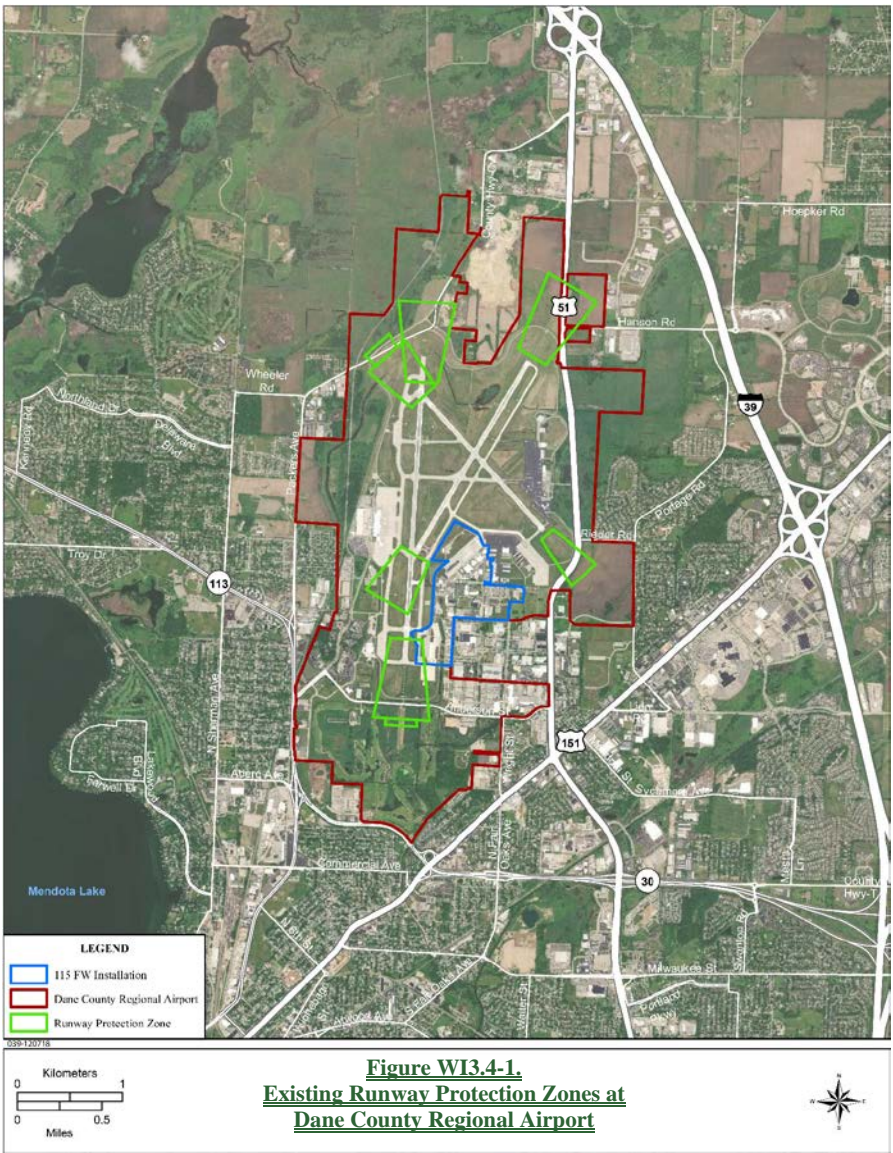


Explosive Safety

The 115 FW stores, maintains, and uses a small range of munitions required for performance of their mission. The Munitions Storage Area (MSA) at the 115 FW installation currently has five facilities, including an Administration and Trailer Maintenance facility, a Maintenance and Inspection facility, two earth-covered magazines, and an above ground magazine with an open inert training pad and a 50-foot by 100-foot tent for inert storage. In addition, there is an Explosive Ordnance Disposal storage site between B1210 and 1213. Figure WI3.4-2 shows the quantity-distance (QD) arcs associated with these facilities.

Anti-terrorism/Force Protection

Many of the military facilities at the 115 FW installation were constructed before Anti-terrorism/Force Protection (AT/FP) considerations became a critical concern. Thus, many facilities do not currently comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 115 FW would incorporate these standards to the maximum extent practicable.



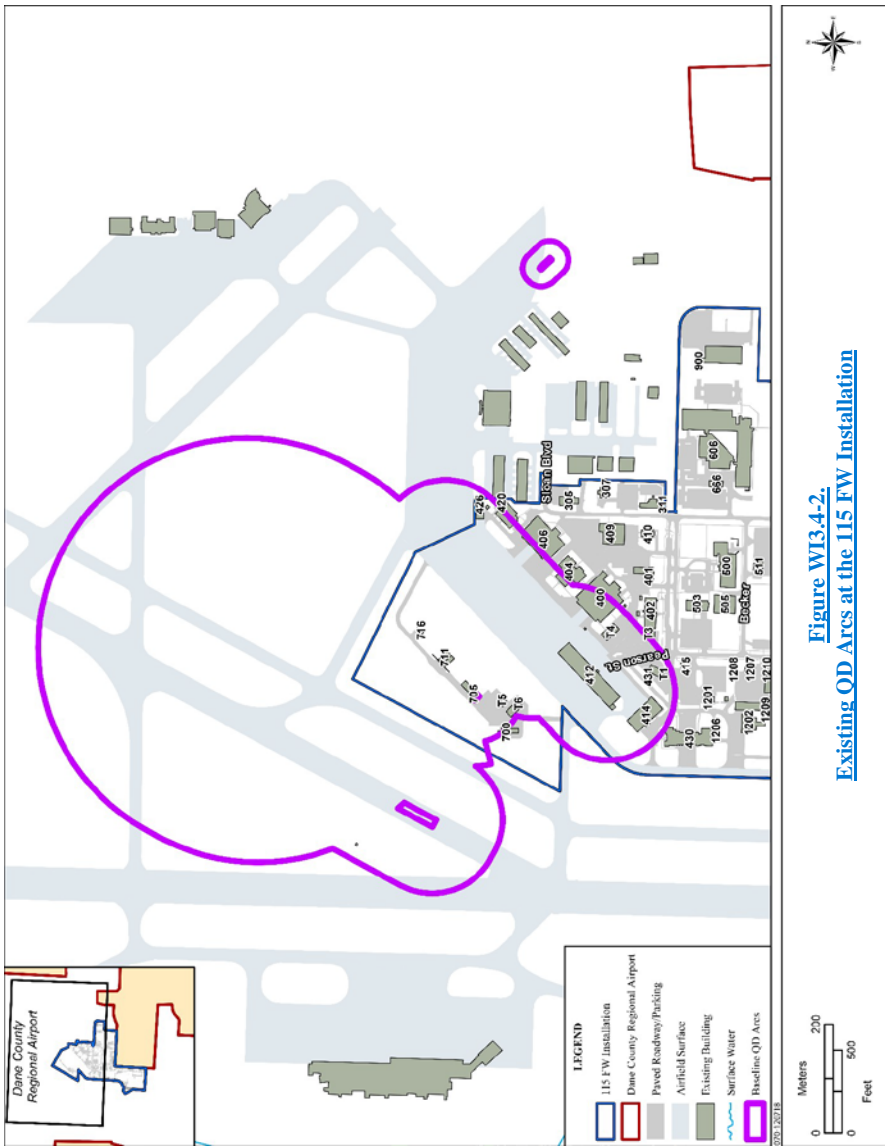


Figure W13.4-2.
Existing OD Arcs at the 115 FW Installation

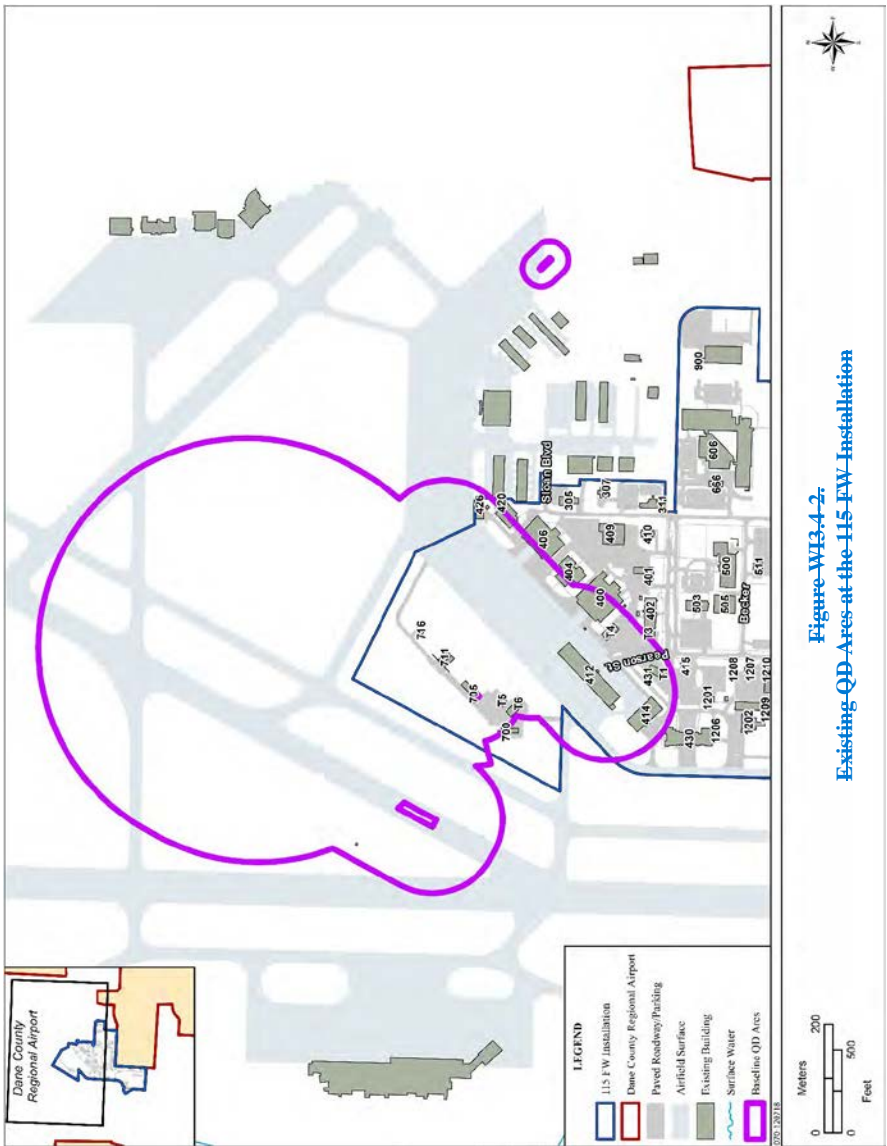
WI3.4.1.2—Environmental Consequences

Proposed Action

Existing facilities at the 115 FW installation for fire response and crash recovery meet F-35A beddown requirements (ANG n.d.).

Providing new and renovated facilities for the 115 FW installation that support operational requirements of the F-35A, and are properly sited with adequate space and a modernized supporting infrastructure, would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 115 FW.

Proposed renovation and infrastructure improvement projects related to this alternative would not impact aircraft take-off and landings or penetrate any RPZs. New building construction is not proposed within RPZs; therefore, construction activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at the 115 FW installation. For example, the F-35A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.



While there are a few planned construction projects within the proposed QD arcs, per Air Force Manual 91-201, *Explosive Safety Standards*, all public traffic route distances (PTRDs) and inhabited building distances (IBDs) meet specified net explosive weight quantity-distance (NEWQD) criteria (Figure WI3.4-3). No explosives would be handled during construction or demolition activities. Therefore, no additional risk would be expected as a result of implementation of this alternative.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Anti-terrorism Standards for Buildings*, providing additional protection for the personnel based there.

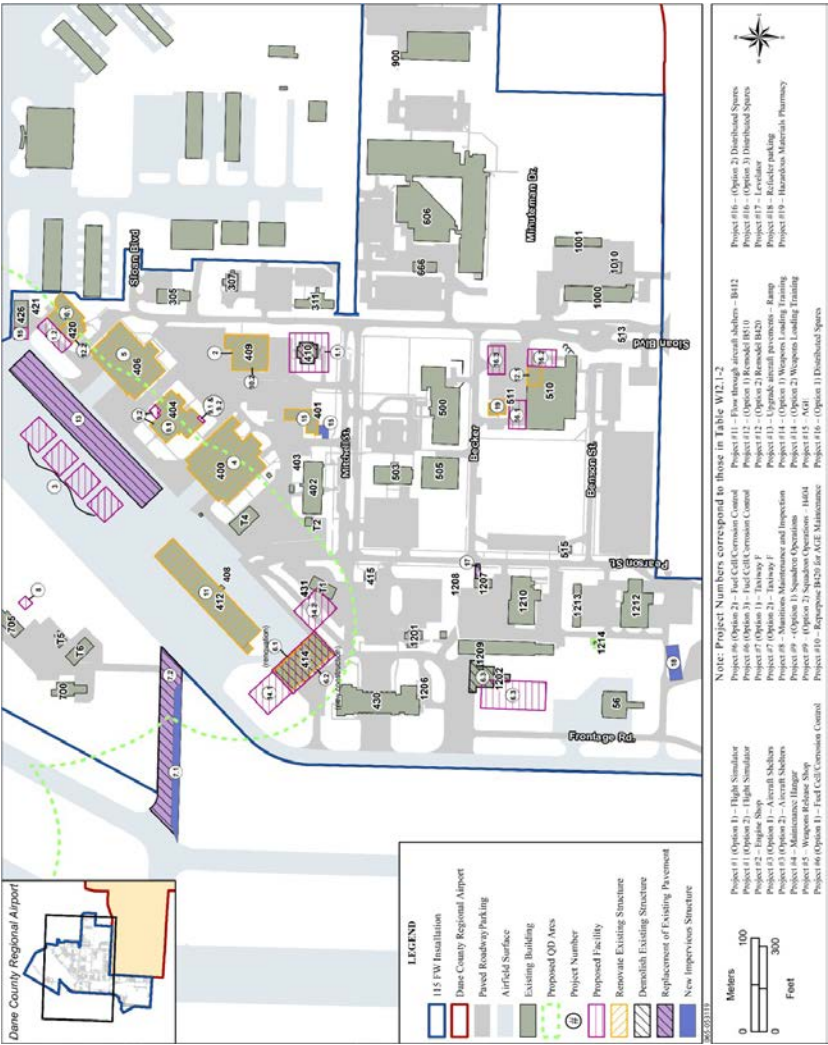


Figure W13.4-3.
Proposed QD Arcs and Proposed Construction at the 115 FW Installation

Chapter 3, Section 3.5.1.1 details F-35A composite material characteristics and potential exposure risks. Under the Proposed Action, firefighters would continue to be fully trained and appropriately equipped.

No Action Alternative

for crash and rescue response involving advanced aerospace composite materials and the proposed 115 FW F-35A beddown would not change these abilities. Additionally, 115 FW would keep local firefighting departments informed about any new information or firefighting techniques associated with composite materials should an accident occur. Based on current information on the characteristics of burning composite materials, standard firefighting equipment, including self-contained breathing apparatus, should be adequate to protect firefighters (Air Force Research Laboratory 2015; Naval Air Warfare Center 2003). No special extinguishing agents are needed for composite materials and typical aircraft firefighting agents, such as water or aqueous film forming foam, are adequate to control burning composite materials during an aircraft mishap. In the event of a crash of an aircraft containing composite materials, the USAF would follow the guidance contained in the *Mishap Response Checklist for Advanced Aerospace Materials/Composites* (USAF Advanced Composites Program Office 1993).

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. All aspects of ground and flight safety would be expected to remain as described under affected environment in Section WI3.4.1.1. Therefore, there would be no significant impacts to safety under the No Action Alternative.

WI3.4.2 Airspace

WI3.4.2.1 Affected Environment

The airspace directly associated with the Proposed Action as it relates to the 115 FW includes Restricted Areas, MOAs, and ATCAAs (see Figure WI2.2-1). The volume of airspace encompassed by the combination of airspace elements constitutes the affected environment for airspace management. These training areas allow military flight operations to occur and minimize exposure to civil aviation users, military aircrews, or the general public to hazards associated with military training and operations. This section describes the existing operations within the training airspace units and the following section evaluates changes that would occur with the introduction of the F-35A.

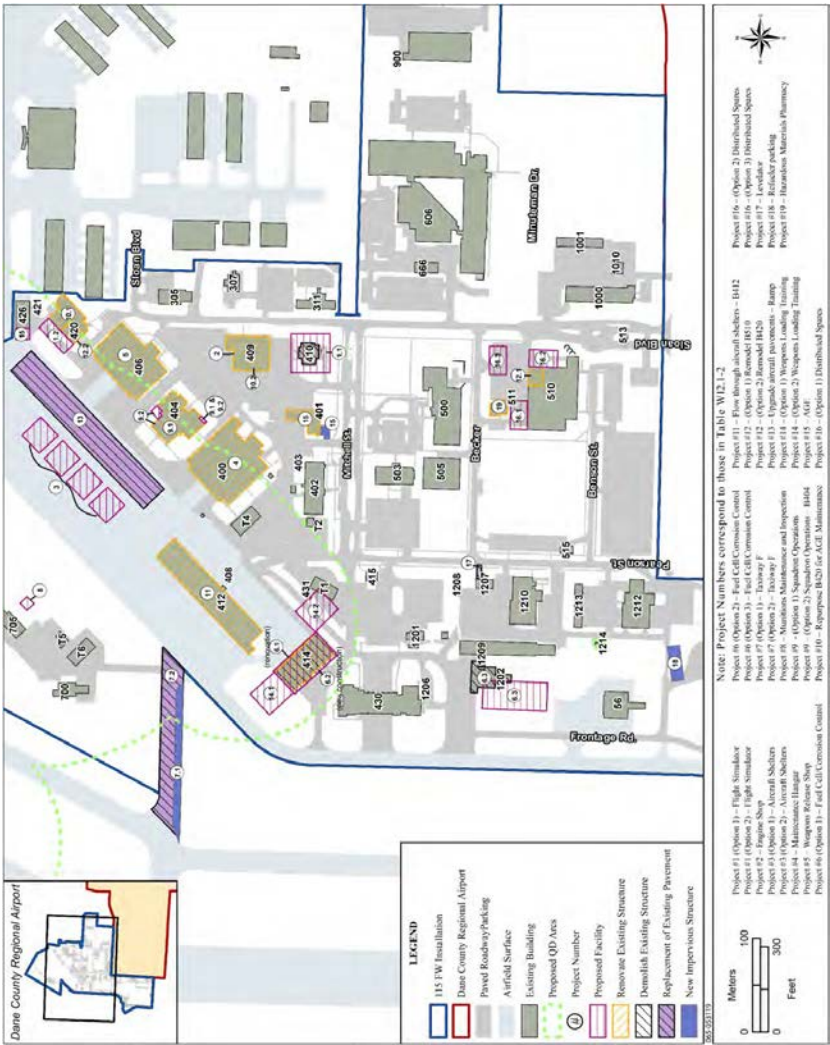


Figure W13.4.3.
Proposed QD Areas and Proposed Construction at the 115 FW Installation

Flight Safety Procedures

Aircraft flight operations from Dane County Regional Airport are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (ACC 2016) to ensure flight safety.

Aircraft Mishaps

F-16 ~~F-16~~ aircraft (all models) have flown more than ~~40,889,000~~11,278,471 hours since the aircraft entered the USAF inventory in 1975. Over that period, ~~374~~378 Class A mishaps have occurred and ~~335~~338 aircraft have been destroyed. This results in a Class A mishap rate of 3.~~43~~35 per 100,000 flight hours, and an aircraft destroyed rate of 3.~~08~~00 per 100,000 flight hours (Air Force Safety Center [AFSEC] ~~2018~~2019a). The 115 FW has not experienced a Class A mishap in the past 5 years (115 FW 2017a).

Bird/Wildlife Aircraft Strike Hazard

The USAF Bird/Wildlife Aircraft Strike Hazard (BASH) Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information for the past 43 years indicates that for the entire USAF, 16 USAF aircraft have been destroyed and 29 fatalities have occurred from bird/wildlife aircraft strikes (AFSEC 2017a).

The 115 FW of the WIANG has an ongoing BASH program through which information and assistance is freely shared between airfield users, the Dane County Regional Airport staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate Dane County Regional Airport area are unusual and have never resulted in a Class A mishap (115 FW 2017a). The 115 FW has recorded nine minor BASH incidents from 2012 to 2017 (115 FW 2017a).

Fuel Jettison

For use in emergency situations, certain aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. When circumstances require, fuel jettisoning is permitted above 5,000 feet AGL, over unpopulated areas, and is generally over water for applicable bases. Air Force Instructions (AFIs) cover the fuel jettison procedures, and local operating policies define specific fuel ejection areas for each base. The F-16 can only jettison fuel by jettisoning the external mounted fuel tanks.

WI3.4.2.2 Environmental Consequences

Proposed Action

The F-35A is a new aircraft and historical trends show that mishaps of all types decrease the longer an aircraft is operational as flight crews and maintenance personnel learn more about the aircraft's

capabilities and limitations. As the F-35A becomes more operationally mature, the aircraft mishap

rate is expected to become comparable with a similarly sized aircraft with a similar mission. F-35A [has](#) improved electronics and maintenance; thus, they are expected to result in long-term Class A accident rate comparable to that of the similarly sized F-16 aircraft (3.4335 lifetime) (AFSEC [2018a2019a](#)).

Through ~~September 2018~~Fiscal Year (FY) 2019, the F-35A has amassed ~~76,200~~[76,313](#) flying hours with ~~two~~[three](#) Class A mishaps resulting in no injuries and a Class A mishap rate of ~~3.00~~[1.1](#) lifetime, and for the last 5 years of [2.17](#) (AFSEC ~~2019~~[2019b](#)). These statistics are updated annually. Because the F-35A has not yet reached 100,000 hours [by the end of FY 2019](#), this rate is not directly

comparable to other aircraft with more flying hours. However, this rate does provide some indication of the overall safety of the F-35A aircraft. For example, this rate is much lower than the 18.65 rate that the F-16 had in the past after a comparable amount of hours.

In order to provide a broader perspective on the potential mishap rate for a new technology like the F-35A, the following discussion refers to the mishap rates for the introduction of the F-22A (Raptor), the latest jet fighter in the DoD inventory. The F-22A was introduced in 2002, and provided the USAF with the most current engine and stealth capabilities. This new technology is akin to the F-35A in that it is a new airframe with similar flight capabilities. With that in mind, it is possible that projected mishap rates for the F-35A may be comparable to the historical rates of the F-22A. The Class A mishap rates for the F-22A from squadron operational status to September 2018²⁰¹⁹ are provided in Table WI3.4-1.

Table WI3.4-1. F-22A Class A Flight Mishap History

Year	Class A Number of Mishaps	Class A Rate ¹	Destroyed A/C	Destroyed Rate	Fatal Pilot	Fatal All	Hours Flown per Year	Cumulative Flight Hours
FY02	1	0.00	0	0.00	0	0	0	0
FY03	0	0.00	0	0.00	0	0	133	133
FY04	1	32.12	0	0.00	0	0	3,113	3,246
FY05	1	24.90	1	24.90	0	0	4,016	7,262
FY06	1	11.10	0	0.00	0	0	9,012	16,274
FY07	0	0.00	0	0.00	0	0	14,487	30,761
FY08	1	5.56	0	0.00	0	0	17,977	48,738
FY09	1	4.76	1	4.76	0	1	20,988	69,726
FY10	0	0.00	0	0.00	0	0	24,675	94,401
FY11	1	6.54	1	6.54	1	1	15,289	109,690
FY12	3	11.32	0	0.00	0	0	26,506	136,196
FY13	1	3.82	1	3.82	0	0	26,184	162,380
FY14	1	3.34	0	0.00	0	0	29,939	192,319
FY15	1	3.13	0	0.00	0	0	31,993	224,312
FY16	1	3.24	0	0.00	0	0	30,889	255,201
FY17	1	2.96	0	0.00	0	0	33,834	289,035
FY18	5	13.01	0	0.00	0	0	38,424	327,458
FY19	6	21.48	0	0.00	0	0	27,932	355,390
Lifetime	20 26	6.117 .32	4	1.2213	1	2	-	327,458 355,390

Notes: ¹Mishap rate is based on 100,000 hours of flight.

Legend: A/C = aircraft; FY = Fiscal Year.

Source: AFSEC 2018b2019c.

Since introduction of the single jet engine fighter or attack aircraft in the 1950s, technological advances have continually driven down the engine failure rate and associated aircraft mishaps (Figure WI3.4-4) (AFSEC 2017b).

Although the F-35A is a new aircraft, the single engine that powers it is a composite product of 30 years of engineering, lessons learned from previous single aircraft engines with a similar core, and tens of thousands of hours during operational use of legacy aircraft. The propulsion system design for the F-35A includes a dedicated system safety program with an acceptable risk level that was

more stringent than legacy engines. The engine safety program focused on the major contributors of what previously caused the loss of an aircraft and provided redundancies in case of control system failures; additionally, the program allowed for safe recovery of the aircraft even with system failures. Throughout the design and testing process, safety initiatives took previous best practices for single engine safety and built upon them to promote flight safety progress. Examples of design characteristics that are damage tolerant and enhance safety include a dual wall engine liner, a fan blade containment shell, and a shaft monitor for vibration, torque, and alignment.

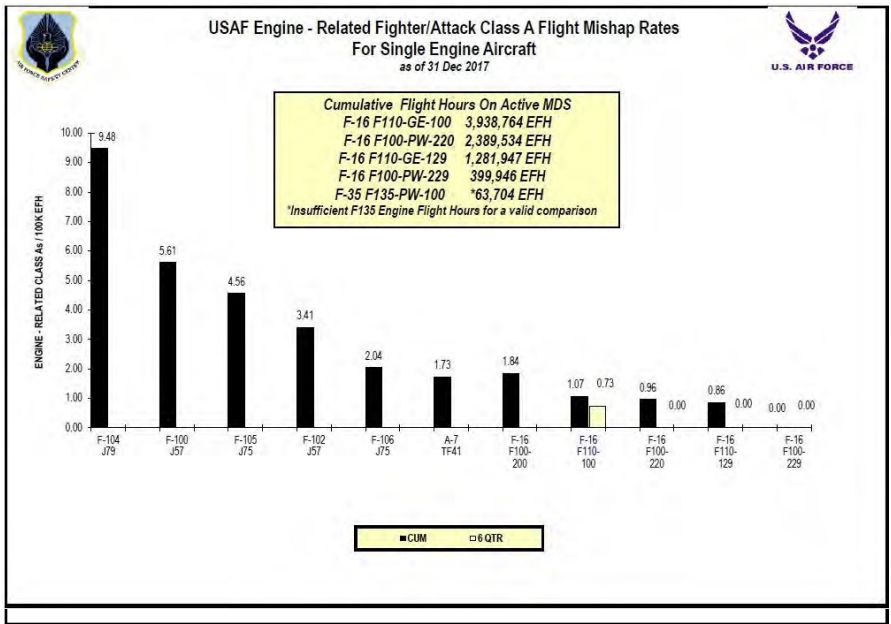


Figure WI3.4-4. United States Air Force Engine-Related Mishap Rates

Note: "Engine-related" excludes mishaps caused by foreign object damage, BASH, or failure of support systems external to the engine (e.g., fuel starvation).

Source: AFSEC 2017b.

Additionally, pilots flying the F-35A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology. These factors should minimize risk associated with mishaps due to pilot error.

Due to the addition of the F-35A aircraft under the Proposed Action at the 115 FW installation, there would be an increase of approximately 3 percent in total Dane County Regional Airport

airfield operations compared to the affected environment. The increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel. However, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures.

The F-35A would operate in the same airspace environment as the 115 FW F-16 aircraft. As such, the overall potential for bird-aircraft strikes is not anticipated to be statistically different following the beddown of the F-35A. However, the F-35A is considered to be more vulnerable to a catastrophic wildlife strike due to the Electro-Optical Targeting System (EOTS) Window Assembly than the legacy aircraft. Damage to the EOTS due to a wildlife strike could damage the engine, which could result in the catastrophic loss of the aircraft. It is anticipated that BASH potential would be somewhat lessened because the F-35A attains altitude more rapidly and would spend less time than F-16 aircraft at lower altitudes where species generally fly. In addition, F-35A aircrews operating in the 115 FW associated training airspace would be required to follow applicable procedures outlined in the 115 FW BASH Plan; adherence to this program has minimized bird-aircraft strikes. When risk increases, limits are placed on low-altitude flights and some types of training (e.g., multiple approaches, closed pattern work). Furthermore, special briefings are provided to pilots whenever the potential exists for greater bird strike risks within the airspace; F-35A pilots would also be subject to these procedures.

Chapter 3, Section 3.5.1.1 details F-35A composite material characteristics and potential exposure risks. Under the Proposed Action, firefighters would continue to be fully trained and appropriately equipped for crash and rescue response involving advanced aerospace composite materials and the proposed 115 FW F-35A beddown would not change these abilities. Additionally, 115 FW would keep local firefighting departments informed about any new information or firefighting techniques associated with composite materials should an accident occur. Based on current information on the characteristics of burning composite materials, standard firefighting equipment, including self-contained breathing apparatus, should be adequate to protect firefighters (Air Force Research Laboratory 2015; Naval Air Warfare Center 2003). No special extinguishing agents are needed for composite materials and typical aircraft firefighting agents, such as water or aqueous film

forming foam, are adequate to control burning composite materials during an aircraft mishap. In the event of a crash of an aircraft containing composite materials, the USAF would follow the guidance contained in the *Mishap Response Checklist for Advanced Aerospace Materials/Composites* (USAF Advanced Composites Program Office 1993).

The only maintenance of the stealth coating (e.g., low observable material) that would be accomplished at the base would be done using a brush or roller to apply coatings, bonding materials, or applying tape. Depot-level maintenance of the low observable material (including spray capability) would be conducted off-site, and therefore the composite material for major repairs to the low observable material would not be stored on base.

The F-35A does have the capability to jettison fuel for emergency situations. When circumstances require, fuel jettisoning is permitted above 5,000 feet AGL, over unpopulated areas, and is generally over water for applicable bases. AFIs cover the fuel jettison procedures, and local operating policies define specific fuel ejection areas for each base. In 2001, the USEPA National Vehicle and Fuel Emissions Laboratory concluded, "Since fuel dumping is a rare event, and the fuel would likely be dispersed over a very large area, we believe its impact to the environment would not be serious" (USEPA 2001). The F-35A's ability to dump fuel as an alternative to the jettison of external fuel tanks, as with the F-16, would be less impactful to the environment.

No Action Alternative

The F-35A aircraft has a 42 percent composite material by weight, while the F-16 aircraft has 13 percent. One disadvantage of composite materials is that they have the potential to degrade under extreme temperatures, resulting in the production of toxic fumes and airborne respirable fibers. Laboratory studies have identified respirable fiber products and toxic gases (including high levels of CO, NO_x, and hydrogen cyanide) from burning composite materials. Because of these characteristics, composite aerospace materials present unique hazards to mishap responders. Individuals exposed to a crash site could experience dermatological and respiratory problems. Exposure to these hazards would not necessarily end when a fire is extinguished; exposure to recovery crews, site security, the surrounding population, and others could continue (Naval Air Warfare Center 2003). However, research on aircraft composite materials similar to that used on F-35A aircraft demonstrate that combustion characteristics of composite materials are similar to other combustible materials and rapid flame spread or excessive heat releases are not a concern. Additionally, data and experience from several crash responses indicate that single fiber concentrations are typically very low, and a very specific and rare set of conditions is needed to produce airborne carbon fires. Due to the rarity of mishaps involving composite aerospace materials, no epidemiological data are available on personnel exposure to burning composites, and no studies have assessed the toxicology of carbon fibers generated in fire scenario with extended post-exposure duration. Firefighters would continue to be fully trained and appropriately equipped

~~for crash and rescue response involving advanced aerospace composite materials and the proposed 115 FW F-35A beddown would not change these abilities. Additionally, 115 FW would keep local firefighting departments informed about any new information or firefighting techniques associated with composite materials should an accident occur. Based on current information on the characteristics of burning composite materials, standard firefighting equipment, including self-contained breathing apparatus, should be adequate to protect firefighters (Air Force Research Laboratory 2015; Naval Air Warfare Center 2002). No special extinguishing agents are needed for composite materials and typical aircraft firefighting agents, such as water or aqueous film forming foam, are adequate to control burning composite materials during an aircraft mishap. In the event of a crash of an aircraft containing composite materials, the USAF would follow the guidance contained in the *Mishap Response Checklist for Advanced Aerospace Materials/Composites* (USAF Advanced Composites Program Office 1993).~~

~~No Action Alternative~~

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation and no training activities by F-35A operational aircraft would be conducted in the airspace. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. All aspects of safety would remain as described in the affected environment in Section WI3.4.2.1. Therefore, there would be no significant impacts to safety as a result of the No Action Alternative.

WI3.4.3 — Summary of Impacts

Construction activities would not pose any unusual concerns, and standard construction safety procedures would be implemented. All new construction would implement AT/FP requirements. While there are a few planned construction projects within the proposed QD arcs, per Air Force Manual 91-201, *Explosive Safety Standards*, all PTRDs and IBDs meet specified NEWQD criteria. Though the F-35A is a relatively new fighter aircraft with fewer years in service, the expected mishap rate is not expected to be different than other fighter aircraft. The 115 FW has a robust BASH program, and BASH incidents could be expected to decline with the F-35A as described. The 115 FW would continue to use the same SUA that they currently use. Under the Proposed Action at the 115 FW installation, impacts to safety would not be significant.

WI3.5 LAND USE

WI3.5.1 Installation

The following section describes the affected environment and examines the extent to which the beddown of the F-35A at the 115 FW installation would be consistent with state, regional, and local conservation and development plans and zoning regulations. In order to provide a

comparable data set between proposed siting alternatives at the five locations considered for the Proposed Action, local zoning categories were consolidated and/or renamed. Table WI3.5-1 provides a cross-reference between the City of Madison classifications and those used in this analysis.

Table WI3.5-1. Zoning Categories

<i>City of Madison Zoning Classification</i>	<i>EIS Land Use Classification</i>
Suburban Residential, Traditional Residential, Downtown Residential	Residential
Agricultural	Agriculture
Commercial Corridor-Transitional, Commercial Center, Traditional Shopping Street,	Commercial
Industrial-Limited, Industrial-General, Suburban-Employment, Traditional Employment, Employment Campus	Industrial
Urban Mixed Use, Neighborhood Mixed Use, Limited Mixed Use, Urban Office Residential	Mixed Use
Parks and Recreation	Parks/Open Space
Planned Development	Planned Development
Campus Institutional	School

Legend: EIS = Environmental Impact Statement.

WI3.5.1.1 Affected Environment

The 115 FW of the WIANG is located within the boundaries of Dane County Regional Airport, Wisconsin (see Figure WI1.0-1). The installation is approximately 5 miles northeast of the Madison central business district. The 115 FW installation is approximately 155 acres in size (comprising fee-owned U.S. government land and land leased from Dane County) and has over 40 buildings/structures (WIANG 2017).

The Planning Division within the City of Madison Department of Planning, Community and Economic Development is responsible for the implementation of land use development plans. The City's Zoning Ordinance establishes the permitted land uses, as well as design and development standards such as height and density. Wisconsin state law requires that zoning must be consistent with adopted plans. The City of Madison also has various boards that inform and advise the Common Council (Madison's City Council). New developments or proposals such as subdivisions, rezonings, changes in land use, or conditional uses require approvals by the City-

boards (i.e., Plan Commission, Urban Design Commission, Landmarks Commission) and later the Common Council.

The City of Madison has zoned the areas encompassing the 115 FW installation and the Dane County Regional Airport as AP: Airport District, which the city has identified as one of its “special [zoning] districts” (City of Madison 2018a). Land directly north of the airport is zoned for agriculture with sections of land zoned commercial and industrial to the northeast, and commercial to the northwest. The land south of the airport includes areas zoned for parks/open space,

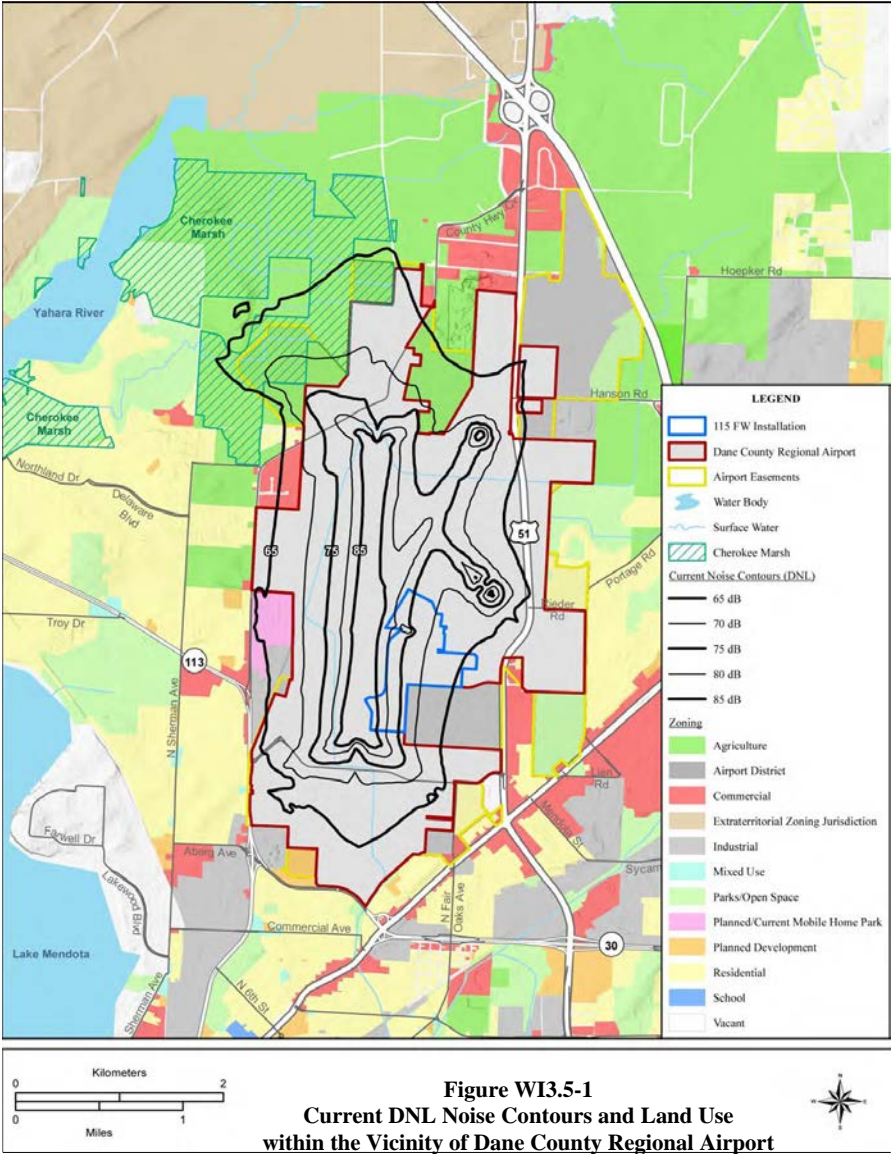
residential, commercial, and another special district zoned for educational use, Campus Institutional (CI) (shown as “School” on Figure WI3.5-1). The land directly to the west of Dane County Regional Airport is zoned for agricultural, commercial, industrial, as well as a planned/current mobile home park. Land further west is zoned for residential purposes.

Land use activities most sensitive to noise typically include residential and commercial use, public services, and areas associated with cultural and recreational uses, such as parks/open space. Noise measurements related to aircraft operations that define the area of noise impact are expressed in terms of DNL. DNL represents the AAD noise exposure from aircraft operations during a 24-hour period over a year. The DoD has established noise compatibility criteria for various land uses. According to these criteria, sound levels up to 65 dB DNL are compatible with land uses such as residences, transient lodging, and medical facilities. Currently, aircraft noise from Dane County Regional Airport exposes approximately 600 acres of off-airport areas of land zoned as industrial, commercial, agricultural, planned/current mobile home, residential, and other to noise levels between 65 and 75 dB DNL. The airport owns avigation easements on 337 of the 600 off-airport acres. Section WI3.1, *Noise*, discusses existing noise levels at POIs such as schools and churches located within the 65 dB DNL off-airport noise contour areas. Figure WI3.5-1 shows existing noise contours and the land use in the vicinity of Dane County Regional Airport. The current noise contours extend off-airport north and west of the installation where it overlaps with commercial, agricultural, and planned/current mobile home.

WI3.5.1.2 Environmental Consequences

Proposed Action

With the exception of Project #7 – Taxiway F, all new construction would totally be within the leased property of the 115 FW installation. While Project #7 is just outside the boundary, it is still within Dane County Regional Airport. The project encompasses modifications to an existing taxiway and no changes in land use would occur. All projects would occur on previously disturbed land. Additionally, there would be no change to the existing airfield-related RPZs and CZs. Therefore, the focus of this analysis is on changes in off-airport noise conditions.



The land use analysis compares the proposed noise contours to current noise contours, which show the existing noise environment. The comparison of the proposed contours to the current contours shows potential change in noise conditions and land use compatibility (Table WI3.5-2 and Figure WI3.5-2). The Proposed Action at the 115 FW installation would result in an overall increase in the off-airport area affected by noise levels greater than 65 dB DNL by approximately 1,320 acres. An addition of approximately 199 acres of residential land use would be included in the 65-75 dB DNL contours, rendering this acreage potentially incompatible for residential use (see Table WI3.6-1). [However, incompatibility does not constitute a federal determination that any land use is acceptable or unacceptable under federal, state, or local law, nor are they used to determine if a structure is habitable or uninhabitable.](#) No residential land use would be within noise contours greater than 75 dB DNL; although, an additional 15 acres of Mobile Home Park would be newly exposed to 65 to 70 dB DNL and 1 new acre exposed to 70 to 75 dB DNL. This would be considered a significant impact.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Land use would be expected to remain as described under affected environment in Section WI3.5.1.1. Therefore, there would be no significant impacts to land use under the No Action Alternative.

WI3.5.2 Airspace

WI3.5.2.1 Affected Environment

The 115 FW uses several airspace units (see Table WI2.2-1 and Figure WI2.2-1), including over land MOAs, overlying ATCAA, and Restricted Areas. Airspace associated with the 115 FW includes Volk Falls, Volk East, Volk West, and Volk South MOAs; the Black River, Volk West, Volk East, and Oshkosh ATCAAs; and the R-6904 A and B restricted airspace. The Volk MOA Complex and R-6904 support 99 percent of training operations by the F-16s from WIANG. Within these airspace units, the 115 FW accounts for about 71 percent of the activity.

Table WI3.5-2. Off-Airport Acreage by Land Uses Affected by Noise Levels 65 dB DNL and Greater under Proposed Action

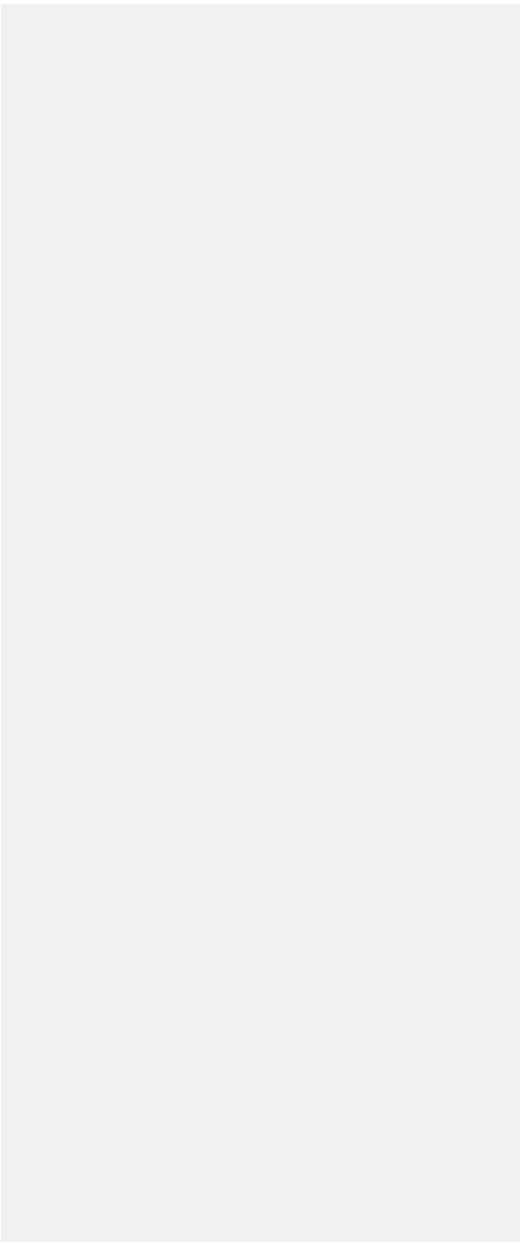
<i>Land Use Category</i>	<i>65-70 (C)</i>	<i>65-70 (P)</i>	<i>65-70 (AC)</i>	<i>70-75 (C)</i>	<i>70-75 (P)</i>	<i>70-75 (AC)</i>	<i>75-80 (C)</i>	<i>75-80 (P)</i>	<i>75-80 (AC)</i>	<i>80-85 (C)</i>	<i>80-85 (P)</i>	<i>80-85 (AC)</i>	<i>85+ (C)</i>	<i>85+ (P)</i>	<i>85+ (AC)</i>	<i>Total (C)</i>	<i>Total (P)</i>	<i>Total (AC)</i>
Residential	6	180	174	0	25	25	0	0	0	0	0	0	0	0	0	6	205	199
Commercial	29	97	67	0	2	2	0	0	0	0	0	0	0	0	0	29	98	69
Industrial	80	177	96	14	29	15	0	<1	<1	0	0	0	0	0	0	94	206	112
Planned Development	0	7	7	0	3	3	0	0	0	0	0	0	0	0	0	0	10	10
Parks/Open Space	<u>0</u> 0	<u>1525</u> 4	15	<u>0</u> 0	<u>3194</u> 51	3	0	<u>0</u> 0	0	0	0	0	0	0	0	0	17	17
Agriculture	<u>339</u> 139	<u>7915</u> 52	452	<u>7650</u> 51	<u>3421</u> 51	266	<1	<u>508</u> 51	50	0	0	0	0	0	0	415	1,183	768
Planned/Current Mobile Home-Park	44	59	15	0	1	1	0	0	0	0	0	0	0	0	0	44	60	16
Airport District	3	3	0	2	2	<1	0	1	<1	0	0	0	0	0	0	5	5	<1
Extraterritorial Zoning Jurisdiction	0	84	84	0	0	0	0	0	0	0	0	0	0	0	0	0	84	84
Other*	5	44	39	1	7	6	0	<1	<1	0	0	0	0	0	0	6	51	45
Total	507	1,456	949	93	413	320	<1	51	51	0	0	0	0	0	0	600	1,920	1,320

Note: Numbers may not add up due to rounding errors.

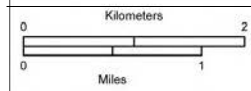
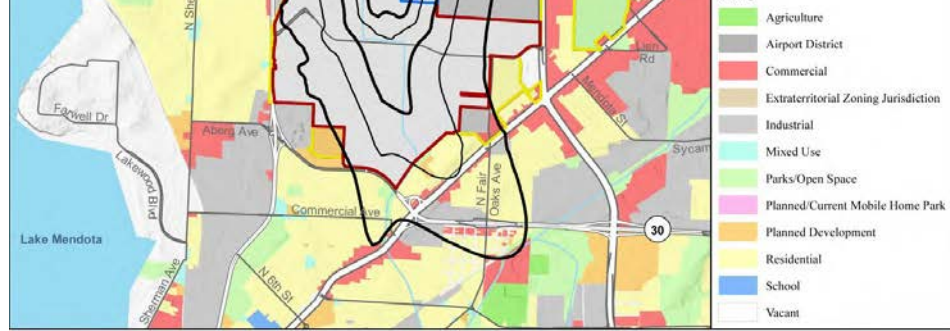
* = includes areas such as roads, water, etc.

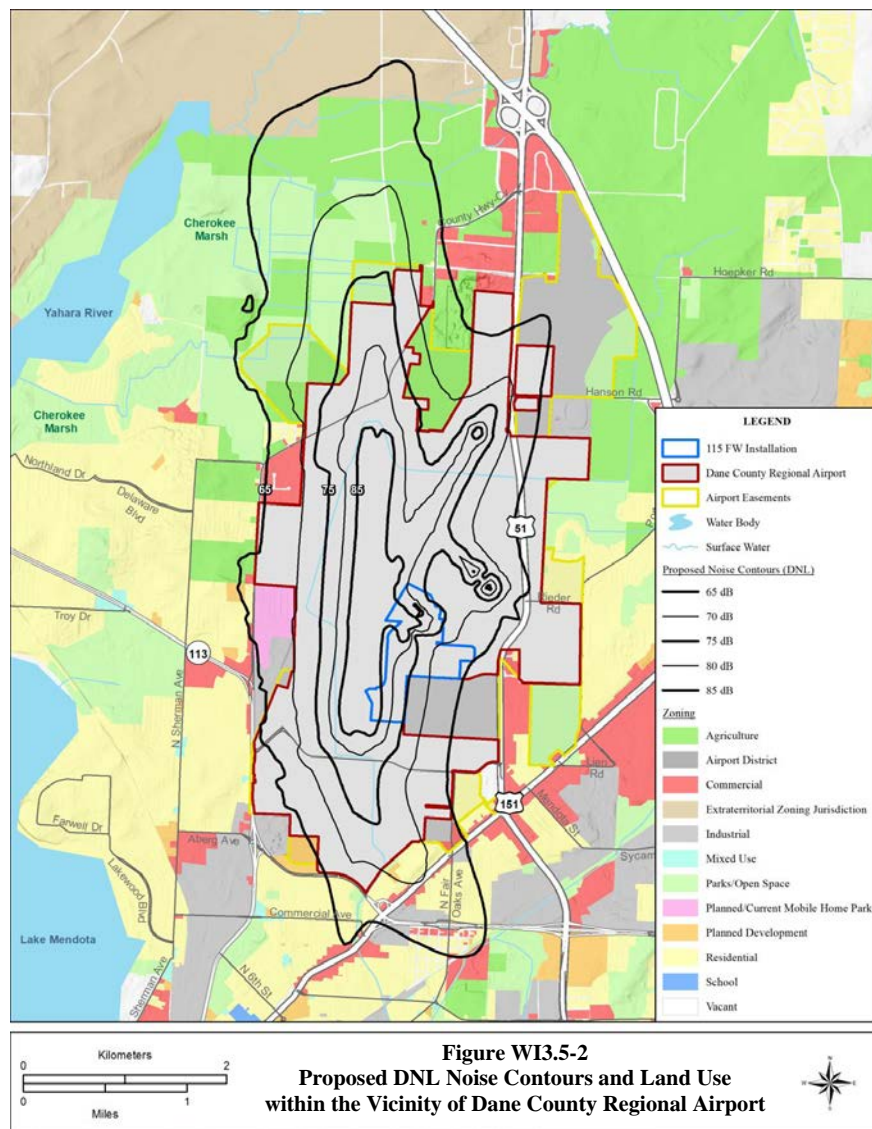
Legend: (C) = Current; (P) = Proposed; (AC) = Acres Change; dB = decibel; DNL = Day-Night Average Sound Level.

I



WI-50





The Volk Falls MOA and Black River ATCAA overlie the Black River Wisconsin State Forest, with various small cities and towns dispersed throughout the counties of Clark, Jackson, and Eau Claire under its boundary (Figure WI3.5-3). Necedah National Wildlife Refuge (NWR), managed by the U.S. Fish and Wildlife Service (USFWS), and Black River State Forest are located under the Volk West MOA and ATCAA. Counties underlying Volk West MOA include Wood, Clark, Jackson, and Monroe. To the south, the Volk South MOA overlies Mill Bluff and Buckhorn State Parks, as well as Castle Rock Lake. Additionally, the Volk Field is located under Volk South MOA along I-90. Counties underlying Volk South MOA include Monroe, Juneau, and Adams. Land under the Volk East MOA is bisected by Interstate 39, with Puckaway Lake, Green Lake, and a portion of Lake Winnebago east of the interstate. State parks underlying Volk East MOA include Roche-A-Cri State Park and Hartman Creek State Park. A small portion of federal land managed by USFWS underlies the southern boundary of the MOA. Counties within Volk East MOA include Adams, Waushara, Winnebago, Waupaca, Marquette, Green Lake, Portage, and Wood. The Oshkosh ATCAA overlies the remainder of Lake Winnebago, the northern half of the Horicon NWR, and the small cities and town within the counties of Outagamie, Winnebago, Waupaca, Calumet, and Fond Du Lac.

WI3.5.2.2 Environmental Consequences

Proposed Action

The Proposed Action would not require changes in SUA attributes, volume, or proximity; and it is expected that the type and number of ordnance employed at the range would remain the same or decrease. Although the F-35As would perform a similar mission as the F-16s, they represent a different aircraft with different capabilities, and would fly somewhat differently. Pilots would adapt training activities, where necessary, to ensure their accomplishment within available airspace. No changes to airspace structure are anticipated; however, there would be an increase in operations within the airspace. The differences in utilization of the existing airspace include use of higher altitudes overall, combined use of existing airspace, and generally higher altitudes for supersonic flights that occur. The F-35A would be expected to fly more of the time at higher altitudes than the F-16 (see Table WI2.2-2), operating more than 90 percent of the time above 10,000 feet MSL. This would result in the F-35A aircraft conducting most of their operations in the ATCAAs and higher altitude regimes of the airspace.

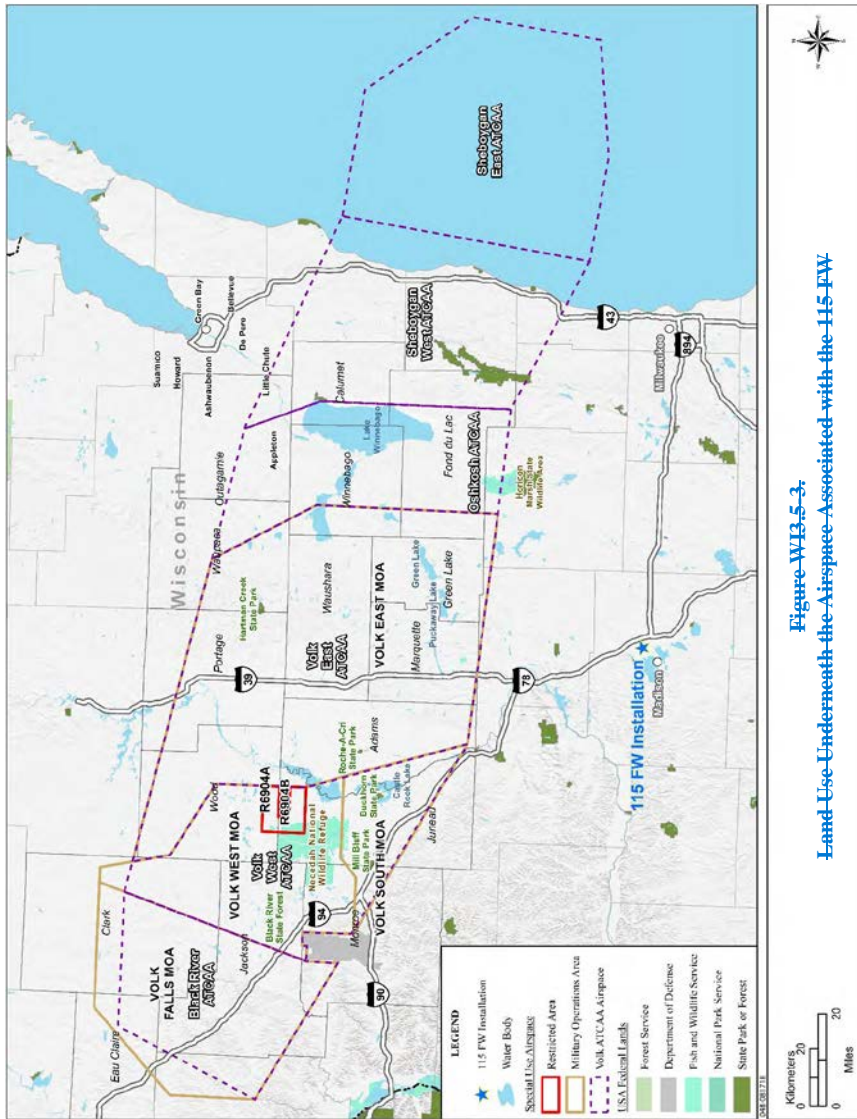


Figure W13.5-3
 Land Use Underneath the Airspace Associated with the 115 FW

F-35A aircraft (as do existing military aircraft) would adhere to all established floors and ceilings of airspace units. All airspace associated with the 115 FW lies within the typical flight distance available during a standard daily training flight for the F-35A. The F-35A would fly approximately 90-minute long missions, including take-off, transit to and from the training airspace, training activities, and landing. Depending upon the distance, speed, and type of training activity, the F-35A would spend approximately 30-60 minutes in the training airspace. On occasion during an exercise, the F-35A may spend up to 90 minutes in one or more airspace units. Changes in noise levels from the 115 FW Proposed Action would not affect general land use patterns, land ownership, or management of lands or special use land areas, such as Necedah NWR or the state parks, beneath the airspace. Impacts to land use under the SUA would not be significant.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation and no training activities by F-35A operational aircraft would be conducted in the airspace. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Land use would remain as described in the affected environment in Section WI3.5.2.1. Therefore, there would be no significant impacts to land use as a result of the No Action Alternative.

WI3.5.3 Summary of Impacts

Under the Proposed Action at the 115 FW installation, approximately 199 acres of additional residential land use would be included in the 65-75 dB DNL noise contour, rendering this acreage potentially incompatible for residential land use, which would be considered a significant impact. There would be no anticipated changes to the status or use of lands under the SUA as a result of the Proposed Action; therefore, impacts to land use under the SUA would not be significant.

WI3.6 SOCIOECONOMICS

WI3.6.1 Installation

WI3.6.1.1 Affected Environment

The 115 FW installation is located at Dane County Regional Airport in the city of Madison, Wisconsin.

Population

Population information for the state of Wisconsin, Dane County, and the city of Madison is presented in Table WI3.6-1. The population of Madison increased by 25,155 people between 2000 and 2010 and then increased by an additional 12,825 between 2010 and 2016. This represents an

18.3 percent increase in the population since 2000. Dane County showed a slightly higher growth rate with a 21.2 percent increase and Wisconsin as a whole showed a slower growth rate and increased by about 7.3 percent.

Table WI3.6-1. Population, 2000, 2010, and 2016

Area	2000	2010	2016	Percent Change 2000-2016	Percent Change 2010-2016
Wisconsin	5,363,675	5,686,986	5,754,798	7.3%	1.2%
Dane County	426,526	488,073	516,818	21.2%	5.9%
City of Madison	208,054	233,209	246,034	18.3%	5.5%

Source: U.S. Census Bureau 2000, 2010, and 2016a.

Employment and Income

Table WI3.6-2 provides employment and income data for the state of Wisconsin, Dane County, and the city of Madison. Median household income and per capita income in Madison in 2016 were slightly lower than in Dane County and are slightly higher than the state of Wisconsin overall. The unemployment rate as of early 2018 at the state and county level were both low, and Dane County's rate of 2.3 percent was lower than the rate for the state as a whole, which was 3.3 percent.

Table WI3.6-2. Employment and Income Statistics

Area	Median Household Income (2016)	Per Capita Income (2016)	Labor Force (2016)	Employed (2018)	Unemployed (2018)	Unemployment Rate (2018)
Wisconsin	\$54,610	\$29,253	3,165,903	3,060,156	105,747	3.3%
Dane County	\$64,773	\$35,687	326,139	318,681	7,458	2.3%
City of Madison	\$56,464	\$33,215	N/A	N/A	N/A	N/A

Note: Employment data for the city of Madison is not available from the Bureau of Labor Statistics.

Legend: N/A = not applicable.

Source: U.S. Census Bureau 2016b; Bureau of Labor Statistics 2018a, 2018b.

Housing

As shown in Table WI3.6-3, in 2016 there were an estimated 4,751 vacant housing units in the city of Madison and an estimated 9,289 vacant housing units in Dane County. The overall vacancy rate for housing was 4.3 percent in Madison and 4.2 percent in Dane County. Both rates were lower than the vacancy rate for Wisconsin, which was 12.8 percent.

Table WI3.6-3. Housing Characteristics, 2016

Area	Housing Units	Vacant Housing Units	Housing Vacancy Rate
Wisconsin	2,649,597	339,351	12.8%
Dane County	222,808	9,289	4.2%
City of Madison	110,540	4,751	4.3%

Source: U.S. Census Bureau 2016c.

WI3.6.1.2 Environmental Consequences

Proposed Action

Preliminary estimates of the construction required under this alternative place the cost of construction between \$90 and \$120 million. Additionally, there would be an anticipated increase in the number of operational personnel. As such, both construction and operational activities would impact socioeconomic conditions.

Population and Housing

Based on estimated construction spending and data from the 2012 Survey of Business Owners, which indicate an average of one construction worker for every \$285,520 in construction sales, construction for the Proposed Action would require a total of between 315 and 420 construction workers over the 2020 to 2023 period (U.S. Census Bureau 2012). No permanent population increase would be anticipated as the construction would not be permanent, and the local construction workforce and journeymen could meet the labor demand.

During operations, the current Active Duty Associate Unit would increase by up to 29. In addition, 35 new personnel would be added to provide security and contract oversight for FMS and the ALIS. In total, up to 64 additional personnel would be required. While it is likely that many of the additional personnel would already reside in the area, some population increase may occur. Under a maximum impact scenario, if all of the 64 additional personnel relocated from outside the area and brought dependents, assuming an average household size of 2.6, the total population increase would be up to 166 people. This would be an increase of less than 0.1 percent of the population of the city of Madison. Assuming the 64 additional personnel (and their dependents) required one housing unit each, 64 additional housing units would be demanded, which could easily be absorbed by the area's vacant units, requiring 1.3 percent or 0.7 percent of the vacant housing units in the city of Madison or Dane County, respectively.

For both construction and operations, impacts related to population and housing would be negligible.

Employment and Income

Construction activities associated with the Proposed Action are estimated to sustain between 315 and 420 construction jobs. Based on 2017 construction industry salaries for Dane County (Bureau of Labor Statistics 2018a), those jobs would generate a total of between \$20.9 and \$27.8 million in income over the 2020 to 2023 period.

An additional 64 permanent personnel would be added for the operational phase of the Proposed Action. Based on 2017 transportation industry salaries (Bureau of Labor Statistics 2018a), those jobs would generate approximately \$1.8 million in income per year, for the life of the project.

The increases in employment and income would be beneficial but negligible. Property Values and Property Taxes

Property values are a function of many different variables, including noise levels. The issue of the negative effect of airport noise on property values has been widely researched. A more full discussion of the impacts of noise levels on property values and resultant real estate taxes is contained in Appendix B, Noise Modeling, Methodology, and Effects. The property value to noise effects relationship is presented in the form of the Noise Depreciation Index (NDI), which reflects the estimated percent loss of property value per dB DNL (see Section 3.2.2). A review of several relevant studies (see Appendix B) concludes that noise may affect property values and related taxes in a NDI range of 0.2 to 2.0 percent per dB of noise increase, which correlates to an average loss of 0.5 percent of the property value per dB. The value of the property is determined based on many individual variables which, when taken together, form the total price and requires detailed information on local housing markets and actual sales prices. Furthermore, price property value studies model relationships between city level income and population data, and the overall willingness to pay for noise abatement, which enables an estimate of noise impacts in locations where detailed housing data is not available. The cost of noise mitigation is less of a factor in regions that experience extreme temperatures. Many structural elements designed to improve energy conservation also improve the acoustic performance of homes. The way properties are used in hot or cold environs (such as not opening windows for ventilation) can add as much as 15 dB of noise mitigation. The anticipation of noise level increase may also influence property values before the noise increases actually occur.

The range of impacts provided in Appendix B of 0.2 to 2.0 percent per dB serve as a rough estimate of potential impacts. These impacts will vary from location to location depending on the many other factors that influence property value including local market conditions.

If an area does in fact suffer from lower property values associated with increased noise levels, this will result in lower property taxes collected. Over time, lower sales prices in these areas will result in lower appraised values.

Table WI3.6-4 shows estimates of total property values and taxes in the census block groups within the 65 dB DNL contour line. Conservative estimates are shown giving a range of potential property value loss due to increased noise levels and the resulting range of potential property tax losses. These estimates assume that houses in the block groups within the 65 dB DNL contour line are exposed to 5 dB DNL increase in noise. As shown in Table WI3.1-10, POIs surrounding Dane County Regional Airport would experience marginal noise increases ranging from 0 to 9 dB DNL. As a result, an average of 5 dB is used.

Table WI3.6-4. Property Values and Property Tax Loss, 2017
(Page 1 of 2)

<u>Area*</u>	<u>Housing Units</u>	<u>Estimated Total Value**</u>	<u>Potential Property Value Loss with an average of 5 dB DNL of Noise Increase Low (0.2%)</u>	<u>Potential Property Value Loss with an average of 5 dB DNL of Noise Increase High (2.0%)</u>	<u>Potential Annual Property Tax Loss (1.8% Property Tax Rate) Low</u>	<u>Potential Annual Property Tax Loss (1.8% Property Tax Rate) High</u>
<u>Census Tract 20</u>						
Block Group 1	552	\$84,345,600	\$843,456	\$8,434,560	\$15,182	\$151,822
Block Group 2	725	\$117,812,500	\$1,178,125	\$11,781,250	\$21,206	\$212,063
<u>Census Tract 21</u>						
Block Group 1	816	\$120,523,200	\$1,205,232	\$12,052,320	\$21,694	\$216,942
Block Group 2	718	\$119,331,600	\$1,193,316	\$11,933,160	\$21,480	\$214,797
<u>Census Tract 22</u>						
Block Group 2	783	\$119,407,500	\$1,194,075	\$11,940,750	\$21,493	\$214,934
<u>Census Tract 24.02</u>						
Block Group 1	977	\$178,107,100	\$1,781,071	\$17,810,710	\$32,059	\$320,593
<u>Census Tract 25</u>						
Block Group 1	487	\$7,061,500	\$70,615	\$706,150	\$1,271	\$12,711
Block Group 2	493	\$80,211,100	\$802,111	\$8,021,110	\$14,438	\$144,380
<u>Census Tract 26.01</u>						
Block Group 1	510	\$76,041,000	\$760,410	\$7,604,100	\$13,687	\$136,874
Block Group 2	365	\$59,714,000	\$597,140	\$5,971,400	\$10,749	\$107,485
<u>Census Tract 26.02</u>						
Block Group 2	778	\$153,354,553	\$1,533,546	\$15,335,455	\$27,604	\$276,038
<u>Census Tract 27</u>						
Block Group 3	564	\$80,511,720	\$805,117	\$8,051,172	\$14,492	\$144,921
<u>Census Tract 112</u>						
Block Group 3	799	\$324,394,000	\$3,243,940	\$32,439,400	\$58,391	\$583,909
Block Group 4	875	\$189,350,000	\$1,893,500	\$18,935,000	\$34,083	\$340,830
Dane County Total	226,189	\$62,968,795,383	\$17,101,654	\$171,016,537	\$307,830	\$3,078,298

Note: *See Figure WI3.7-2 for block group locations.

**Total value of housing units was estimated using Census data for aggregate housing value and median house value from the American Community Survey.

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

Source: U.S. Census Bureau 2017; Tax-rates.org 2019.

Overall, the potential lost property value would represent between 0.03 and 0.27 percent of the tax base of Dane County.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Socioeconomics would be expected to remain as described under affected environment in Section-

WI3.6.1.1. Therefore, there would be no significant impacts to socioeconomics under the No Action Alternative.

WI3.6.2 Airspace

Impacts to airspace are not considered for this resource because the ROI for socioeconomics was considered to consist only of the installations themselves. The socioeconomic aspect of potential impacts to lands underlying SUA was not evaluated because no construction or other ground disturbance would occur to generate economic activity.

WI3.6.3 Summary of Impacts

Under the Proposed Action at the 115 FW installation, the population of Dane County could increase by less than 0.1 percent from the additional personnel associated with the day-to-day operations at the base. There would be slight permanent increases in employment (up to an estimated 64 jobs) and income (approximately \$1.8 million per year). There is sufficient housing in the county for the slight increase in permanent personnel at the base. While property values are a function of many local variables, studies have shown that noise increases have the potential to impact property values near airports from a low of approximately 0.2 percent to a high of approximately 2.0 percent. Noise increases, as the sole variable, have the potential to negatively impact individual homeowners' property values near Dane County Regional Airport from between a 0.2 to a 2.0 percent decrease, while other variables could drive a different result overall. Any potential parallel decline in property tax revenues would result in a minor impact. Impacts to socioeconomics associated with the F-35A beddown at the 115 FW installation would not be significant overall.

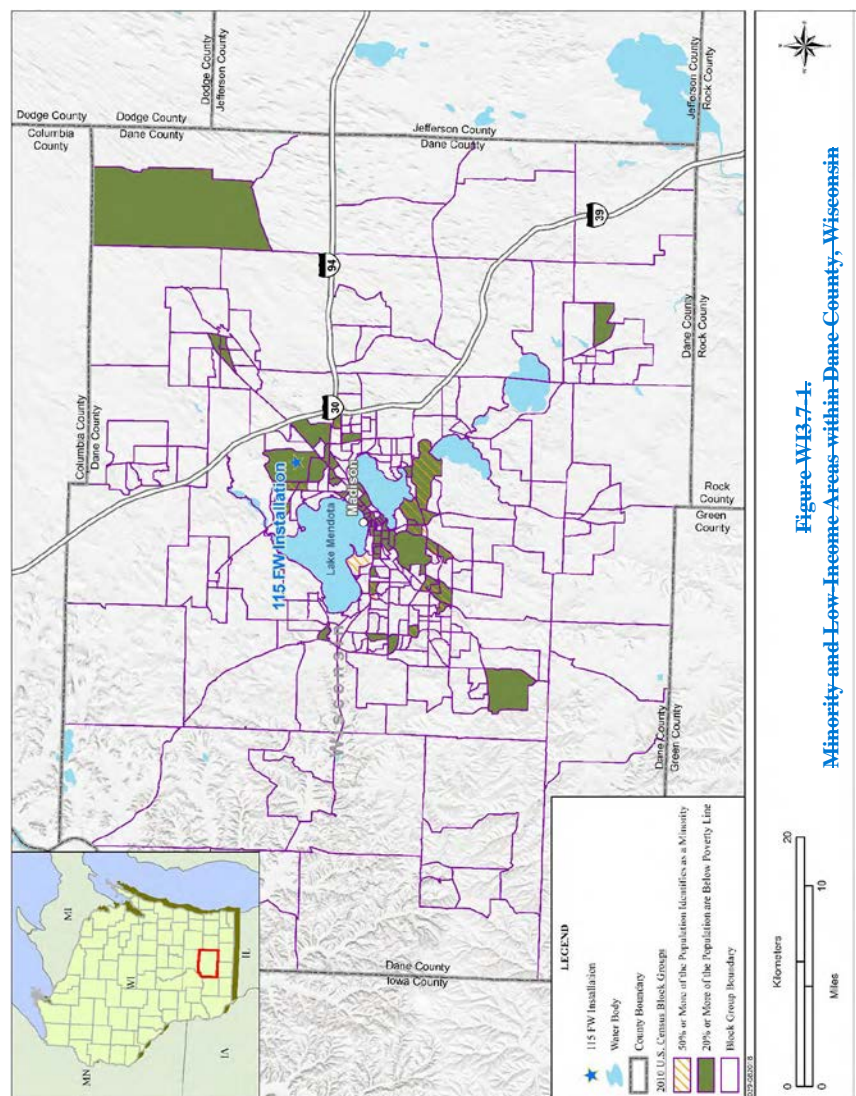
WI3.7 ENVIRONMENTAL JUSTICE AND THE PROTECTION OF CHILDREN

WI3.7.1 Installation

WI3.7.1.1 Affected Environment

Minority and Low-Income Populations

Figure WI3.7-1 highlights the census block groups in Dane County that are considered environmental justice low-income or minority areas. Out of a total of 310 census block groups in Dane County, 21 are classified as having minority populations, 65 are classified as having low-income populations, and 18 of those are classified as both minority and low-income (U.S. Census Bureau 2016d, 2016e).



Protection of Children

The city of Madison has an estimated 42,163 children under the age of 18, which is approximately 17.1 percent of the population (U.S. Census Bureau 2016a). This rate is lower than the rate for both Dane County (21.1 percent) and the state of Wisconsin (22.6 percent), which have 109,208 and 1,301,498 children under the age of 18, respectively. According to the National Center for Education Statistics (2016), there are a total of 155 schools in Dane County with a total of 76,275 students.

Elderly Populations

An estimated 27,564 people in Madison, or 11.1 percent of the population, are 65 years of age or older and considered elderly (U.S. Census Bureau 2017). In Dane County, 12.3 percent of the population is elderly (64,411 people) and in the state of Wisconsin it is 15.6 percent (896,724 people).

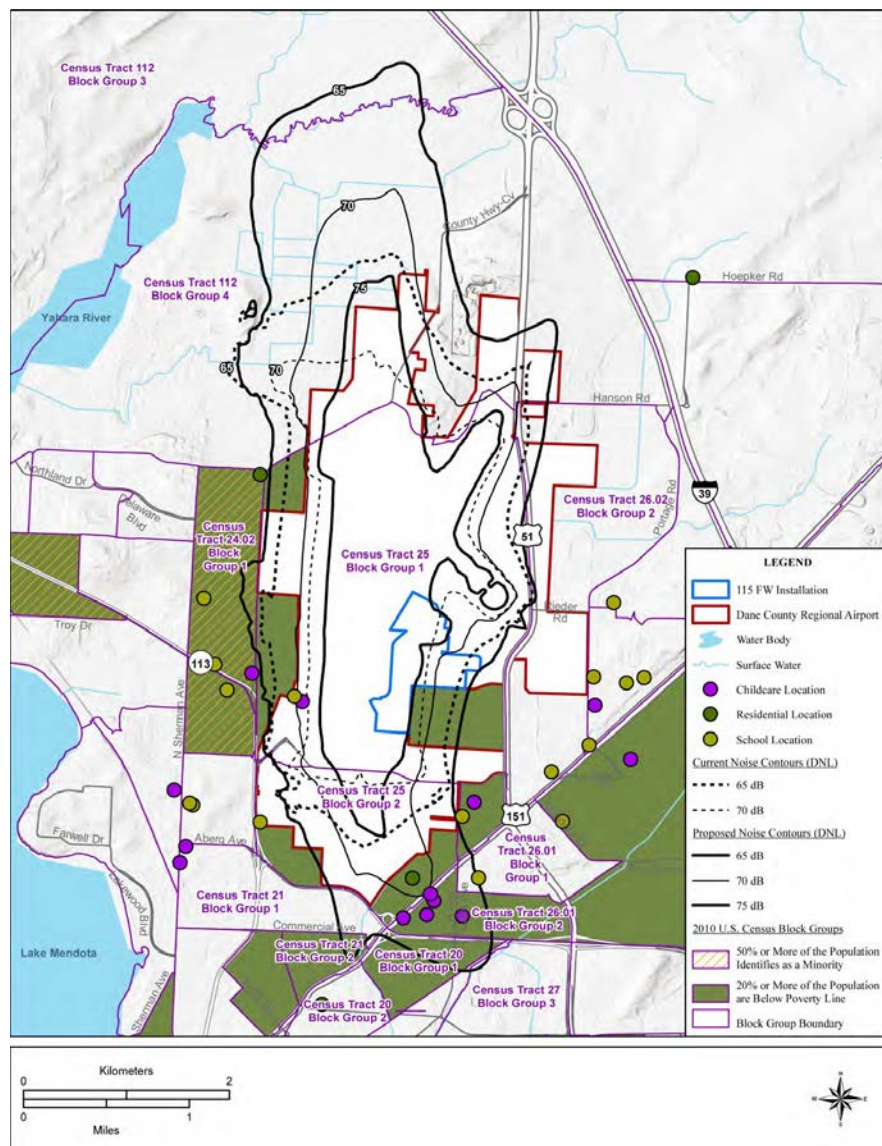
WI3.7.1.2 Environmental Consequences

Proposed Action

Minority and Low-Income Populations

The primary concern for impacts on minority and low-income populations is the potential for increased noise exposure. Figure WI3.7-2 shows the census block groups around the Dane County Regional Airport that are exposed to current and proposed noise levels of at least 65 dB DNL. Table WI3.7-1 lists the 13 census block groups that are exposed to these noise levels under the current and proposed scenarios at Dane County Regional Airport and indicates the block groups that would be newly exposed to these noise levels under the Proposed Action. Portions of nine block groups that were not exposed to noise levels of 65 dB DNL or higher outside the airport boundaries under the affected environment would be exposed to noise levels between 65 and 70

dB DNL under the Proposed Action. Large areas to the north of the airport would be newly exposed to the increased noise levels; however, these areas are largely unpopulated and are not low-income or minority communities. Four block groups, located south of the airport, are considered low-income population areas and would be newly exposed to noise levels of 65 dB DNL or higher. One block group located west of the airport is both a minority and low-income community and would be newly exposed. The increase in noise exposure to the south and west of the airport would disproportionately impact low-income areas and the increase in noise exposure to the east of the airport would disproportionately impact a low-income minority population. Noise impacts are further discussed in Section WI3.1 and as discussed in that section the change in the noise environment associated with the Proposed Action would be considered significant in the area surrounding the airfield.



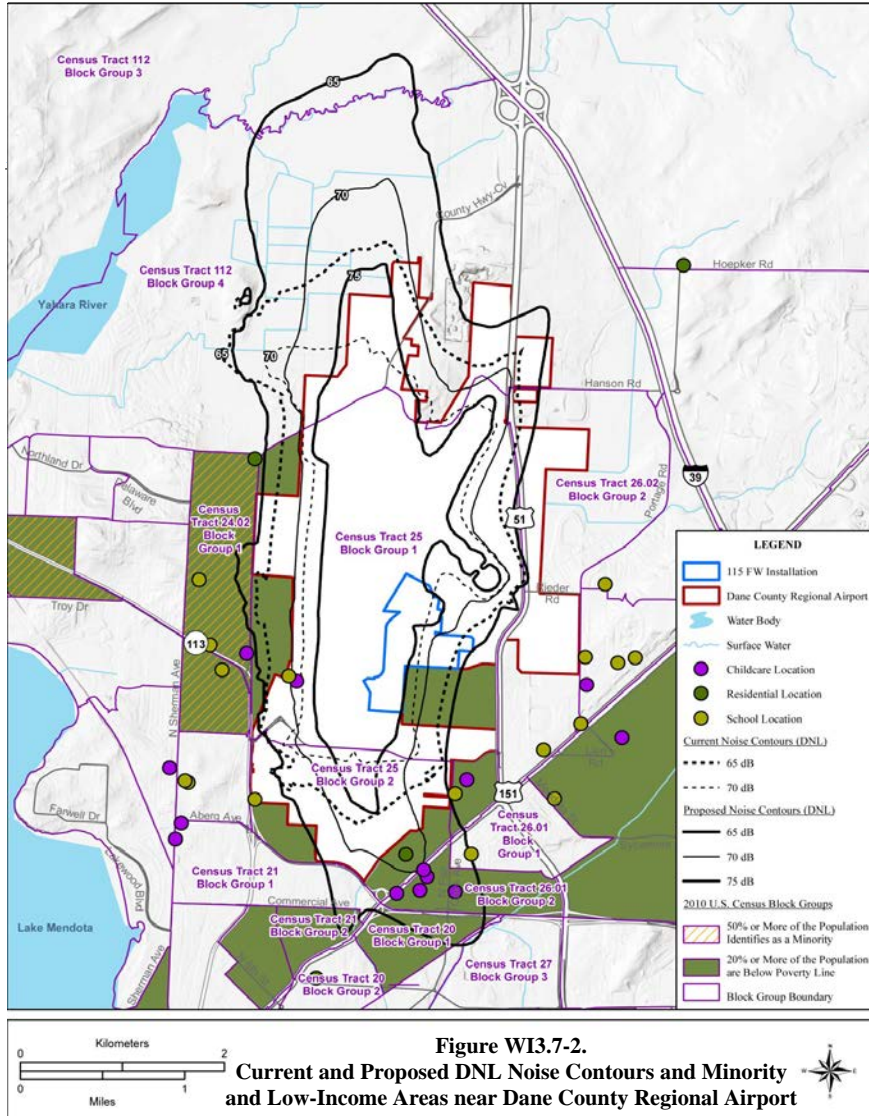


Table WI3.7-1. Census Block Groups Exposed to 65 to 75 dB DNL Noise Levels Under Current and Proposed Action Conditions

Area	Minority Population	Poverty Rate	Population under the age of 18	<u>Elderly Population (Aged 65 years or older)</u>	Newly Exposed to Proposed Contours
Wisconsin	17.9%	11.8%	22.6%	<u>15.6%</u>	N/A
Dane County	19.4%	10.9%	21.1%	<u>12.3%</u>	N/A
City of Madison	25.2%	18.6%	17.1%	<u>11.1%</u>	N/A
Census Block Groups					
Census Tract 20					
Block Group 1	33.1%	25.5%	18.0%	<u>8.3%</u>	Yes
Block Group 2	12.1%	14.5%	12.0%	<u>13.0%</u>	Yes
Census Tract 21					
Block Group 1	22.0%	6.7%	23.9%	<u>8.1%</u>	Yes
Block Group 2	23.4%	34.4%	12.0%	<u>7.8%</u>	Yes
Census Tract 24.02					
Block Group 1	56.6%	49.9%	33.8%	<u>5.8%</u>	Yes
Census Tract 25					
Block Group 1	35.8%	28.6%	18.2%	<u>14.9%</u>	No
Block Group 2	38.4%	25.0%	21.1%	<u>6.0%</u>	Yes
Census Tract 26.01					
Block Group 1	32.7%	16.7%	29.0%	<u>7.7%</u>	Yes
Block Group 2	29.4%	20.6%	28.0%	<u>7.8%</u>	Yes
Census Tract 26.02					
Block Group 2	37.6%	6.6%	19.9%	<u>9.5%</u>	No
Census Tract 27					
Block Group 3	9.6%	8.8%	13.1%	<u>13.4%</u>	Yes
Census Tract 112					
Block Group 3	15.6%	0.8%	41.3%	<u>7.2%</u>	Yes
Block Group 4	13.7%	3.4%	11.9%	<u>39.0%</u>	No

Note: *See Figure WI3.7-2 for block group locations.

Note: *See Figure WI3.7-2 for block group locations.

Source: U.S. Census Bureau 2016a, 2016b, 2017.

Protection of Children

As discussed in Section WI3.1, under the Proposed Action Alternative, the increase in the NA50 number of speech-interrupting events per school day hour would remain similar to the affected environment except Lake View Elementary and the Richardson School would experience one additional event per average hour. Play Haven, Northside Kinder Care, Lake View Elementary, Madison Baptist Academy, and Richardson School would all experience more than two interfering events per hour. All of the POIs would experience a range of 1 to 4 minutes of time above 50 dB per school day. The causation of speech interference at schools with increased noise levels may

hinder the ability of students (including low-income and minority students) to learn, which would constitute an adverse impact to children to include low-income and minority children.

Table WI3.7-1 shows the percent of the populations of the block groups that are under 18. Five block groups that would be exposed to noise levels between 65 and 70 dB DNL under the Proposed Action at the 115 FW installation have populations with a higher proportion of children than Dane

Inserted Cells

Inserted Cells

Inserted Cells

Inserted Cells

Inserted Cells

Inserted Cells

Inserted Cells

Inserted Cells

Inserted Cells

County. In Figure WI3.7-2, schools and childcare centers are shown with green and purple dots, respectively. Under the Proposed Action at the 115 FW installation, one school and five childcare centers would be exposed to noise levels between 65 and 70 dB DNL. The Richardson School is located within both the current and proposed 65 dB DNL contour lines. Sunny Ridge Kids Childcare, Bethesda Childcare, Boelter's Day Care, Baby Chick's Family Day Care, and Claudi's Kids Daycare are all located south of the airport and would be newly exposed to noise levels between 65 and 70 dB DNL under the Proposed Action.

There would be nine impacted block groups with higher proportions of children than Madison overall and there would be a school and five childcare centers within the proposed 65 dB DNL contour. The impacted school already experiences noise levels over 65 dB DNL and would not be newly exposed to the 65 dB DNL threshold, but the childcare centers would be newly exposed to these noise levels. Therefore, children would be disproportionately impacted by the Proposed Action; however, the USAF does not anticipate it would be necessary to close any schools as a result of a basing decision. Interference with classroom speech is discussed in detail in Chapter 4, Section WI3.1.1.2. It is important to note also that most permanent structures, including school buildings, can be effectively insulated from any distracting, exterior noise. Such mitigation is available from the FAA's noise mitigation programs and other sources. Further information on impacts associated with noise can be found in Section WI3.1.

Elderly Populations

Older adults have been identified as sensitive receptors to potential adverse impacts due to physiological and behavioral changes that come with age (Air Force Civil Engineer Center [AFCEC] 2014). Table WI3.7-1 shows the percent of the populations of the block groups that are elderly. Most of the 13 block groups that would be exposed to noise levels of 65 dB DNL or higher have a lower percentage of elderly people than the city of Madison and Dane County as a whole, however, 4 of the block groups have a higher percentage of elderly people.

A review of nursing homes and assisted care facilities found that one location would fall within the 65 dB DNL contour (Homeland Infrastructure Foundation-Level Data 2019). The one location identified is Women in Transition, which is a mental health center and does not contain a concentration of elderly residents. Because most of the impacted block groups do not contain a higher proportion of elderly residents than the surrounding region and there are no nursing homes or assisted living facilities for the elderly in the impacted areas, impacts to the elderly would not be disproportionate and would be minor.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Environmental justice and the protection of children would be expected to remain as described under affected environment in Section WI3.7.1.1. Therefore, there would be no significant disproportionate impacts to low-income populations, minorities, or children under the No Action Alternative.

WI3.7.2- Airspace

Impacts to airspace are not considered for this resource because the ROI for environmental justice was considered to consist only of the installations themselves. Environmental justice and potential effects to children in communities under the SUA were not evaluated because the only anticipated impacts would be due to aircraft noise, but any changes in noise levels in these areas would not be significant and would not impact human populations.

WI3.7.3- Summary of Impacts

Several census block groups associated with the expected changes in off-base noise contours associated with the proposed F-35A beddown at the 115 FW installation are considered to be disproportionately low-income or -minority areas. Therefore, impacts to environmental justice associated with the Proposed Action would be considered significant. Additionally, several census blocks with the expected changes in off-base noise contours have higher proportions of children and include five newly exposed childcare centers. Therefore, impacts to children associated with the Proposed Action would be considered disproportionate and significant. Impacts to the elderly would not be disproportionate and would be minor.

and include five newly exposed childcare centers. Therefore, impacts to children associated with the Proposed Action would be considered disproportionate and significant.

WI3.8 INFRASTRUCTURE

WI3.8.1 Installation

WI3.8.1.1 Affected Environment

Potable Water

Potable water for the 115 FW installation is provided by the City of Madison. Potable water in the area is supplied primarily from 22 groundwater wells and 30 reservoirs (City of Madison 2018b). The City of Madison Water Utility Division pumps an average of approximately 27-

million gallons of water per year to its customers (City of Madison 2018c). In calendar year (CY) 2017, 1,830,187 gallons of potable water were supplied to the 115 FW installation (115 FW 2017b).

Wastewater

The 115 FW installation generates wastewater from sanitary, and industrial processes. This includes OWS discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 115 FW installation is conveyed into the municipal sewage system to the Madison Metropolitan Sewage District Nine Springs Wastewater Treatment Plant, which has an average flow capacity of 57 million gallons (Madison Metropolitan Sewerage District n.d.).

Stormwater

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 115 FW SWPPP (115 FW 2016), the 115 FW installation has a stormwater drainage conveyance system typified by over land flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section WI3.10, *Water Resources*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

Electrical and Natural Gas Systems

Electricity and gas is supplied to the 115 FW installation by Madison Gas and Electric. Electricity consumption for CY 2017 at the 115 FW installation was 3,595,503 kilowatt-hours. Natural gas

consumption for CY 2017 at the 115 FW installation was 193,368 hundred cubic feet (115 FW 2017b).

Solid Waste Management

Municipal solid waste at the 115 FW installation is managed in accordance with the 115 FW Integrated Solid Waste Management Plan (115 FW 2015) and guidelines specified in [Air Force Instruction \(AFI\) 32-7042, Waste Management](#) (2017). In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 115 FW installation generates solid waste in the form of office trash, nonhazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are-

collected in dumpsters located throughout the 115 FW installation and transported by contractor to the Dane County Landfill.

Transportation

Regional access to the 115 FW installation is provided by several highways to the east, including Interstate 94 which runs north to south, Highway 151 which runs northeast to southwest, and Highway 51/Stoughton Road which runs north to south. The installation's main gate is accessed from Pierstorff Street and Hoffman Street.

WI3.8.1.2 Environmental Consequences

Proposed Action

Potable Water

Water consumption would be expected to increase slightly under the Proposed Action as a result of the small increase in personnel; however, an increase of up to approximately 64 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase of up to approximately 64 personnel on the installation. However, there have been no deficiencies

identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

Stormwater

Under the Proposed Action, there would be up to 212,883 SF (4.9 acres) of temporary soil disturbance, including up to 71,883 SF (1.7 acres) of new impervious surface as a result of proposed construction. In accordance with the EISA Section 438, any temporary increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section WI3.10, *Water Resources*). However, implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, would minimize these potential-

impacts. Therefore, impacts to the existing stormwater drainage system as a result of the proposed construction would be minimal.

Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with the Proposed Action would be implemented with more energy-efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate Leadership in Energy and Environmental Design and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to stay the same or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with the Proposed Action could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Proposed increases in personnel and equipment use would also contribute to an increase in solid waste generation. However, impacts to local landfills would not

be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 115 FW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2017).

Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by up to approximately 64 under the Proposed Action (see Section WI2.1.4). The increase in personnel would create a potential of 64 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two, one-way trips per day, the implementation of the Proposed Action would add an additional 128 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation, as well as those located on the installation, have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under the Proposed Action.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Infrastructure would be expected to remain as described under affected environment in Section WI3.8.1.1. Therefore, there would be no significant impacts to infrastructure under the No Action Alternative.

WI3.8.2 — Airspace

Impacts to airspace are not considered for this resource because the ROI for infrastructure was considered to consist only of the installations themselves. The ROI does not include land beneath the SUA since no ground disturbance, construction, or changes in infrastructure would occur.

WI3.8.3 — Summary of Impacts

Under the Proposed Action there would be no substantial changes expected to potable water, wastewater systems, stormwater management, energy supply systems, solid waste management, or transportation routes. Impacts to infrastructure at the 115 FW installation as a result of the proposed F-35A beddown would not be significant.

WI3.9 EARTH RESOURCES

WI3.9.1 Installation

WI3.9.1.1 Affected

Environment Geology

The 115 FW installation is located in the Central Lowlands Physiographic Province characterized by Paleozoic bedrock with some Cretaceous rocks underlying the western boundary. Much of the area exhibits widespread topographic effects of glaciation, including flat to gently inclined rock strata and regional dips controlled by domes and uplifts (PEER Consultants, P.C. 1988).

The 115 FW installation is located approximately 15 miles east and northeast of the terminal moraines marking the southwestern limits of the Wisconsin stage glacial advance. The installation is located in the pre-glacial Yahara River Valley on a thick deposit of Quaternary-age glacial drift and lacustrine deposits overlying Ordovician-age dolomites. In the vicinity of the installation, the glacial drift may be up to 300 feet thick. The Cambrian-age Mount Simon Sandstone underlies the glacial drift deposits in the vicinity of the 115 FW installation. The Mount Simon Sandstone unit is approximately 500 feet thick and is a regionally significant aquifer. Precambrian crystalline rocks underlie the Mount Simon Sandstone (ANG 2013).

Topography

The topography at the 115 FW installation is flat and has an elevation of approximately 855 to 860 feet MSL (ANG 2013) and is located near the western margin of the Great Lakes Section of the Central Lowlands Physiographic Province. In the areas around the 115 FW installation, the topography is characterized by numerous lakes with associated lacustrine plains, prominent end

moraines, and poorly integrated drainage (PEER Consultants, P.C. 1988). The 115 FW installation lies on the flat lacustrine plain of a former glacial lake (ANG 2013).

Soils

The 115 FW installation is located on an approximately 300-foot deposit of glacial drift that is predominantly composed of sand and silt with some clay and gravel. The uppermost glacial deposits underlying the 115 FW installation are mostly lacustrine silt and clay deposits. During recent ERP investigations, soil borings were advanced to 20 to 40 feet below ground surface. These soil borings indicated that surficial soil is comprised of a thin layer of fill material underlain by several feet of silt and clay beneath which is predominantly fine to ~~course~~coarse sand 40 feet below ground surface (ANG 2013).

The Natural Resources Conservation Service (NRCS) Soil Survey for Dane County, Wisconsin identifies the following five soil types at the 115 FW installation:

- Batavia silt loam, gravelly substratum, 2-6 percent grade,
- Virgil silt loam, gravelly substratum, 1-3 percent slopes,
- Wacousta silty clay loam,
- Hayfield silt loam, 0-3 percent slopes, and
- Sable silty clay loam, 0-3 percent slopes (U.S. Department of Agriculture 1978).

WI3.9.1.2 Environmental Consequences

Proposed Action

Under this alternative, new construction would consist of 19 separate projects resulting in up to 212,883 SF (4.9 acres) of new construction footprint, including up to 71,883 SF (1.7 acres) of new impervious surface. The total construction footprint analyzed represents the largest possible footprint of each of the options (see Table WI2.1-2). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Geology and Topography

Proposed construction under this alternative would occur within the footprint of the developed 115 FW installation and surrounding lands would not be impacted by any construction-related clearing and grading. As such, impacts to geology and topography would be negligible under the Proposed Action at the 115 FW.

Soils

Proposed construction under this alternative would occur on five soil types, including Batavia silt loam (2-6 percent slope), Virgil silt loam (1-3 percent slope), Wacousta silty clay loam, Hayfield silt loam (0-3 percent slope), and Sable silty clay loam (0-3 percent slope). The majority of the proposed construction is on the Batavia silt loam, Virgil silt loam, Wacousta silty clay loam, and the Hayfield silt loam. The Batavia silt loam is rated by the NRCS Web Soil Survey as somewhat limited for roads and small commercial building development due to high shrink-swell potential and slope. The Wacousta silty clay loam is rated as very limited due to ponding and a shallow depth to the saturated zone. The Virgil silt loam is also rated as very limited due to ponding, a shallow depth to the saturated zone, a high shrink-swell potential, and flooding. The Hayfield silt loam is rated as not limited for roads and small commercial building development. The ANG will implement appropriate engineering practices necessary in order to construct on these types of soils. In addition, under the Farmland Protection Policy Act (FPPA), the Batavia silt loam, Virgil silt loam, and Hayfield silt loam are designated as prime farmland. The Wacousta silty clay loam is-

designated as prime farmland if drained. However, the proposed construction is for national defense purposes and the surrounding land is already in urban development. Pursuant to the FPPA, the USAF determined that the land is not subject to the FPPA; therefore, the FPPA does not apply to this alternative.

To minimize potential impacts to soil associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the WIANG 115 FW installation SWPPP (115 FW 2016) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. A Notice of Intent (NOI) would be filed with the state of Wisconsin to obtain coverage under the General Permit for Stormwater Runoff from Construction Activities prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources under the Proposed Action at the 115 FW installation would not be significant.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action

Alternative, the ANG would continue to conduct their current mission using existing aircraft. Earth resources would be expected to remain as described under affected environment in Section WI3.9.1.1. Therefore, there would be no significant impacts to earth resources under the No Action Alternative.

WI3.9.2 – Airspace

Impacts to airspace are not considered for this resource because the ROI for earth resources was considered to consist only of the installations themselves. The ROI does not include land beneath the SUA since no ground disturbance would occur.

WI3.9.3 – Summary of Impacts

Under the Proposed Action at the 115 FW installation, proposed construction would result in up to 212,883 SF (4.9 acres) of temporary soil disturbance, including up to 71,883 SF (1.7 acres) of new impervious surface. Site-specific SWPPPs would be prepared for each construction project-

to ensure that runoff would be contained on-site. There are no special status soils associated with any of the proposed construction projects. Impacts to earth resources as a result of the proposed beddown of the F-35A at the 115 FW installation would not be significant.

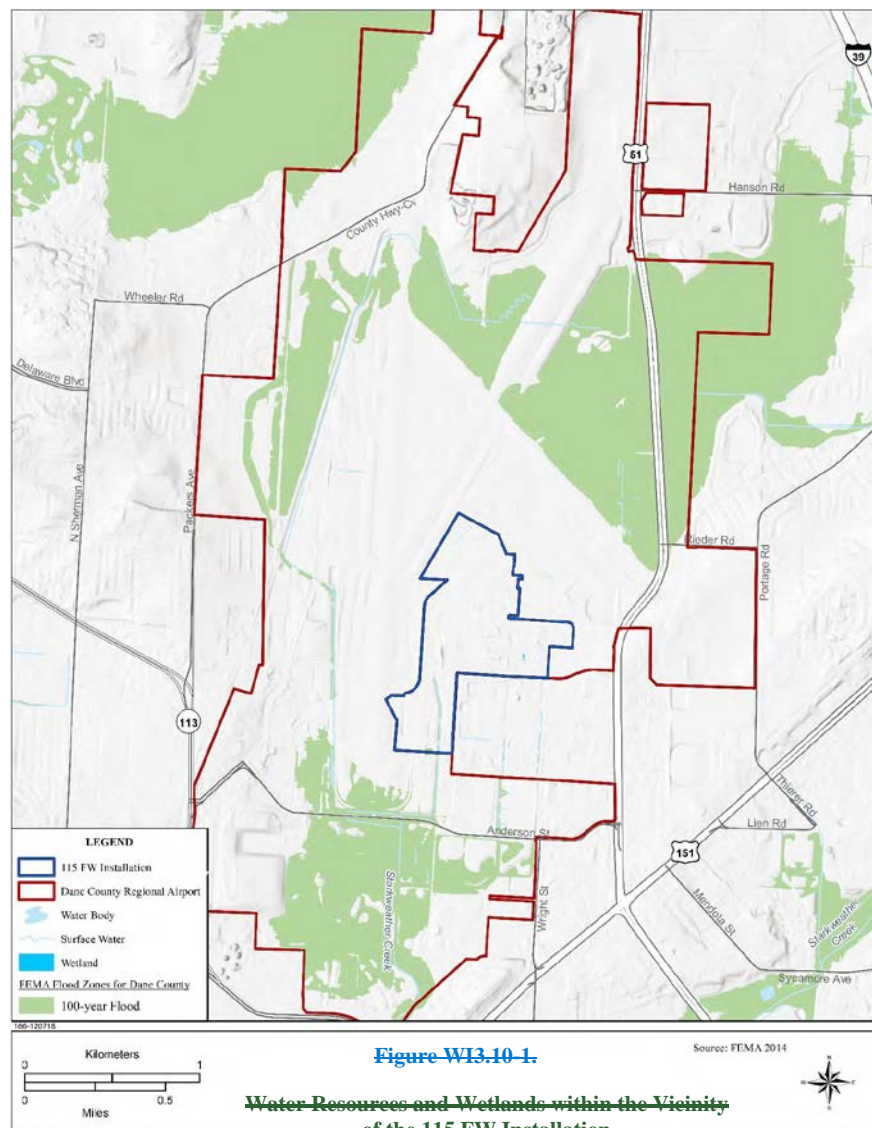
WI3.10 WATER RESOURCES

WI3.10.1 Installation

WI3.10.1.1 Affected

Environment Surface Water

The 115 FW installation is located within Dane County Regional Airport and is approximately 3 miles north of Lake Monona and 2 miles northeast of Lake Mendota. A Waters of the U.S. (WOTUS) survey completed on the installation in 2018 identified seven WOTUS (surface waters and ditches) and five non-WOTUS (ditches) (Figures WI3.10-1 and WI3.10-2) (115 FW 2018a). A man-made drainage network was constructed at the periphery of the installation's property boundary to divert the west branch of Starkweather Creek at the time of airport development. Surface water runoff at the 115 FW installation is generally absorbed by the soil. Water not absorbed by the soil (in paved administrative and industrial areas) flows to stormwater inlets and drainage basins which are connected by underground pipes. All stormwater drainage from 115 FW installation enters Starkweather Creek from this system and eventually discharges to Lake Monona to the south. The drainage is under jurisdiction of the U.S. Army Corps of Engineers (USACE) and serves to collect and transport surface water runoff from the airfield.



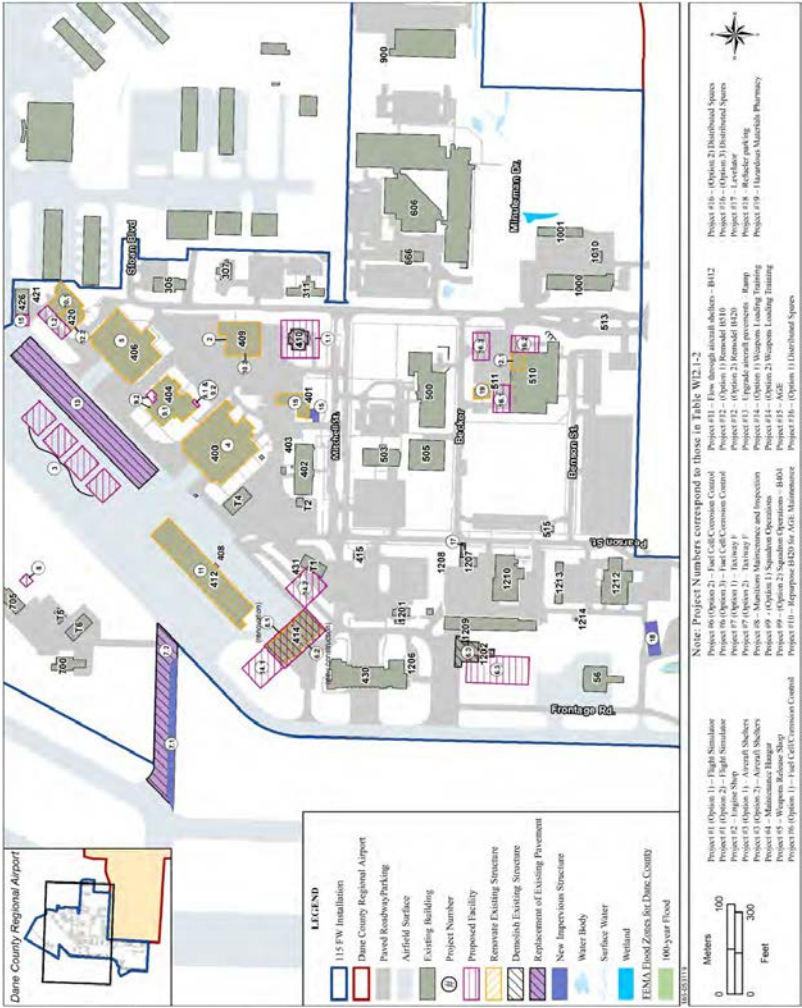


Figure W13-10
Water Resources and Wetlands within the Vicinity
of the Proposed Construction at the 115 FW

The west branch of Starkweather Creek drains the area around the Dane County Regional Airport and other urbanized portions of Madison. This area of Starkweather Creek received intensive point source discharges of many different toxic substances up to the 1960s and early 1970s. Some of these discharges remain in the sediment of the creek and continue to pose problems for fish and aquatic life (WDNR 2018). These point source discharges have been managed through various programs. Both Starkweather Creek and Lake Monona are listed on the 2018 Wisconsin Impaired Waters List for multiple pollutants (WDNR 2018).

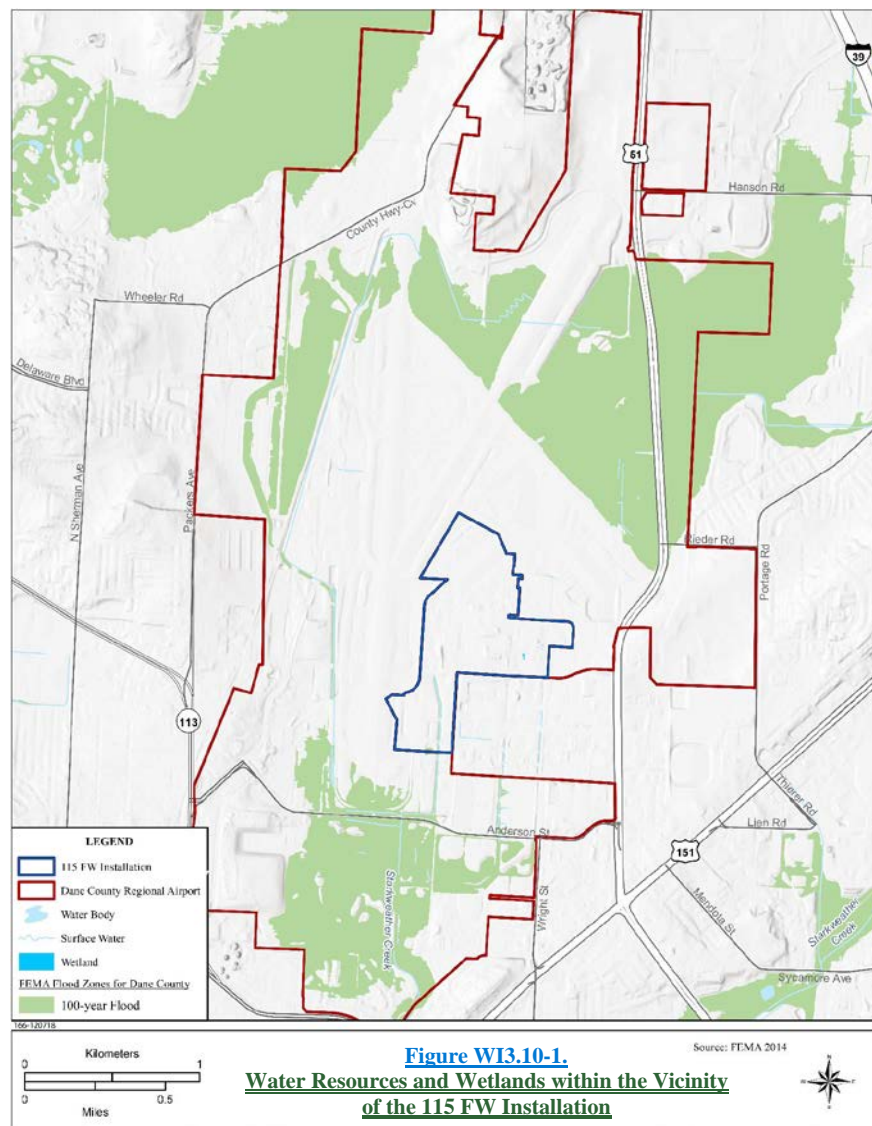


Figure W13.10-1.
Water Resources and Wetlands within the Vicinity
of the 115 FW Installation

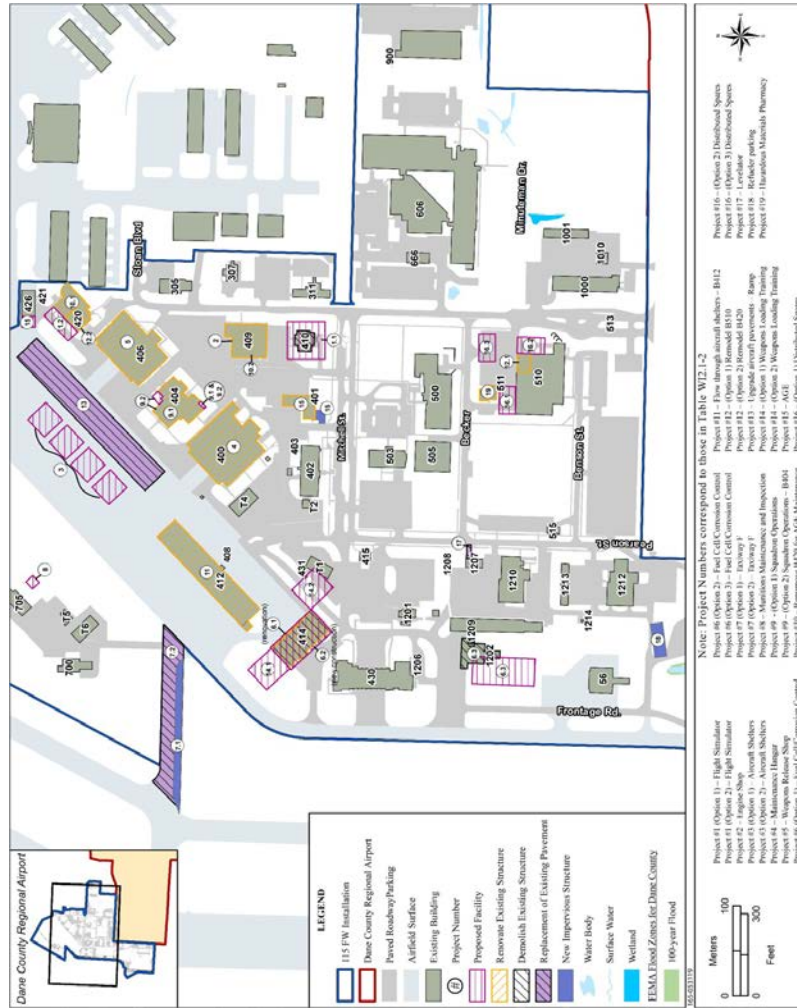


Figure W13.10-2:
Water Resources and Wetlands within the Vicinity
of the Proposed Construction at the 115 FW

The NPDES program provides a framework for regulating municipal and industrial discharges to ensure compliance with the CWA. Because the 115 FW installation has industrial activities as defined in 40 CFR 122, a WPDES stormwater permit has been issued. The 115 FW is a tenant of the Dane County Regional Airport and is therefore included as a co-permittee under their WPDES permit (WPDES Permit No. WI-0048747-04-0) (WIANG 2016). The conditions of the permit are intended to comply with existing water quality standards contained in Chapters NR 102 and NR 105 of the Wisconsin Administrative Code. The permit also regulates stormwater point discharges and wastewater discharges to the airport's separate storm sewer system and requires periodic reporting by the Dane County Regional Airport. The installation's WPDES stormwater discharge permit specifically requires the 115 FW installation to develop and implement a SWPPP (WIANG 2016) with the purpose to provide a management and engineering strategy specific to the 115 FW installation to improve the quality of stormwater runoff and thereby improve the quality of receiving waters.

Groundwater

Two aquifers supply water to Dane County. The upper aquifer is located within unconsolidated glacial material and is reached at a depth of about 8 feet. The lower aquifer is a sandstone aquifer. Impermeable shale separates the two aquifers (115 FW 2004). Flow in the upper aquifer is westward in the Starkweather Creek area toward Lake Monona. Wells reaching 800 feet below the ground surface supply water to the city of Madison, which in turn provides drinking water to the 115 FW installation (115 FW 2004). Groundwater monitoring wells within the 115 FW installation indicate that the water table is between 7 to 9 feet below the ground (115 FW 2004).

Floodplains

Per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Dane County, Wisconsin, Panel 264H (Map Number 55025C0264H, Effective on September 17, 2014), a portion of the drainage ditch connected to Starkweather Creek has been identified as being located within an area subject to inundation by 1 percent annual chance of flooding (i.e., 100-year floodplain of Starkweather Creek designated as Zone AE) (FEMA 2014). The extent of the 100-year floodplain on the 115 FW installation is shown in Figure WI3.10-1.

Wetlands

A wetland delineation conducted in May 2018 found one emergent, herbaceous jurisdictional wetland within the installation east of Building 1001 (see Figure WI3.10-1) (115 FW 2018a).

WI3.10.1.2 Environmental Consequences

Proposed Action

Surface Water

Under the Proposed Action at the 115 FW installation, construction and modification projects to support beddown of the F-35A would have the potential to impact surface water resources. As identified in Table WI2.1-2, new construction would consist of several separate projects resulting in up to 212,883 SF (4.9 acres) of new construction footprint, including up to 71,883 SF (1.7 acres) of new impervious surface. Several of the projects have more than one option but only one option would be selected for each project. The total construction footprint analyzed represents the largest possible footprint of each of the options (see Table WI2.1-2). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

The collective area impacted by the proposed construction activity would exceed 1 acre in size and therefore require the application for, and compliance with, Wisconsin's general stormwater permit, "General Permit to Discharge under the WPDES - Land Disturbing Construction Activities." Specific stormwater pollution controls would be included in the permit, as required by State Regulations NR 151 and 216. Further detail and control of stormwater flow and pollution controls would be applied in accordance with Chapter 14 of the Dane County Ordinances: Erosion Control Permits and Stormwater Control Permit (Chapter 14, Subchapter II: Erosion Control and Stormwater Management). Chapter 14 regulates stormwater pollution and flow for construction activity that disturbs more than 4,000 SF of land area and/or creates more than 20,000 SF of impervious surface. In addition, a cumulative soil annual loss rate of less than or equal to 7.5 tons per acre from construction activity areas will be achieved in accordance with the Dane County Erosion Control and Stormwater Management Manual, by following procedures outlined in Chapter 2, *Erosion Control*, of the Manual.

The sources of impacts from construction would be limited to the area of ground disturbance at any one time and the duration of construction at each distinct project site, and runoff would only be likely to occur during and following a precipitation event. The site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures. These measures include straw bales, sandbags, silt fencing, earthen berms, use of tarps or water spraying, soil stabilization, temporary sedimentation basins, and re-vegetation with native plant species, where possible, to

decrease erosion and sedimentation. Special consideration would be made to implement these measures for any construction adjacent to Starkweather Creek, which is on the State list of waterbodies that are impaired for sediment (WDNR 2018).

In accordance with UFC 3-210-10, *Low Impact Development* (LID) (as amended, 2016) and EISA Section 438, any temporary increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. Under these requirements, federal facility projects with over 5,000 SF of new impervious surface must maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.

In addition, the existing SWPPP (WIANG 2016) for the installation would be amended, as necessary to reflect post-construction operations and potentially new BMPs. This SWPPP provides a management and engineering strategy to improve the quality of stormwater runoff from the 115 FW installation and thereby improve the quality of the receiving waters. Although there would be a small increase in runoff volumes and rates associated with the additional impervious areas under this alternative, the stormwater management system would be designed in compliance with applicable stormwater regulations. In addition, the airport is currently in compliance with its WPDES permit and proposed facility designs would follow the WPDES permit conditions such that no adverse impacts to water quality would result.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water under the Proposed Action would not be significant.

Groundwater

Construction activities and operations under the Proposed Action at the 115 FW installation would include stormwater runoff protection measures that would also serve to protect groundwater quality. By adhering to the provisions of the Dane County Ordinances: Erosion Control Permits and Stormwater Control Permit (Chapter 14, Subchapter II: Erosion Control and Stormwater Management), implementing BMPs, and amending the existing SWPPP, there would be a reduction in stormwater pollutant loading potential and thus a reduction in pollution loading potential to the underlying groundwater basins. Site grading and construction activities would also not reach depths at which groundwater would be affected. Personnel numbers would increase by approximately 64 at the 115 FW installation under this alternative. Therefore, there would be a minor increase in demand on potable water supplies.

Implementation of stormwater runoff protection measures, as necessary and appropriate, would ensure that impacts to groundwater under the Proposed Action at the 115 FW installation would not be significant.

Floodplains

The proposed projects would not occur within a 100-year flood plain zone (FEMA 2014) (see Figure WI3.10-2). As discussed under surface water, predevelopment hydrology would be-

maintained through compliance with LID and EISA and there would no substantial increase in stormwater runoff. Therefore, impacts to flooding which would result from construction activities or operations associated with the Proposed Action at the 115 FW installation would not be significant.

Wetlands

One jurisdictional wetland has been observed on the 115 FW installation (115 FW 2018a). However, none of the areas designated for proposed construction projects would occur within proximity of this wetland. Therefore, construction activities would have no impact on wetlands (see Figure WI3.10-2).

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft.

Water resources would be expected to remain as described under affected environment in Section WI3.10.1.1. Therefore, there would be no significant impacts to water resources under the No Action Alternative.

WI3.10.2 Airspace

Impacts to airspace are not considered for this resource because the ROI for water resources was considered to consist only of the installations themselves. The ROI does not include land beneath the SUA since no ground disturbance or construction would occur.

WI3.10.3 Summary of Impacts

Under the Proposed Action at the 115 FW installation, proposed construction would result in up to 212,883 SF (4.9 acres) of temporary soil disturbance, including up to 71,883 SF (1.7 acres) of new impervious surface. Site-specific SWPPPs would be prepared for each construction project to ensure that runoff would be contained on-site. Predevelopment hydrology would be maintained through compliance with LID and EISA. BMPs would continue to be implemented to minimize impacts to both surface water and groundwater. None of the proposed construction projects are located within the 100-year floodplain. None of the construction activities are associated with

_wetlands. Impacts to water resources as a result of the proposed beddown of the F-35A at 115 FW installation would not be significant.

WI3.11 BIOLOGICAL RESOURCES

WI3.11.1 Installation

WI3.11.1.1 Affected

Environment Vegetation

The majority of the 115 FW installation is comprised of landscaped areas such as lawns, ornamental trees, or maintained open fields of grass (115 FW 2018a).

Wildlife

The majority of the wildlife present at the airport and the 115 FW installation consists of species that are highly adapted to developed and disturbed areas. Examples of common bird species observed during a 2018 fauna survey conducted on the installation include the mourning dove (*Zenaidura macroura*), red-tailed hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferous*), barn swallow (*Hirundo rustica*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), Canada goose (*Branta canadensis*), and red-winged blackbird (*Agelaius phoeniceus*) (115 FW 2018a). Common mammals observed during this survey include the gray squirrel (*Sciurus carolinensis*), groundhog (*Marmota monax*), and red fox (*Vulpes vulpes*) (115 FW 2018b, 2018c). Common reptiles and amphibians observed during this survey include the snapping turtle (*Chelydra serpentina*), and the northern leopard frog (*Lithobates pipiens*) (115 FW 2018b). Other common bird species observed on the installation in the past include the turkey vulture (*Cathartes aura*), American crow (*Corvus brachyrhynchos*), rough-legged hawk (*Buteo lagopus*), dunlin (*Calidris alpina*), rock pigeon (*Columba livia*), cliff swallow (*Petrochelidon pyrrhonota*), eastern meadowlark (*Sturnella magna*), chimney swift (*Chaetura pelagica*), and vesper sparrow (*Pooecetes gramineus*) (115 FW 2017c). During a 2018 bat survey conducted on the installation, four bat species were acoustically observed, including the big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), and the silver-haired bat (*Lasionycteris noctivagans*) (115 FW 2018c). Other common mammals observed on the installation include the white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), eastern cottontail (*Sylvilagus floridanus*), and thirteen-lined squirrel (*ICTIDOMYS TRIDECIMLINEATUS*) (115 FW 2004, 2017c).

Threatened, Endangered, and Special Status Species

Table WI3.11-1 lists federally threatened, endangered, candidate, and state-listed species observed or potentially occurring in the vicinity of the 115 FW installation. No federally-listed species have

been observed at the 115 FW installation and there is little to no habitat for these species within the airport or the installation boundaries. One state-listed species, the big brown bat, was acoustically observed on the installation during 2018 surveys. A flora and fauna survey was-

conducted in the spring of 2018 on the installation and no additional federally- or state-listed species were observed at the 115 FW installation (115 FW 2018b, 2018c). However, 7 federally-listed species (1 bird, 1 mammal, 1 reptile, and 4 plants) and an additional 41 state-listed species (11 birds, 2 mammals, 5 reptiles/amphibians, and 23 plants) have the potential to occur within the vicinity of the 115 FW installation. There is no critical habitat located on the 115 FW installation. In addition, 32 migratory birds that occur on the USFWS Birds of Conservation Concern list have the potential to occur on the 115 FW installation (Table WI3.11-2).

Table WI3.11-1. Federally- and State-Listed Species Potentially Occurring within the 115 FW Installation and Under the Airspace
(Page 1 of 2)

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Potential Occurrence on the 115 FW Installation</i>	<i>Potential Occurrence Under the Airspace</i>
Birds				
Acadian flycatcher	<i>Empidonax virens</i>	ST	P	-
Bell's vireo	<i>Vireo bellii</i>	ST	P	-
Black tern	<i>Chlidonias niger</i>	SE	P	-
Cerulean warbler	<i>Setophaga cerulea</i>	ST	P	-
Henslow's sparrow	<i>Ammodramus henslowii</i>	ST	P	-
Hooded warbler	<i>Setophaga citrina</i>	ST	P	-
Kentucky warbler	<i>Geothlypis formosa</i>	ST	P	-
Kirtland's warbler	<i>Setophaga kirtlandii</i>	E	-	P
Loggerhead shrike	<i>Lanius ludovicianus</i>	SE	P	-
Peregrine falcon	<i>Falco peregrinus</i>	SE	P	-
Red-shouldered hawk	<i>Buteo lineatus</i>	ST	P	-
Upland sandpiper	<i>Bartamia longicauda</i>	SE	P	-
Whooping crane	<i>Grus Americana</i>	EXPN	P	P
Mammals				
Big brown bat	<i>Eptesicus fuscus</i>	ST	O	-
Eastern pipistrelle	<i>Perimyotis subflavus</i>	ST	P	-
Gray wolf	<i>Canis lupus</i>	E	-	P
Little brown bat	<i>Myotis lucifugus</i>	ST	P	-
Northern long-eared bat	<i>Myotis septentrionalis</i>	T, ST	P	P
Reptiles and Amphibians				
Blanchard's cricket frog	<i>Acris blanchardi</i>	SE	P	-
Eastern massasauga	<i>Sistrurus catenatus</i>	T, SE	P	P
Ornate box turtle	<i>Terrapene ornata</i>	SE	P	-
Slender glass lizard	<i>Ophisaurus attenuatus</i>	SE	P	-
Western ribbon snake	<i>Thamnophis proximus</i>	SE	P	-
Blanchard's cricket frog	<i>Acris blanchardi</i>	SE	P	-
Plants				
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i>	T, SE	P	N/A
False asphodel	<i>Triantha glutinosa</i>	ST	P	N/A

**Table WI3.11-1. Federally- and State-Listed Species Potentially Occurring within the 115
 FW Installation and Under the Airspace
 (Page 2 of 2)**

Common Name	Scientific Name	Status	Potential Occurrence on the 115 FW Installation	Potential Occurrence Under the Airspace
Hairy wild petunia	<i>Ruellia humilis</i>	SE	P	N/A
Hall's bulrush	<i>Schoenoplectus hallii</i>	SE	P	N/A
Hill's thistle	<i>Cirsium hillii</i>	ST	P	N/A
Prairie bush clover	<i>Lespedeza leptostachya</i>	T, SE	P	N/A
Large water-starwort	<i>Callitriche heterophylla</i>	ST	P	N/A
Kitten tails	<i>Besseyia bullii</i>	ST	P	N/A
Mead's milkweed	<i>Asclepias meadii</i>	T	P	N/A
Nodding rattlesnake-root	<i>Prenanthes crepidinea</i>	SE	P	N/A
Prairie bush clover	<i>Lespedeza leptostachya</i>	T	P	N/A
Roundstem foxglove	<i>Agalinis gattereri</i>	ST	P	N/A
Pale false foxglove	<i>Agalinis skinneriana</i>	SE	P	N/A
Pale green orchid	<i>Platanthera flava</i> var. <i>herbiola</i>	ST	P	N/A
Pale purple coneflower	<i>Echinacea pallida</i>	ST	P	N/A
Pink milkwort	<i>Polygala incarnata</i>	SE	P	N/A
Prairie milkweed	<i>Asclepias sullivantii</i>	SE	P	N/A
Prairie dunewort	<i>Botrychium campestre</i>	SE	P	N/A
Prairie parsley	<i>Polytaenia nuttallii</i>	ST	P	N/A
Purple milkweed	<i>Asclepias purpurascens</i>	SE	P	N/A
Rough rattlesnake-root	<i>Prenanthes aspera</i>	SE	P	N/A
Sheathed pondweed	<i>Stuckenia vaginata</i>	ST	P	N/A
Small skullcap	<i>Scutellaria parvula</i> var. <i>parvula</i>	SE	P	N/A
Smooth-sheathed sedge	<i>Carex laevivaginata</i>	SE	P	N/A
Tufted bulrush	<i>Trichophorum cespitosum</i>	ST	P	N/A
Wild hyacinth	<i>Camassia scilloides</i>	SE	P	N/A
Woolly milkweed	<i>Asclepias lanuginosa</i>	SE	P	N/A

Legend: 115 FW = 115th Fighter Wing; E = Federally Endangered; EXPN = Experimental Population, Non-essential; N/A = not applicable; O = Observed; P = Potential; SE = State Endangered; ST = State Threatened; T = Federally Threatened; U = Unlikely.

Source: USFWS 2017, 2018; WDNR 2017.

Table W13.11-2. Migratory Birds that Potentially Occur within the 115 FW Installation and Under the Airspace

Common Name	Scientific Name	Season	Potential Occurrence on the 115 FW Installation	Potential Occurrence Under the Airspace
American bittern	<i>Botaurus lentiginosus</i>	Breeding	P	P
American golden-plover	<i>Pluvialis dominica</i>	Spring/Fall	P	P
American goldfinch	<i>Spinus tristis</i>	Year Round	O	-
American robin	<i>Turdus migratorius</i>	Year Round	O	-
Bald eagle	<i>Haliaeetus leucocephalus</i>	Year Round	P	P
Barn swallow	<i>Hirundo rustica</i>	Breeding	O	-
Black tern	<i>Chlidonias niger</i>	Breeding	P	P
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	Breeding	P	P
Bobolink	<i>Dolichonyx oryzivorus</i>	Breeding	P	P
Canada goose	<i>Branta canadensis</i>	Year Round	O	-
Eastern meadowlark	<i>Sturnella magna</i>	Year Round	O	-
Eastern whip-poor-will	<i>Antrostomus vociferous</i>	Breeding	P	P
Golden eagle	<i>Aquila chrysaetos</i>	Winter	P	P
Golden-winged warbler	<i>Vermivora chrysoptera</i>	Breeding	P	P
Henslow's sparrow	<i>Ammodramus henslowii</i>	Breeding	P	P
Killdeer	<i>Charadrius vociferus</i>	Breeding	O	-
King rail	<i>Rallus elegans</i>	Breeding	P	P
Least Bittern	<i>Ixobrychus exilis</i>	Breeding	P	P
Lesser yellowlegs	<i>Tringa flavipes</i>	Winter	P	P
Long-eared owl	<i>Asio otus</i>	Breeding	P	P
Mourning dove	<i>Zenaida macroura</i>	Year Round	O	-
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Year Round	P	P
Red-tailed hawk	<i>Buteo jamaicensis</i>	Year Round	O	-
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Year Round	O	-
Rusty blackbird	<i>Euphagus carolinus</i>	Winter	P	P
Semipalmated sandpiper	<i>Calidris pusilla</i>	Winter	P	P
Short-billed dowitcher	<i>Limnodromus griseus</i>	Winter	P	P
Song sparrow	<i>Melospiza melo</i>	Year Round	O	-
Veery thrush	<i>Catharus fuscescens</i>	Breeding	O	-
Willow flycatcher	<i>Empidonax traillii</i>	Breeding	P	P
Wood thrush	<i>Hylocichla mustelina</i>	Breeding	P	P
Yellow rail	<i>Coturnicops noveboracensis</i>	Breeding	U	P

Notes: O = Observed; P = Potential; U = Unlikely.

Source: USFWS 2017, 2018.

W13.11.1.2 Environmental Consequences

Proposed Action

Vegetation

Construction of new facilities under the Proposed Action Alternative at the 115 FW installation would occur primarily on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in a maximum increase of 71,883 SF (1.7 acres) of impervious surfaces.

Impacts to the vegetation at the installation would not be significant due to the lack of sensitive vegetation in the project area.

Wildlife

Noise associated with construction may cause wildlife to temporarily avoid the area, including those that are protected under the Migratory Bird Treaty Act (MBTA). Noise associated with construction activities, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. Additional analysis for noise impacts to biological resources can be found in Appendix [E.B](#), *Noise Modeling, Methodology, and Effects in USAF 2016* (available on the project website <http://www.angf35e1s.com/>). However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under the affected environment and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications. Under the Proposed Action at the 115 FW installation, impacts to wildlife due to construction would not be significant.

Operational noise levels under the Proposed Action Alternative at the 115 FW installation would be expected to increase from the affected environment with the conversion to the F-35A aircraft. Under the Proposed Action Alternative at the 115 FW installation, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Total annual airfield operations at the Dane County Regional Airport are proposed to increase by 2,290 operations (3 percent). In addition, an additional 1,320 acres of land off the airport property would be exposed to DNL greater than 65 dB. The majority of this area is agricultural lands. Changes in operational noise are not expected to impact terrestrial species in the area because species on and near the installation are likely accustomed to elevated noise levels associated with aircraft and military operations.

An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section WI3.4, *Safety*). The 115 FW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

Threatened, Endangered, and Special Status Species

One state-listed species, the big brown bat, was acoustically observed on the installation during 2018 surveys. No federally-listed species have been observed on the installation and there is little to no habitat for these species. Impacts to potentially occurring or occurring federally- or state-listed species on the 115 FW installation would be similar to those described under wildlife. That is, studies indicate that wildlife species, whether they are common or protected species, already occupying lands exposed to airfield noise are generally not affected by slight to moderate increases in ambient noise levels, as they have already habituated to periodic to frequent loud overflight noise. Annual airfield operations at Dane County Regional Airport are projected to increase and there would be some temporary noise associated with construction. As a result, there would be negligible impacts to federally- or state-listed species from implementation of the Proposed Action. Military readiness operations are exempt from the prohibitions of the MBTA, provided they do not result in a significant adverse effect on population of migratory bird species. Regardless, migratory birds occurring on the installation would not be expected to be impacted by the noise from the Proposed Action Alternative at the 115 FW installation since they would already be habituated to aircraft noise from existing operations. An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. However, adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section WI3.4, *Safety*).

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Biological resources would remain as described in the affected environment in Section WI3.11.1.1. Therefore, there would be no significant impacts to biological resources as a result of the No Action Alternative.

WI3.11.2 Airspace

WI3.11.2.1 Affected Environment

Due to the nature of the actions proposed within the airspace, plant species were excluded from extensive review and analysis because the proposed activities would not result in new ground disturbance, and ordnance delivery and chaff and flare use would not exceed current levels and would occur in locations already used and authorized for those purposes. In addition, marine

species, invertebrates, and fish were excluded from review and analysis as they, too, would not likely be impacted by the Proposed Actions.

Wildlife

The airspace associated with 115 FW operations covers over 12,705 square miles of land within Wisconsin. Wildlife habitat within these areas are generally found within the Eastern Broadleaf Forest (Continental) Province. A variety of habitats can be found in this region, including broadleaf deciduous oak hickory forest and maple-basswood forest (Bailey 1995). Common wildlife species found within this habitat under the training airspace include the gray squirrel (*Sciurus carolinensis*), fox squirrel (*Sciurus niger*), eastern chipmunk (*Tamias striatus*), blue jay (*Cyanocitta cristata*), scarlet tanager (*Piranga olivacea*), summer tanager (*Piranga rubra*), rose-breasted grosbeak (*Phoebastria ludovicianus*), ovenbird (*Seiurus aurocapilla*), wild turkey (*Meleagris gallopavo*), and cerulean warbler (*Setophaga cerulean*) (Bailey 1995).

Threatened, Endangered, and Special Status Species

Table WI3.11-1 lists federally threatened, endangered, candidate, and state-listed species observed or potentially occurring under the proposed airspace. Five federally-listed species (2 birds, 2 mammals, and 1 reptile) and an additional 42 state-listed species (11 birds, 3 mammals, 5 reptiles/amphibians, and 23 plants) have the potential to occur under the proposed airspace. There is no critical habitat for these species under the airspace. In addition, 21 migratory birds that occur on the USFWS Birds of Conservation Concern list have the potential to occur under the airspace (see Table WI3.11-2).

WI3.11.2.2 Environmental Consequences

Proposed Action

Wildlife

No construction would occur beneath the training airspace; however, inert ordnance would be deployed in ranges authorized for their use. Existing range management procedures and vegetation removal guidelines would be adhered to and vegetation management measures currently in place would persist. Impacts to wildlife habitat would be negligible. Countermeasures that would be employed by the F-35A with the potential to affect wildlife habitat include chaff and flares. Chaff and flare deployment would not exceed current levels conducted by F-16 aircraft and would occur within the same training areas as currently used. Current restrictions on the amount or altitude of flare use would continue to apply. As a result, chaff and flare deployment associated with the Proposed Action Alternative would have no significant impact on wildlife habitat.

Impacts to migratory birds protected under the MBTA would be negligible. In general, animal responses to aircraft noise appear to be somewhat dependent on, or influenced by, the size, shape, speed, proximity (vertical and horizontal), engine noise, color, and flight profile of planes. Some studies showed that animals that had been previously exposed to jet aircraft noise exhibited greater degrees of alarm and disturbance to other objects creating noise, such as boats, people, and objects blowing across the landscape. Other factors influencing response to jet aircraft noise may include wind direction, speed, and local air turbulence; landscape structures (i.e., amount and type of vegetative cover); and in the case of bird species, whether the animals are in the incubation/nesting phase. Additional analysis for noise impacts to biological resources can be found in Appendix [EB](#), *Noise Modeling, Methodology, and Effects*—in [USAF 2016](#). Noise modeling results suggest subsonic noise levels would increase from 1 to 4 dB within the airspace and would be up to 57 L_{dnmr} ; well below the 112 dB shown to elicit major biological responses. Impacts to migratory birds under the MBTA would not be significant.

Section WI3.4, *Safety*, established that bird-aircraft strikes are currently rare in the airspace and would not be expected to increase substantially under the Proposed Action Alternative. The F-35A would fly predominantly above 5,000 feet AGL, which is above where 95 percent of strikes occur. Adherence to the BASH Plan would further reduce the likelihood of a bird strike in training airspace.

Overall, impacts to wildlife from proposed changes in subsonic and supersonic operations would not be significant for the following reasons: 1) the probability of an animal or nest experiencing overflights more than once per day would be low due to the random nature of flight within the airspace and the large area of land overflow; 2) generally speaking, the F-35A would fly at higher altitudes than F-16 aircraft—the majority (98 percent) of the F-35A operations would occur above 5,000 feet AGL; 3) supersonic flight would only occur above 15,000 feet MSL in the airspace, with 90 percent of these supersonic events above 30,000 feet MSL; and 4) although the total number of supersonic flights and sonic booms occurring would increase from current levels under this alternative, there would only be an increase in dB CDNL ranging from 1 to 2 across airspace units, with a maximum level at 49 dBC CDNL. In addition, studies of supersonic noise on birds and mammals indicate that animals tend to habituate to sonic booms and long-term effects are not adverse.

Threatened, Endangered, and Special Status Species

Impacts to potentially occurring federally- or state-listed species underlying the 115 FW airspace would be similar to those described within the wildlife section. Under the Proposed Action Alternative for the 115 FW, the amount of time the 115 FW would conduct operations in the associated airspace would increase by approximately 28 percent. However, the F-35As would also fly higher than F-16s, which would reduce the potential to impact species.

Overall, impacts to the federally- and state-listed species from the proposed change in subsonic and supersonic operations would not be adverse for the following reasons: 1) the probability of an animal or nest experiencing overflights more than once per day would be low due to the random nature of flight within the airspace and the large area of land overflow; 2) generally speaking, the F-35A would fly at higher altitudes than F-16 aircraft—the majority (98 percent) of the F-35A operations would occur above 5,000 feet AGL; 3) supersonic flight would only occur above 15,000 feet MSL in the airspace, with 90 percent of these supersonic events above 30,000 feet MSL; and 4) although the total number of supersonic flights and sonic booms occurring would increase from current levels under this alternative, there would only be an increase in dB CDNL ranging from 1 to 2, with a maximum level at 49 dBC CDNL. In addition, studies of supersonic noise on birds and mammals indicate that animals tend to habituate to sonic booms and long-term effects are not adverse. Impacts to federally-listed species would not be significant.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation and no training activities by F-35A operational aircraft would be conducted in the airspace. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Biological resources would remain as described in the affected environment in Section WI3.11.2.1. Therefore, there would be no significant impacts to biological resources as a result of the No Action Alternative.

WI3.11.3 Summary of Impacts

No sensitive vegetation exists at the 115 FW installation, so construction activities would not affect the flora on the installation. Noise associated with construction activities and/or aircraft operations would not affect wildlife or threatened and endangered species, as they are likely habituated to a relatively noisy environment already. Anticipated changes to use of the SUA would not be expected to impact biological resources. Impacts to biological resources as a result of the beddown of the F-35A at the 115 FW installation would not be significant.

WI3.12 CULTURAL RESOURCES

WI3.12.1 Installation

WI3.12.1.1 Affected Environment

Archaeological Resources

The 115 FW installation covers approximately 155 acres and approximately 37 of those acres have been previously surveyed for archaeological resources. The 37 acres were surveyed in 2004, prior

to the construction of a new Alert Complex and a new munitions maintenance storage complex (ANG 2005). Fragments of terra cotta drainage pipes, modern green glass, and a pair of modern pliers were found in disturbed areas. None of these resources met the Wisconsin State Guidelines for recording archaeological sites (ANG 2005). The remaining 118 acres that have not been surveyed are primarily part of the built environment (ANG 2005).

Architectural Resources

The 115 FW installation includes over 40 buildings and structures (WANG 2017). An architectural survey was conducted in 2007 of eight architectural resources at the 115 FW that were more than 50 years of age to evaluate their National Register of Historic Places (NRHP) eligibility. In addition, preliminary evaluations of the former Hush House structure (Building 1202, constructed ca. 1959) were made. Based on the results of this survey, all nine architectural resources were determined to be not eligible for listing in the NRHP (NGB 2007).

In 2009, the National Historic Context for the Hush Houses and Test Cells on DoD Installations (Aaron 2009) was completed for the DoD Legacy Resource Management Program. The Hush House (Building 1202) at the 115 FW installation was included as one of several case studies for evaluation within the national historic context. The case study evaluation concluded that Building 1202 does not meet the eligibility criteria for listing in the NRHP. The Wisconsin SHPO concurred with this finding on June 30, 2009 (Aaron 2009).

An architectural inventory and evaluation of six Cold War-era buildings (Buildings 305, 307, 404, 410, 412, and 500) was completed in 2014 for proposed 115 FW installation development plan projects. The NGB determined the buildings were not eligible for listing in the NRHP. The Wisconsin SHPO concurred that the development projects would have no effect on historic properties (NGB ~~2015~~2015a).

An inventory and evaluation of post-1990 buildings and structures at the 115 FW installation was recently undertaken (NGB 2018). Seventeen post-1990 buildings and structures at the installation were documented. Five of the surveyed resources were munitions storage and shops. The other surveyed resources include administration buildings, storage facilities, an avionics shop, a communications facility, a medical training facility, a petroleum operations building, a vehicle parking shed, and a recreation pavilion. The current inventory and evaluation recommended that the surveyed architectural resources, either individually or collectively as a historic district, are not eligible for inclusion in the NRHP (NGB 2018). The NGB is consulting with the Wisconsin SHPO on the eligibility determination.

Traditional Resources

The 115 FW contains no known traditional resources; however, 11 federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified. These Tribes include Bad River Band of Lake Superior Chippewa; Forest County Potawatomi Community; Ho-Chunk Nation; Lac Courte Oreilles Band of Lake Superior Chippewa; Lac du Flambeau Band of Lake Superior Chippewa; Menominee Indian Tribe of Wisconsin; Stockbridge-Munsee Community Band of Mohican Indians; Oneida Nation of Wisconsin; Red Cliff Band of Lake Superior Chippewa; St. Croix of Lake Superior Chippewa Community; and the Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians).

WI13.12.1.2 Environmental Consequences

Proposed Action

Potential direct impacts to cultural resources examined in this analysis include effects of ground-disturbing activities during construction or modification to existing buildings. Indirect impacts from an increase in personnel from 1,203 to 1,267 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

Archaeological Resources

The open areas of the 115 FW installation have been intensively surveyed for archaeological resources, and no NRHP-eligible archaeological resources have been identified. The Truax Mound Human Burial Site is located near the 115 FW installation, but not within the proposed construction areas. In a letter dated May 2, 2018, the Wisconsin Historical Society indicated that they are confident that there will be no disturbance to this burial site from either construction or aircraft flying over (Brown 2018). It is not expected that undiscovered cultural resources would be found during implementation of the Proposed Action at the 115 FW installation; however, in the event of an inadvertent discovery during ground-disturbing operations, the following specific actions would occur. The project manager would cease work immediately and the discovery would be reported to the 115 FW environmental manager, who would secure the location with an adequate buffer and notify the Commander and the NGB cultural resources manager. The environmental manager would then continue to follow ANG Inadvertent Discovery protocol.

Architectural Resources

Eleven buildings (Buildings 400, 404, 406, 409, 412, 414, 426, 420, 510, 511, and 1207) at the 115 FW installation are proposed for additions, infrastructure improvements, and interior renovations. Additionally, two buildings (Buildings 410 and 414) and one structure (Building 1202) are proposed to be demolished depending on which construction option is chosen. Building

426 is a newly constructed building. Buildings 400 and 406 were inventoried and evaluated in 2007 and were recommended as not eligible for listing in the NRHP (NGB 2007). The survey recommended that if the 115 FW decided to renovate these structures, they would first formally consult with the Wisconsin SHPO by letter, citing the results of the 2007 inventory (that none of the buildings inventoried meet NRHP-eligibility standards and that a National Register Historic District is not present at the 115 FW installation) and seek concurrence on a Determination of No Effect for any Proposed Action that may affect structures at the installation (NGB 2007). To date, no formal eligibility determination has been completed by the NGB with the Wisconsin SHPO.

An architectural inventory and evaluation of six Cold War-era buildings (Buildings 305, 307, 404, 410, 412, and 500) was completed in 2014 for proposed installation development plan projects. The NGB determined the buildings are not eligible for listing in the NRHP. The Wisconsin SHPO concurred that the development projects would have no effect on historic properties (NGB 2015a). Moreover, during the process of obtaining a waiver for an Integrated Cultural Resources Management Plan for the 115 FW, the Wisconsin SHPO and the NGB did not raise any concerns about the installation's Cold War-era resources (Wiang 2018). Building 1202 was evaluated within the national historic context for hush houses and test cells, and was determined to be not eligible for listing in the NRHP (Aron 2009). During the Integrated Cultural Resources Management Plan waiver process for the 115 FW, no issues concerning the installation's Cold War-era resources, including Buildings 409, 414, and 510, were identified (Wiang 2018).

Building 420 was recently inventoried and evaluated (NGB 2018). The NGB determined it was not eligible for listing in the NRHP and is consulting with the Wisconsin SHPO on its eligibility finding. It is anticipated there would be no adverse effects to architectural resources under the Proposed Action at the 115 FW installation.

Traditional Resources

No traditional resources have been identified at the 115 FW installation and the highly developed nature of the installation makes it unlikely to contain any such resources. Government-to-government consultation between the NGB and each federally-recognized Tribe associated with the 115 FW installation is being conducted for this action in recognition of their status as sovereign nations, to provide information regarding Tribal concerns per Section 106 of the NRHP, as well as information on traditional resources that may be present on or near the installation. An initial phone call to Tribal offices to verify contact information and current Senior-level Tribal Officials before any materials were mailed to the American Indian Tribe was completed in late October/early November 2017. An initial government-to-government consultation letter was sent to 11 federally-recognized American Indian Tribes with ancestral ties to the 115 FW installation in February 2018. These 11 American Indian Tribes included Bad River Band of Lake Superior Chippewa, Forest County Potawatomi Community, Ho-Chunk Nation, Lac Courte Oreilles Band

of Lake Superior Chippewa, Lac du Flambeau Band of Lake Superior Chippewa, Menominee Indian Tribe of Wisconsin, Stockbridge-Munsee Community Band of Mohican Indians, Oneida Nation of Wisconsin, Red Cliff Band of Lake Superior Chippewa, St. Croix of Lake Superior Chippewa Community, and Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians). After the initial government-to-government consultation letter was sent, NGB followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event an American Indian Tribe would have any concerns regarding the Proposed Action or land below the affected airspace areas. Correspondence sent to the American Indian Tribes is located in Appendix A. To date, no responses have been received from the federally-recognized American Indian Tribes associated with the 115 FW.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Cultural resources would be expected to remain as described under affected environment in Section WI3.12.1.1. Therefore, there would be no significant impacts to cultural resources under the No Action Alternative.

WI3.12.2 Airspace

WI3.12.2.1 Affected Environment

There are 341 NRHP-listed cultural resources located under the airspace used by the 115 FW. They include private residences, farmsteads, businesses, hotels, courthouses, watch towers, depots, churches, cemeteries, shipwrecks, historic districts, libraries, schools, U.S. post offices, bridges, a lighthouse, a dam, and a pavilion. Three of the NRHP-listed cultural resources are also designated National Historic Landmarks. These include the Little White Schoolhouse, USS *Cobia* (submarine), and the Fountain Lake Farm (National Park Service 2014). No American Indian reservations underlie the airspace and no traditional cultural properties are known within this area.

Government-to-government consultation between the NGB and each federally-recognized Tribe associated with the 115 FW installation is being conducted for this action in recognition of their status as sovereign nations, to provide information regarding Tribal concerns per Section 106 of the NRHP, as well as information on traditional resources that may be present on or near the installation.

An initial phone call to Tribal offices to verify contact information and current Senior-level Tribal Officials before any materials were mailed to the American Indian Tribe was completed in late

October/early November 2017. An initial government-to-government consultation letter was sent to 11 federally-recognized American Indian Tribes with ancestral ties to the lands beneath the associated airspace in February 2018. These 11 American Indian Tribes included Bad River Band of Lake Superior Chippewa, Forest County Potawatomi Community, Ho-Chunk Nation, Lac Courte Oreilles Band of Lake Superior Chippewa, Lac du Flambeau Band of Lake Superior Chippewa, Menominee Indian Tribe of Wisconsin, Stockbridge-Munsee Community Band of Mohican Indians, Oneida Nation of Wisconsin, Red Cliff Band of Lake Superior Chippewa, St. Croix of Lake Superior Chippewa Community, and Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians). After the initial government-to-government consultation letter was sent, NGB followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event an American Indian Tribe would have any concerns regarding the Proposed Action or land below the affected airspace areas. Correspondence sent to the American Indian Tribes is located in Appendix A. To date, no responses have been received from the federally-recognized American Indian Tribes associated with ancestral lands beneath the associated airspace with the 115 FW.

WI3.12.2.2 Environmental Consequences

Proposed Action

Under the Proposed Action Alternative for the 115 FW, the amount of time the 115 FW would conduct operations in the associated airspace would increase by approximately 28 percent. However, the F-35As would also fly higher than F-16s, which would reduce the potential to impact cultural resources. These changes would be a continuation of existing operations within the area and would not result in a change in setting to any eligible or listed archaeological, architectural, or traditional cultural property.

Under the Proposed Action, noise levels in the areas under the MOAs would range from 40 to 57 dB. These include the ATCAAs directly over them. The largest change would be under the Volk East MOA, with an increase of 4 dB, which would still be near the background noise level, even with the increase. Supersonic noise would increase up to 2 dBC, although the CDNL would remain relatively low at 49 dBC. No damage to historic structures is anticipated because overpressures would not exceed current levels found with the F-16C using the airspace (2.5 pounds per square foot [psf]). Impacts to structures would not be significant at this level of psf (Battis 1988; Haber and Nakaki 1989).

Visual intrusions under the Proposed Action would be minimal and would not represent an increase sufficient to cause adverse impacts to the settings of cultural resources. Due to the high altitude of the overflights, small size of the aircraft, and the high speeds, the aircraft would not be readily visible to observers on the ground.

No additional ground disturbance would occur under the airspace due to the Proposed Action. Use of ordnance and defensive countermeasures would occur in areas already used for these activities. Flares deployed from the aircraft would not pose a visual intrusion either, as flares are small in size and burn only for a few seconds and the high relative altitude of the flights would make them virtually undetectable to people on the ground. Overall, flares are unlikely to adversely affect cultural resources. Therefore, the introduction of material to archaeological sites or standing structures from the use of flares would not have an adverse effect on these resources.

Proposed use of the airspace would be similar to ongoing training operations. Given the current use of the airspace and the nature of the proposed future use of the project area, there would be no adverse effects to NRHP-eligible or listed archaeological resources, architectural resources, or traditional cultural properties. The NGB is consulting with the Wisconsin SHPO on its finding of effect for the Proposed Action.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation and no training activities by F-35A operational aircraft would be conducted in the airspace. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Cultural resources would remain as described in the affected environment in Section WI3.13.2.1. Therefore, there would be no significant impacts to cultural resources as a result of the No Action Alternative.

WI3.12.3 Summary of Impacts

There are no archaeological sites within any of the proposed construction footprints at the 115 FW installation. In the event of an inadvertent discovery during ground-disturbing operations, work would cease and procedures would be implemented to manage the site prior to continuation of work. No buildings associated with the proposed construction have been determined to be eligible for the NRHP. No traditional cultural resources have been identified at the 115 FW installation. Government-to-government consultation with associated Tribes is ongoing and will continue throughout the EIAP. Use of the SUA under the Proposed Action would be similar to ongoing operations. Impacts to cultural resources as a result of the proposed F-35A beddown at the 115 FW installation would not be significant.

WI3.13 HAZARDOUS MATERIALS AND ~~WASTE~~WASTES, AND OTHER CONTAMINANTS

WI3.13.1 Installation

WI3.13.1.1 Affected Environment

Hazardous Materials

Hazardous materials are used at the 115 FW installation for aircraft operations support and maintenance, including AGE maintenance; ground vehicle maintenance; petroleum, oil, and lubricant (POL) management and distribution; training operations; and maintenance and cleaning of facilities. Types of hazardous substances found on the 115 FW installation include paints, oils, lubricants, hydrazine, sealants, solvents, batteries, and fuels (i.e., gasoline, diesel, and jet). Most of these materials are kept in small quantities in flammables cabinets with secondary containment (115 FW 2014).

There are currently 10 aboveground storage tanks (ASTs) on the 115 FW installation in 8 buildings, including Buildings 401, 414, 430, 1000, 1201, 1217, 1218, and 1219.

- Building 401 (AGE Maintenance) has a 1,500-gallon double-walled steel AST used for Jet A storage,
- Building 414 (Fuel Cell) has a 600-gallon single-walled AST used for Jet A storage,
- Building 430 (Fire Station) has a 500-gallon single-walled AST used for aqueous film forming foam storage,
- Building 1000 (Vehicle Maintenance Government Fuel Station) has a 6,000-gallon double-walled steel AST used for motor gasoline storage and a 6,000-gallon double-walled steel AST used for diesel storage,
- Building 1201 (Civil Engineering Storage and Deicer Tank) has a 12,000-gallon double-walled steel AST used for Potassium Acetate storage,
- Buildings 1217 and 1218 (POL) both have a 105,000-gallon double-walled steel AST used for Jet A storage with a containment basin, and
- Building 1219 (Liquid Oxygen Storage) has a 400-gallon and a 3,000-gallon steel AST used for Liquid Oxygen storage. It is unknown whether the tanks are single- or double-walled (115 FW 2019b).

There have been 32 underground storage tanks (USTs) removed from across the 115 FW installation, so there are currently no active or remaining USTs at the 115 FW installation (115 FW 2019b).

Toxic Substances

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and polychlorinated biphenyls (PCBs). ACM is known to occur in seven buildings, including Buildings 305, 307, 311, 402, 404, 406, and 500. All known friable asbestos has been removed from the installation (115 FW 2014).

A LBP survey has not been conducted at the 115 FW installation, so any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation (115 FW 2014).

The installation is considered to be PCB-free. Madison Gas and Electric own the transformers on the installation and they have tested negative for PCB content. Other potential PCB-contaminated equipment within the installation includes ballasts for light fixtures, and small transformers and capacitors. All known PCBs and PCB-containing ballasts, capacitors, and transformers not specifically labeled as PCB-free have been removed from the installation by a licensed contractor (115 FW 2014).

Hazardous Waste Management

The 115 FW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (115 FW 2011). The 115 FW Hazardous Waste Management Plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste. The Hazardous Waste Management Plan also has a section detailing pollution prevention at the installation with the goal of reducing or eliminating the use of toxic or hazardous substances and the generation of hazardous waste wherever possible through source reduction and environmentally sound recycling (115 FW 2017d).

The 115 FW is regulated as a Small Quantity Generator (SQG) of hazardous waste and maintains USEPA Identification Number WI3570024247. A hazardous waste generator point is where the waste is initially created or generated. A satellite accumulation point (SAP) is an area where hazardous waste is initially gathered after the point of generation that is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation central accumulation point (CAP). A generator may accumulate as much as 55 gallons of hazardous waste or one quart of acute hazardous waste at each SAP without a permit. There are 30 SAPs (where a waste is initially accumulated) identified at the installation in Buildings 400, 401, 406, 409, 414, 500, 705, 1209,

and 1210. The installation CAP is located in Building 512 where hazardous waste can accumulate in containers for up to 180 days or 270 days if the receiving Treatment, Storage, and Disposal Facility is at a distance greater than 200 miles (115 FW 2017d).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Currently, there are two OWSs and nine Garage Catch Basins on the 115 FW. The OWSs are maintained by the 115 Civil Engineering Squadron and are serviced annually (115 FW 2014).

Environmental Restoration Program

Nine potentially contaminated ERP sites have been identified at the 115 FW installation. The installation has been investigated under the ERP from 1988 to the present.

All nine sites have been recommended for no further action (NFA) with site closure. The WDNR concurred with all recommendations of NFA with site closure. Six of the nine ERP sites (Site 1, 4, 5, 7, Site 8 Area 1, and Site 8 Area 2) are located in areas of planned construction to support the proposed F-35A operations discussed in Section WI2.1.3. Table WI3.13-1 provides details for the nine ERP sites and Figure WI3.13-1 shows the locations of the nine ERP sites (ANG 2013).

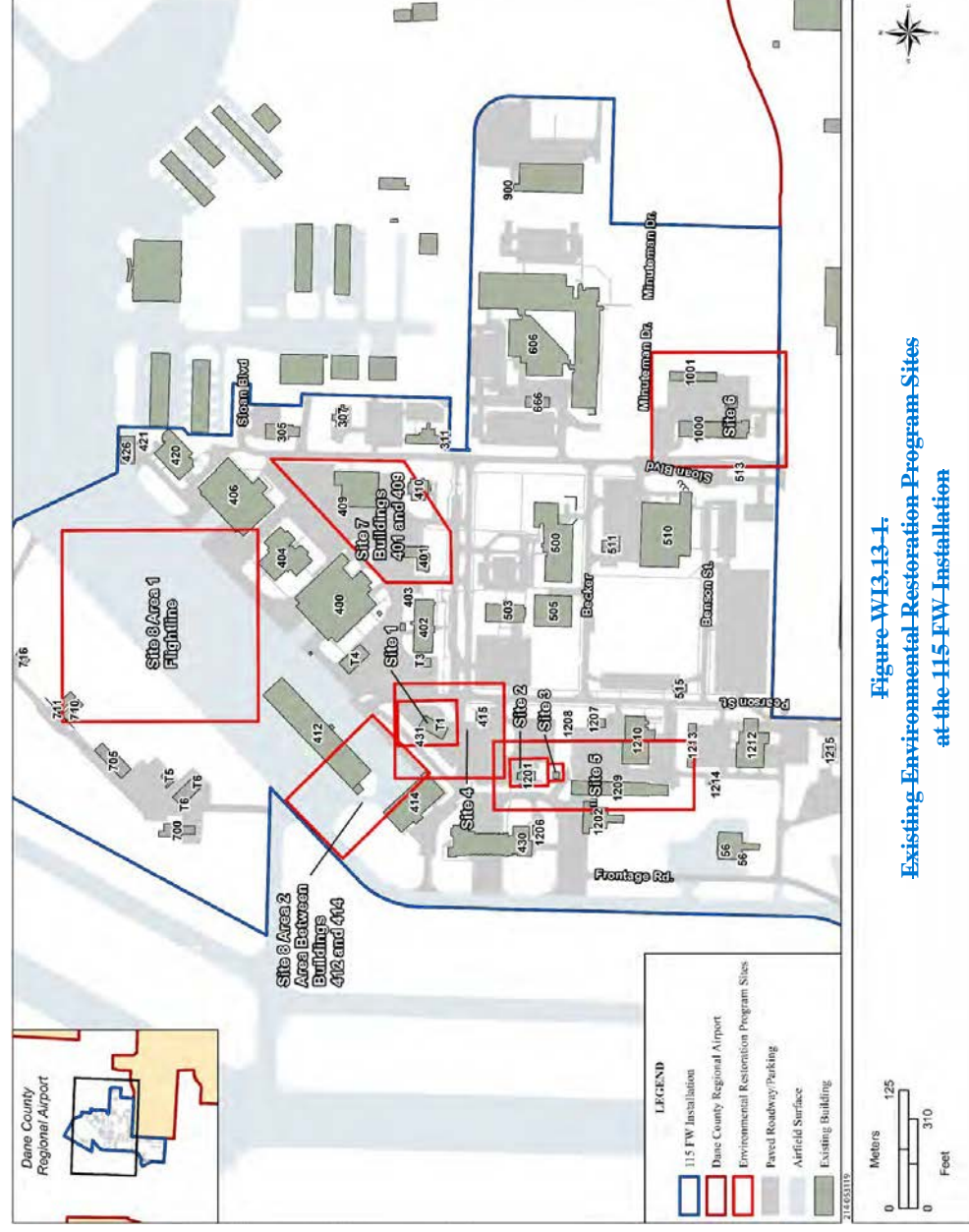
Under the Compliance Restoration Site Program, 10 Areas of Concern (AOCs) were investigated in a Preliminary Assessment/Site Investigation in 2015. No further investigation or remedial action was recommended for all 10 AOCs. Five AOCs (OW011, OW013, OW014, OW015, and OW016) are located in areas of planned construction. Figure WI3.13-2 shows the locations of the 10 AOCs. The 10 AOCs are as follows:

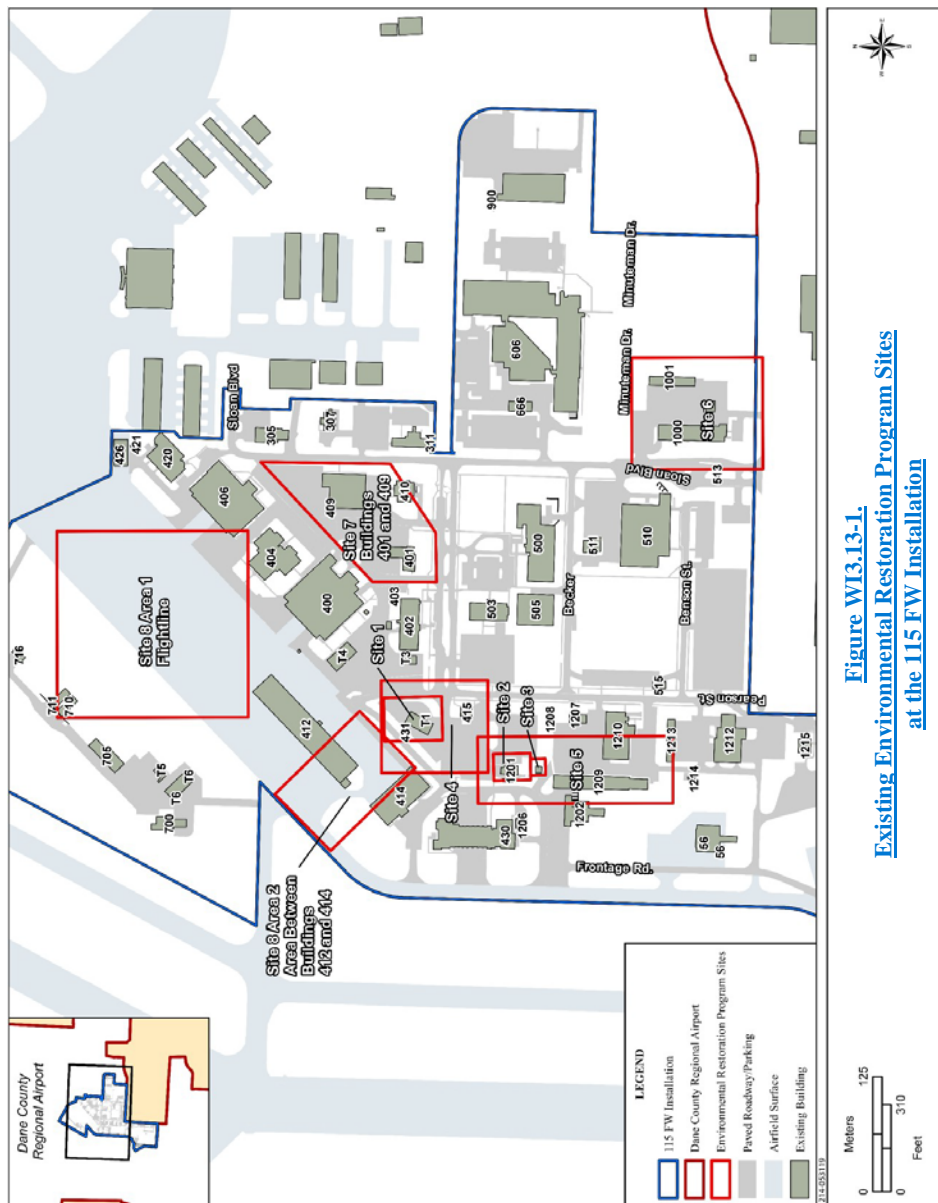
- Former Building 403 OWS (OW010),
- Building 400 OWS (OW011),
- Building 401 OWS (OW013),
- Building 409 OWS (OW014),
- Building 414 OWS 1 (OW015),
- Building 414 OWS 2 (OW016),
- Building 1216 OWS (OW017),
- Building 1000 OWS 1 (OW018),
- Building 1000 OWS 2 (OW019), and
- Former World War II Era Fuel Pipe (TU012) ([WIANG 2015a](#), [NGB 2015b](#)).

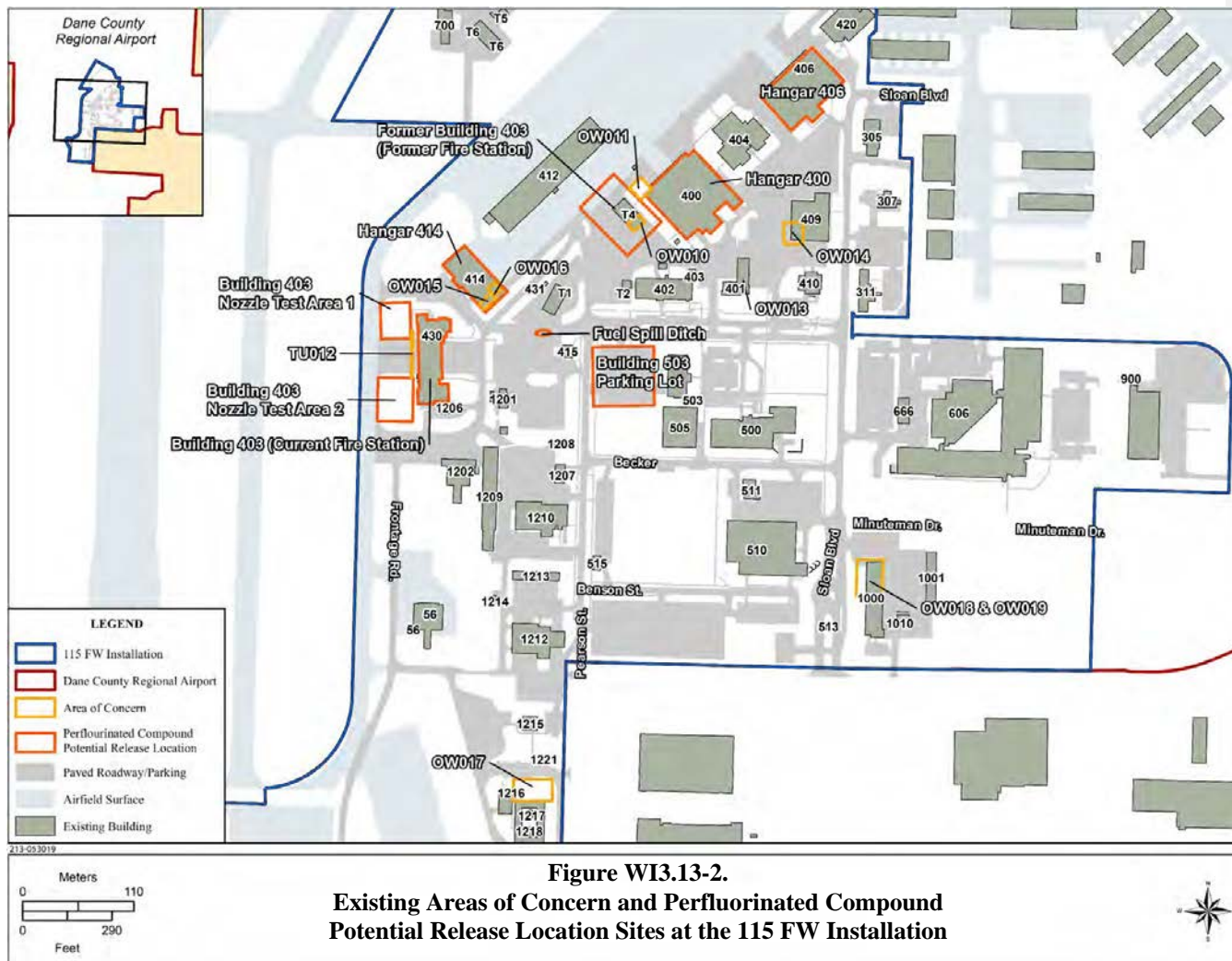
Table WI3.13-1. ERP Sites within the 115 FW Installation

ERP Site	Materials of Concern	Status
1	This site is a jet fuel spill near the POL Facility - Building 405 that occurred in March 1981. Spill cleanup activities occurred in 1981 and 1982 with a recommendation for NFA. WDNR concurred with closure in 2005.	NFA
2	This site is a jet fuel spill associated with UST 1201-1 that occurred in August 1985. Spill cleanup activities occurred in 1985 with a recommendation for NFA. WDNR concurred with site closure in 2005.	NFA
3	This site is adjacent to Building 1201, where a PCB spill occurred in October 1983 associated with a leaking electrical transformer. Spill cleanup activities occurred in 1983 with a recommendation for NFA. WDNR concurred with NFA in 2005.	NFA
4	This site is the Former POL Storage and Distribution Facility, which includes former pump house Building 405; existing Building 415; four 50,000-gallon USTs used to store aviation fuel; a bulk fuel intake system and refueling station (part of Building 405); pipeline connectivity to a refueling hydrant system; and five smaller USTs (up to 2,000-gallons) that were next to Buildings 414 and 415 and used for storing waste oils, solvents, and detergents. The four 50,000-gallon aviation fuel USTs were installed in 1952 and removed in 1999. Site delineation occurred from 1989 through 1997. Remediation activities occurred from 1998 through 2010. WDNR concurred with NFA in 2012 with the caveat that contaminated soil and groundwater would need to be managed if soil is excavated or removed and if dewatering was going to take place in area. This site has continuing obligations due to residual groundwater and soil contamination.	NFA, Residual groundwater and soil contamination
5	This site is a 3,000-gallon used oil UST (1201-1) located south of Building 1201 where a 100-gallon release occurred. UST 1201-1 was removed in October 1991. Site characterization occurred from 1989 through 1994 and groundwater sampling occurred from 1997 through 2006. WDNR concurred with closure in July 2007.	NFA
6	This site is associated with five former USTs and corresponding piping and dispensers located adjacent to the Vehicle Maintenance Building - Building 1000. All five USTs have been removed. Site characterization occurred from 1989 through 1994. Groundwater sampling occurred in 1997 and approximately 15 cubic yards of contaminated soil was removed in 2001. WDNR concurred with site closure in May 2006.	NFA
7	This site is associated with three former USTs located near Buildings 401 and 409. All three USTs have been removed. Site characterization occurred from 1989 through 1994. Groundwater sampling occurred from 1997 through 2006 and soil sampling occurred in March 1999. WDNR concurred with site closure in July 2007.	NFA
8 Area 1	This site is associated with a refueling hydrant system consisting of two fuel lines, a 12,000-gallon UST, and a fuel meter located along the north side of the installation adjacent to Building 412. Impacts at Site 8, Area 1 were comingled with impacts associated with Installation Restoration Program Site 4. Site characterization occurred in 1992 and remediation occurred from 1993 through 2000. Post-remediation sampling occurred from 2004 through 2005 and WDNR concurred with site closure in November 2006.	NFA
8 Area 2	This site encompasses Buildings 412 and 414, and the jet fuel transfer lines associated with the former fuel hydrant system. Site characterization occurred from 1991 through 1992 and again in 1994 to evaluate the presence of hydrocarbons in groundwater. Remediation occurred from 1993 through 2006. Long-term groundwater monitoring occurred from 2000 through 2010. WDNR concurred with site closure in January 2012 with the caveat that contaminated soil and groundwater would need to be managed if soil is excavated or removed and if dewatering was going to take place in area. The site has continuing obligations due to residual groundwater and soil contamination.	NFA, Residual petroleum contamination in groundwater and soil

Legend: ERP = Environmental Restoration Program; GIS = Geographic Information System; NFA = no further action; PCB= polychlorinated biphenyl; POL = petroleum, oil, and lubricant; WDNR = Wisconsin Department of Natural Resources; UST = underground storage tank.







A Preliminary Assessment Site Visit was conducted in 2015 to identify possible perfluorinated compound contaminated AOC. Figure WI3.13-2 shows the locations of the potential release location (PRL) sites located on the installation. Based on preliminary findings, there are nine AOCs that were recommended for further investigation via a Site Investigation, including:

- Building 430 (Current Fire Station),
- Building 430 Nozzle Test Area 1,
- Building 430 Nozzle Test Area 2,
- Former Building 403 (Former Fire Station),
- Hangar 400,
- Hangar 406,
- Hangar 414,
- Fuel Spill Ditch, and
- Building 503 Parking Lot (WIANG ~~2015b~~2015).

A Site Investigation was conducted at the 115 FW at the nine AOCs in 2018. The results of the Site Investigation Report were finalized in March 2019- (NGB 2019). Three ~~perfluorinated compound~~ PRLs (Hangar 400, Hangar 406, and Hangar 414) ~~are located~~ detected PFOS/PFOA in areas of planned construction. The highest concentrations of PFOS/PFOA in any single sample found during the SI in the three PRLs within the planned areas of construction are presented in Table WI3.13-2.

Table WI3.13-2. PFOS/PFOA Potential Release Locations that Intersect Proposed Construction

<u>Building</u>	<u>Max. Soil (PFOS/PFOA) mg/kg</u>	<u>Groundwater (PFOS/PFOA) µg/l</u>
<u>Hangar 400 (PRL 5)</u>	<u>0.333 / 0.00458 J</u>	<u>0.174 / 0.0649</u>
<u>Hangar 406 (PRL 6)</u>	<u>0.0164 / 0.00101 J</u>	<u>0.121 J / 0.0202</u>
<u>Hangar 414 (PRL 7)</u>	<u>0.175 J / 0.00125 J</u>	<u>3.56 / 0.116</u>

Notes: 1 µg/l = 1 part per billion = 1,000 parts per trillion.

J = estimated concentration.

Legend: µg/l = microgram per liter; mg/kg = milligram per kilogram; PFOA = Perfluorooctanoic Acid; PFOS = Perfluorooctane Sulfonate; PRL = Potential Release Location.

WI3.13.1.2 Environmental Consequences

Proposed Action

Hazardous Materials

Training activities and other functions related to the current F-16 program would be expected to remain similar for the F-35A beddown. However, with computerized self-tests for all systems, the F-35As are expected to reduce maintenance time and cost, as well as reducing the need for maintenance since the F-35As are newer aircraft. This reduction in maintenance activities associated with the F-35As could result in a slight reduction of the amount of hazardous waste-

generated. The major differences in hazardous waste generated would be the omission of hydrazine, cadmium fasteners, chrome plating, copper-beryllium bushings, and the use of a non-chromium primer instead of primers containing cadmium and hexavalent chromium currently used for F-16 aircraft (Luker 2009; Fetter 2008). The F-35A replaces the hydrazine canister (currently used by the F-16s) with an integrated power package (basically a small jet engine) for use in emergency engine restart situations, thus eliminating the potential for hydrazine leaks.

Under this alternative, the total annual number of F-35A operations would increase to 7,190 (including alert mission) from 4,900 F-16 operations which is a 47 percent increase in 115 FW annual operations and approximately 3 percent increase in total aircraft operations at the airfield.

The increase in airfield operations would increase the throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations. In addition to the increased amount of fuel usage associated with increased aircraft operations, a short-term increase of fuels used during construction activities (e.g., diesel, gasoline) would be expected to fuel earth-moving equipment and power tools and provide electricity and lighting.

Procedures for hazardous material management established for the 115 FW would continue to be followed in future operations associated with the Proposed Action and as required during all construction and renovation activities.

Toxic Substances

Under this alternative, 19 construction projects are proposed to accommodate the beddown of the F-35As, including additions to Buildings 426, 510, and 1207 and interior modification at Buildings 404, 406, 409, 510, and 511 and the possibility of interior modification or demolition of Building 414. ACM is known to occur in Buildings 404, 406, 409, 414, and 510. A LBP survey has not been conducted at the 115 FW, though any buildings built before 1978 may contain LBP and would be tested for LBP prior to demolition or renovation. All buildings included in the planned construction would be inspected for ACM and LBP according to established ANG procedures prior to any construction. All ACMs would be properly removed and disposed of prior to construction in accordance with 40 CFR 61.40 through 157. LBP would be managed and disposed of in accordance with Toxic Substances Control Act, OSHA regulations, Wisconsin requirements, and established ANG procedures. Materials suspected to be contaminated with PCBs (especially discarded oil products, light fixtures, and transformers) would be screened for PCB contamination prior to disposal.

Hazardous Waste Management

The number of hazardous waste streams generated by F-35A operations would be expected to be less than those being generated by the existing F-16 aircraft because operations involving-

hydrazine, cadmium and hexavalent chromium primer, and various heavy metals have been eliminated or greatly reduced for the F-35A (Luker 2009; Fetter 2008). As with hazardous materials, the waste streams that are targeted for omission or substitution as aircraft are transitioned to the F-35A would be expected to decrease over the amount currently generated in support of F-16 aircraft operations.

Under this alternative, the total number of aircraft operations for the 115 FW would increase approximately 47 percent; therefore, hazardous waste generation would be expected to increase commensurately. The increase in the hazardous waste is supported by the current infrastructure at the installation. Hazardous waste generation would continue to be managed in accordance with

the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's SQG status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications, and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in contaminated areas. The installation is responsible for performing necessary environmental baseline surveys, accomplishing EIAP requirements, and for otherwise being informed about existing site conditions and associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish Resource Conservation and Recovery Act (RCRA) facility assessments, or preliminary assessments and site inspections undertaken in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of unexpected contamination encountered within the construction project footprint would be undertaken as part of the construction project using project funds, which may include other military construction (MILCON) funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or-

extended overhead) incidental to discovery and removal of the contamination would be construction project funded to the extent that the government is responsible and liable for such costs.

Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

Six ERP sites (Site 1, Site 4, Site 5, Site 7, Site 8 Area 1, and Site 8 Area 2) overlap with the proposed construction under this alternative (Figure WI3.13-3). ERP Site 7 overlaps with the proposed new asphalt driveway and new doors for B401, proposed interior modification at Building 409, potential demolition of Building 410, and construction of a new flight simulator building; ERP Site 8 Area 1 is adjacent to the proposed construction near Buildings 705, 412, 404, the planned construction of four aircraft shelters, and the pavement upgrade to the aircraft ramp; ERP Site 5 overlaps with the proposed demolition of Building 1202; and ERP Sites 1, 4, and 8 Area 2 overlaps the proposed construction near Buildings 414 and 412. All six ERP sites are closed and monitoring was completed, with ERP Sites 7 and 8 Area 1 being closed with no contamination reported over regulatory limits. ERP Site 4 and 8 have continuing obligations due to residual groundwater and soil contamination. ERP Site 8 Area 2 was closed, but has residual petroleum in groundwater and soil above regulatory limits. However, it is recommended that a vapor intrusion analysis/testing is completed at all buildings overlapped by ERP sites, including Buildings 401, 404, 409, 410, 412, 414, 710, 711, and 1202, prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.

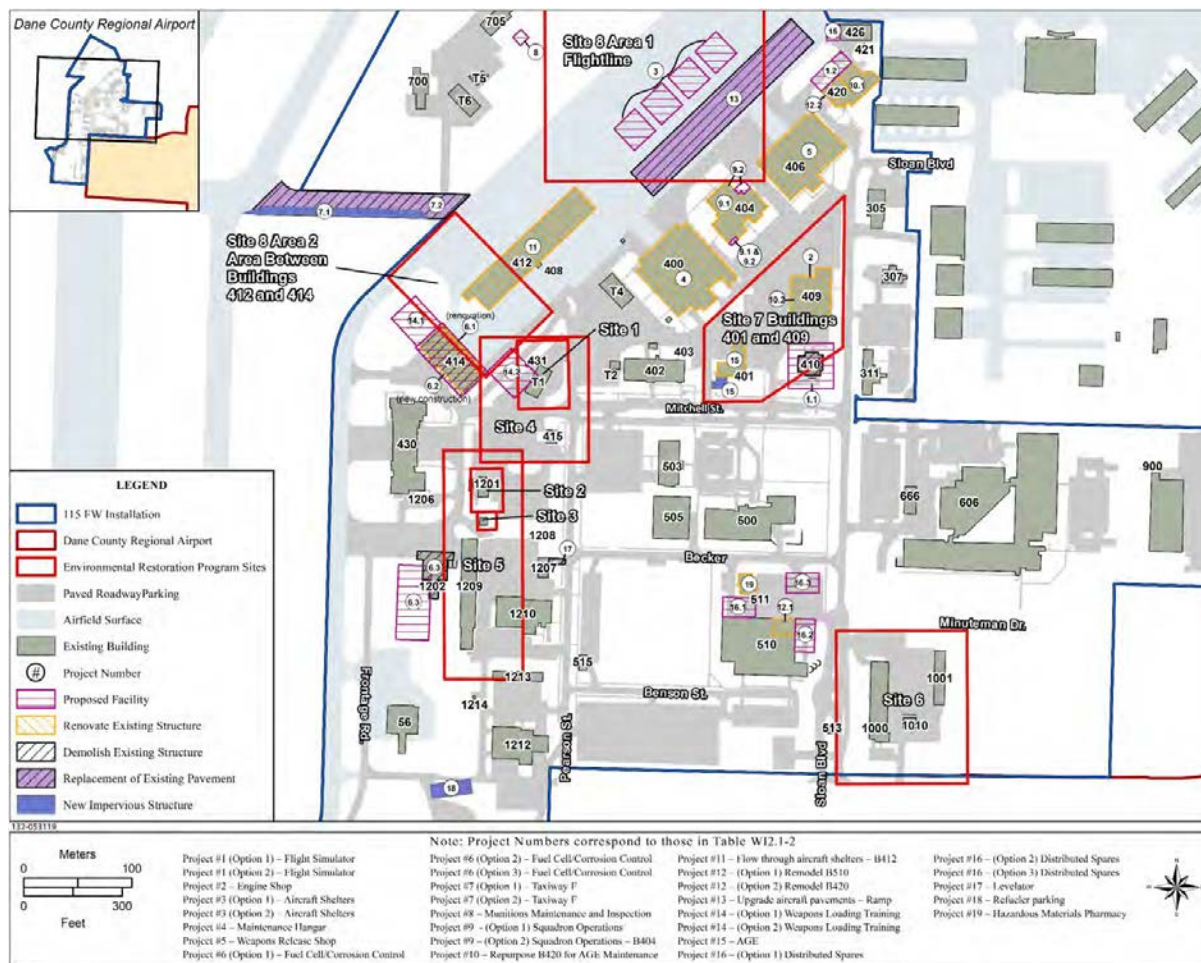
~~Three perfluorinated compound PRLs including Hangar 400, Hangar 406, and Hangar 414 overlap with the proposed construction at the aforementioned Hangars (Figure WI3.13-4). These three PRLs have potential perfluorinated compound contamination. The 115 FW will coordinate with the WDNR now that the results of the Site Investigation Report are finalized. If contamination is present, construction project managers should coordinate with the 115 FW environmental manager to establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met.~~

~~A Media Management Plan is recommended for any area where soil or groundwater disturbance is expected to occur and site investigations indicate Per- and Polyfluoroalkyl Substances contamination above federal and/or state regulatory limits. The Media Management Plan would detail the procedures for soil and groundwater sampling in accordance with previously approved investigative Work Plans, encountering of contaminated media, site erosion controls, media disposal and federal and state agency notification in accordance with current regulatory requirements at the time of construction.~~

Five AOCs, including OW011, OW013, OW014, OW015, and OW016, are located in areas of planned construction. OW011 is adjacent to the planned renovation at Hangar 400, OW013 is located within B401, OW014 overlaps with the planned renovation at Hangar 409, and OW015 and OW016 overlap with the planned construction at Hangar 414. All five AOCs were recommended for no further investigation or remedial action and do not have contaminated media.

~~Three PFOS/PFOA PRLs including Hangar 400, Hangar 406, and Hangar 414 overlap with the proposed construction at the aforementioned Hangars (Figure WI3.13-4). The 115 FW will comply~~

[with Air Force Guidance Memorandum \(AFGM2019-32-01\) AFFF-Related Waste Management Guidance to manage waste streams containing PFOS/PFOA \(USAF 2019\). The AFGM will be updated as needed to address changes in regulatory requirements, DoD determinations of risk, or development of new technologies.](#)



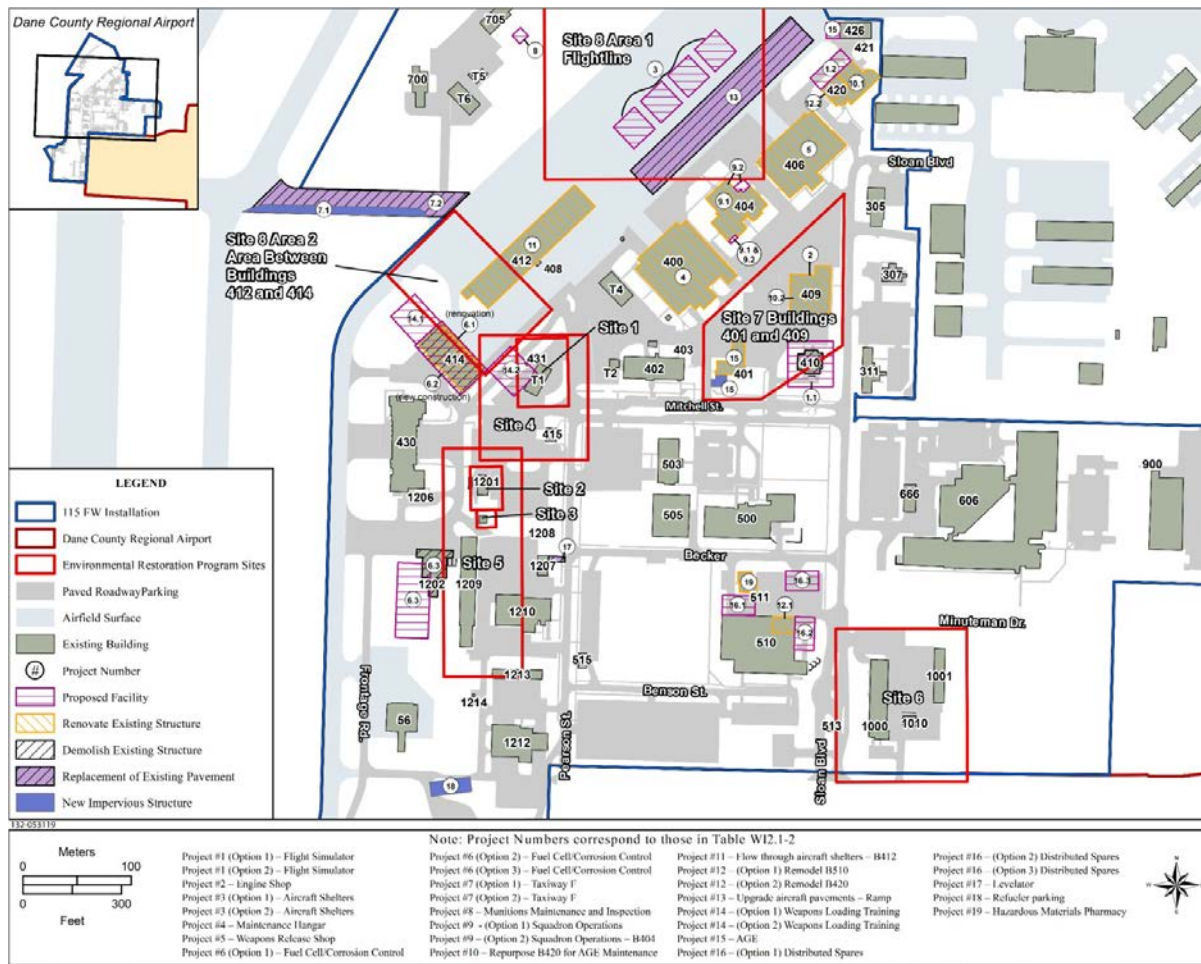
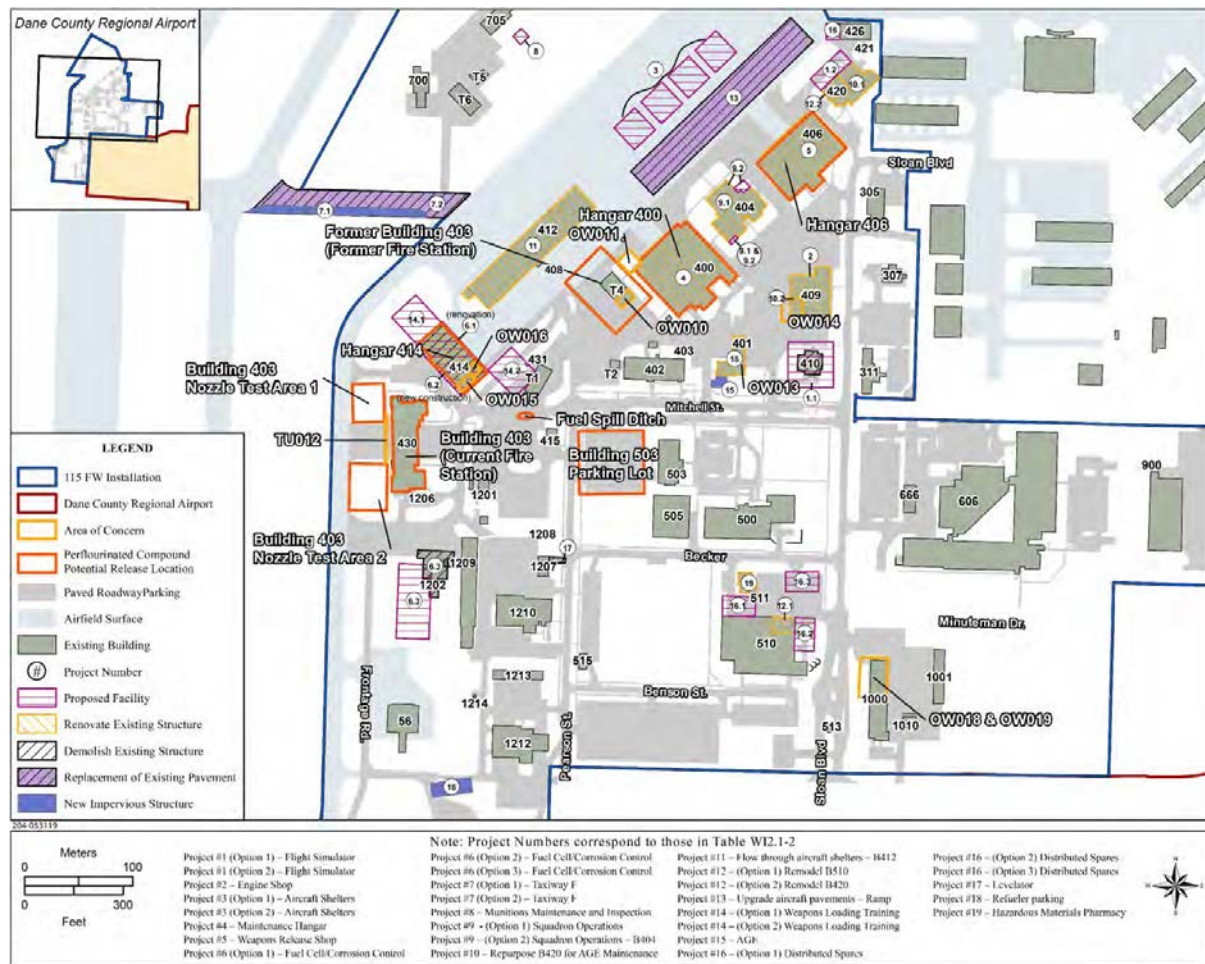


Figure W13.13-3.
Environmental Restoration Program Sites within the Vicinity of the Proposed Construction at the 115 FW Installation



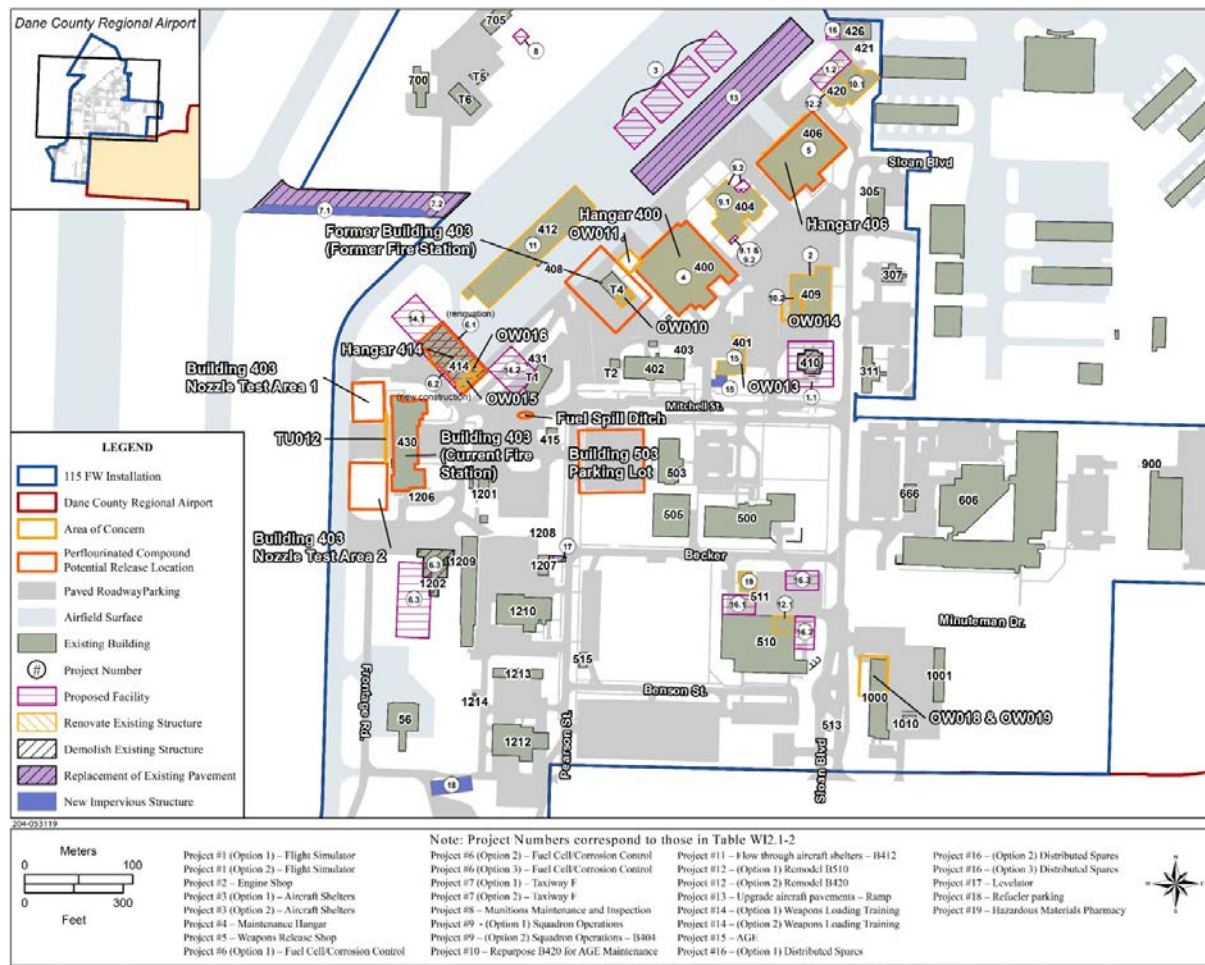


Figure W13.13-4.
Areas of Concern and Perfluorinated Compound Potential Release Location
Sites within the Vicinity of the Proposed Construction at the 115 FW Installation

Per the Site Investigation Report, no soil samples exceeded the USEPA risk-based screening level for PFOS/PFOA within the planned construction area. Groundwater samples for PFOS/PFOA exceeded the USEPA Lifetime Health Advisory of 70 parts per trillion (ppt) for drinking water at all three locations within the planned construction area. The next step in the CERCLA process is the Remedial Investigation. During the Remedial Investigation, the agency will collect detailed information to characterize site conditions, determine the nature and extent of the contamination, and evaluate risks to human health and the environment posed by the site conditions by conducting a baseline ecological and human health risk assessment. The CERCLA process will continue regardless of any construction activities. Construction activities, to include the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity, will proceed in accordance with all applicable legal requirements.

If contaminated media (e.g., soil, vapor, groundwater) was encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 115 FW environmental manager establishes an appropriate course of action for the construction project to ensure that any applicable federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if closed ERP sites are affected.

No Action Alternative

Under the No Action Alternative, no F-35A operational aircraft would be based at the 115 FW installation, no F-35A personnel changes or construction would be performed, and no training activities by F-35A operational aircraft would be conducted at the airfield. Under the No Action Alternative, the ANG would continue to conduct their current mission using existing aircraft. Hazardous materials and waste would be expected to remain as described under affected environment in Section WI3.13.1.1. Therefore, there would be no significant impacts to hazardous materials and waste under the No Action Alternative.

WI3.13.2—Airspace

Impacts to airspace are not considered for this resource because the ROI for hazardous materials and wastes was considered to consist only of the installations themselves. The ROI does not include land beneath the SUA since no ground disturbance or construction would occur.

WI3.13.3—Summary of Impacts

Under the Proposed Action at the 115 FW installation, there would not be an increased risk of hazardous waste releases or exposure. Any LBP or ACM that may be found in buildings that are proposed for construction activities would be managed per applicable USAF regulations. Six ERP sites (Site 1, Site 4, Site 5, Site 7, Site 8 Area 1, and Site 8 Area 2) overlap with the proposed-

construction under this alternative. All six ERP sites are closed and monitoring was completed, with ERP Sites 7 and 8 Area 1 being closed with no contamination reported over regulatory limits. ERP Site 4 remains on the WDNR's Redevelopment Program GIS due to residual groundwater and soil contamination. ERP Site 8 Area 2 was closed, but has residual petroleum in groundwater and soil above regulatory limits. Three ~~perfluorinated compound~~PFOS/PFOA PRLs, including Hangar 400, Hangar 406, and Hangar 414, overlap with the proposed construction at the aforementioned hangars. ~~The 115 FW will coordinate with the WDNR now that the results of the Site Investigation Report are finalized.~~The 115 FW will comply with Air Force Guidance Memorandum (AFGM2019-32-01) AFFF-Related Waste Management Guidance to manage waste streams containing PFOS/PFOA (USAF 2019). Five AOCs, including OW011, OW013, OW014, OW015, and OW016, are located in areas of planned construction. All five AOCs were recommended for no further investigation or remedial action and do not have contaminated media.

If additional contaminated media were encountered during the course of site preparation or site development, work would cease until the 115 FW environmental manager establishes an appropriate course of action for the construction project to ensure that [applicable](#) federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would not be significant.

WI4.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

According to CEQ regulations, the cumulative effects analysis of an EIS should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects may occur when there is a relationship between a Proposed Action or alternative and other actions expected to occur in a similar location or during a similar timeframe. The effects may then be incremental and may result in cumulative impacts. Actions overlapping with or in close proximity to the Proposed Action or alternatives can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide in the same timeframe tend to offer a higher potential for cumulative effects.

This EIS addresses cumulative impacts to assess the incremental contribution of the alternatives to impacts on affected resources from all factors. The ANG has made an effort to identify actions on or near the affected areas that are under consideration and in the planning stage at this time. These actions are included in the cumulative effects analysis, drawn from the level of detail that exist now. Although the level of detail available for those future actions varies, this approach provides the decision-maker with the most current information to evaluate the consequences of the Proposed Action Alternatives.

WI4.1 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

In this section, an effort was made to identify past and present actions in the region and those reasonably foreseeable actions that are in the planning phase at this time. Actions that have a potential to interact with the Proposed Action are included in this cumulative analysis. This approach enables decision-makers to have the most current information available so that they can evaluate the environmental consequences of the beddown of the F-35A aircraft at the 115 FW installation and training in associated airspace.

The 115 FW is an active military installation that undergoes changes in mission and in training requirements in response to defense policies, current threats, and tactical and technological advances. The installation, like any other major institution (e.g., university, industrial complex), requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs. In addition, tenant organizations may occupy portions of the installation, conduct aircraft operations, and maintain facilities. All of these actions (i.e., mission changes, facility improvements, and tenant use) will continue regardless of which alternative is selected.

The projects, associated with this Proposed Action Alternative, were identified for their potential to have cumulative impacts on resources within the ROI and overlap in time; they are listed in Table WI4.1-1. Other ongoing maintenance and repair activities (e.g., repairing existing infrastructure and interior building renovations/alterations) would not introduce any newly disturbed or impervious surfaces and are, therefore, not included herein.

Table WI4.1-1. Current and Reasonably Foreseeable Actions at 115 FW Installation
(Page 1 of 3)

<i>Year</i>	<i>Action</i>	<i>Total Area of New Ground Disturbance (SF)</i>	<i>New Impervious Surface (SF)</i>
POL Fuel Truck Canopy			
2026	Construct one canopy covering up to seven R-11 fuel trucks in the POL area.	20,000	0
Replace Diesel/MOGAS Tanks			
2021	Project would replace existing tanks (B1010).	1,300	0
Construct Jet A Fuel Tanks			
2026 or 2027	Replace existing two 100,000-gallon tanks with five new 50,000-gallon. This would include 4,500 SF of new concrete pads for the tanks.	8,100	-3,600
Arm/Dearm Pad			
2026	Construct a new arm/dearm near the intersection of Taxiways G and F.	15,900	12,700
Main Gate			
2024	A new gate house, two POV lanes, and one truck lane would be added to the main gate.	118,400	-17,300
Base Wide Pavements			
2025 to 2026	All roads would be repaved. There would be no footprint expansion.	322,000	0
Mitchell Street			
2024	Mitchell Street would be converted to a two-lane road and the parking areas to the south would be expanded to the north. Utilities would be moved to the north side of Mitchell Street.	32,275	-600
MSA Berm			
2023	Addition of an earthen berm outside the MSA fence on the eastern and northern side.	11,240	0
Segregated Cell Storage			
2025	Add five 1,000 SF concrete cells/buildings to existing cell (B716).	5,000	5,000
MSA Igloos			
2025	Construct two new igloos to the northeast side of the existing igloos (B710 and B711).	16,800	16,800
Taxiway G			
2026	Convert the 50-foot wide asphalt taxiway to a 40-foot wide concrete road.	84,100	-18,000

Table WI4.1-1. Current and Reasonably Foreseeable Actions at 115 FW Installation
(Page 2 of 3)

<i>Year</i>	<i>Action</i>	<i>Total Area of New Ground Disturbance (SF)</i>	<i>New Impervious Surface (SF)</i>
New Parking			
2022	B311 (multi-use facility) and B307 (credit union) would be demolished and turned into parking areas.	32,000	23,000
B500 Renovations			
2023	Internal renovations of B500 would occur in order to create room for a multi-use facility and potentially a new fitness center.	0	0
Medical Readiness Facility			
2021	A new facility would be constructed west of B505. This would include a 3,400 SF warehouse.	18,650	18,650
Boundary Fence			
2024	New boundary fencing would be installed in two other areas in order to separate the ANG property from the airport and Army property as well as enclose the buildings related to the flying mission. The current fence would be replaced and the height would increase from 8 feet to 10 feet.	8,000 LF	0
B503 Renovations			
2023	Internal renovations to B503 in order to move Wing Commander and JAG functions into this building.	0	0
GOV Parking Shelters			
2020	Two 500-SF unheated enclosed shelters would be constructed for maintenance storage and operations vehicles. In addition, all existing asphalt would be repaved in the B402 complex and T2, T3, and grain bin would be demolished.	30,000	0
EOD BSERV Bay			
2024	A 15-by-100-foot wide bay would be added to the west side of B1210 for warm storage for the BSERV.	1,500	600
Fire Department Crash Truck Bay			
2025	Construct a 1,500-SF bay on the south side of B430 for a second crash truck. B1206 would be demolished and 665 SF will be converted to grass.	2,165	50
Security Forces			
2020	This project would include internal Renovations of B1212, including adding windows.	0	0
Indoor Small Arms Range			
2020	Construction of a 10,500-SF indoor small arms range.	10,500	10,500
CATM			
2020	An 1,800-SF CATM facility would be added as an addition.	1,800	1,800

Table WI4.1-1. Current and Reasonably Foreseeable Actions at 115 FW Installation
(Page 3 of 3)

<i>Year</i>	<i>Action</i>	<i>Total Area of New Ground Disturbance (SF)</i>	<i>New Impervious Surface (SF)</i>
Off-Installation Road Pavements			
2023 to 2024	Repair roads near the front gate of the installation, including Pierstorff Pierstorff Street to Highway 51 and Person Road down to Anderson Avenue.	300,000	0
Vehicle Maintenance			
Storm Drainage			
2021	Replace pavement and regrade area around B1000 and B1001 to proper grades.	53,000	0
Communications			
2026	Project would install underground fiber optic communications cable.	5,600	0
Small Arms Storage			
2020	Construct a 1,000-SF small arms storage building near the new small arms range.	1,000	1,000
Base Street Lighting			
2026	Add new street lighting on Benson and Becker Streets.	0	0

Notes: AT/FP = Anti-terrorism/Force Protection; BASH = Bird/Wildlife Aircraft Strike Hazard; BSERV = Base Support Emergency Response Vehicle; CATM = Combat Arms Training and Maintenance; EOD = Explosive Ordnance Disposal; FOD = Foreign Object Debris; GOV = Government Owned Vehicle; JAG = Judge Advocate General; LF = Linear Feet; MCCA = Master Cooperative Construction Agreement; MOGAS = Motor Gasoline; MSA = Munitions Storage Area; NEPA = National Environmental Policy Act; POL = Petroleum, Oil, and Lubricant; POV = Privately Owned Vehicle; QD = Quantity-Distance; SF = square feet/foot;

In addition to construction projects on the installation, projects listed in Table WI4.1-2 could interact with the beddown of the F-35A at the 115 FW installation:

115 FW has pursued a Letter of Agreement (LOA) with Minneapolis Center to authorize additional periods to expand into the higher altitudes and fly supersonic.

Table WI4.1-2. Past, Present, and Reasonably Foreseeable Actions
(Page 1 of 2)

<i>Proponent</i>	<i>Project Name</i>	<i>Anticipated Year for Implementation</i>
Airport	Construction of a new employee parking lot.	2018
Airport	Terminal modernization.	2019-2020
Airport	Replacing jetways.	NA
Airport	Road relocation.	2018
Airport	Reconstruct Taxiway J, construct Taxiway M, and Remove Taxiway A2 and K and a portion of Taxiway C. Construct parallel taxiway to Runway 14/32. Other projects include expanding runway 9/27 and apron, reconstruct terminal access road, reconstruct west air carrier ramp, reconfigure runway 18/36.	2019-2024
Airport	Construct a new corporate taxiway.	2020
Airport	Reconstruct south ramp.	2023
Airport	Private hangar – constructed by a tenant.	2019
Airport	Pavement joint replacements on runways.	2019

Table WI4.1-2. Past, Present, and Reasonably Foreseeable Actions
(Page 2 of 2)

<i>Proponent</i>	<i>Project Name</i>	<i>Anticipated Year for Implementation</i>
Airport	Solar installation – private developer.	2021
Wisconsin Department of Transportation	U.S. 51, Stoughton Stoughton Road Corridor Project – This project will address safety concerns, reduce congestion, and improve bicycle and pedestrian accommodations within the corridor. Alternatives include adding travel lanes, improving intersection spacing, and consolidating access points.	2020 or later
Army National Guard	Construct New Aircraft Maintenance Hanger.	NA

WI4.2 ANALYSIS OF CUMULATIVE EFFECTS

The following analysis considers how the impacts of these other actions might affect or be affected by those resulting from the Proposed Action at the 115 FW installation and whether such a relationship would result in potentially additive impacts. Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources, quantifiable data are not available and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made based on an understanding of the nature of the project regarding cumulative impacts related to this EIS.

Past implementation of force structure changes at the 115 FW are integrated into the affected environment and analyzed under the No Action Alternative. Additionally, all aircraft operations are incorporated in the relevant resource categories for the proposed F-35A beddown.

WI4.2.1 Noise

Under the Proposed Action Alternative, 1,320 more acres off the airport property would be exposed to noise levels equal to or greater than 65 dB DNL, which would be a significant impact. The addition of those projects listed in Table WI4.1-1, and on the list of non-installation-related projects, would not be expected to substantially add to the noise impacts; however, given that impacts from the Proposed Action would be significant, cumulative impacts would similarly be significant. All of the non-installation projects are short-term construction projects and would occur in the airport environs or in areas identified as industrial. Noise associated with the construction projects would not affect sensitive receptors, disturb sleep, interrupt speech, or cause classroom disruptions in the long term. Noise from implementation of these actions would be short-term and localized, and would not be expected to increase the overall DNL noise contours. See Section WI4.2.5 for discussion of land use compatibilities.

If the LOA described above is approved, noise generated by aircraft (other than the F-35A), including sonic booms, could change noise levels in SUA when considered along with the F-35A

beddown. However, there would be no changes in the number of flights or type of aircraft operating in the airspace if the LOA were approved. Fighter jet-generated noise would continue to dominate sound levels in the training airspace. Cumulative impacts that are anticipated when considered with the Proposed Action for the 115 FW installation would not be significant.

WI4.2.2 Airspace

At the installation, airfield airspace operations would not be impacted by any reasonably foreseeable actions; therefore, negligible effects would occur when considered along with the F-35A beddown. Cumulatively, aircraft would conduct more supersonic operations if the LOA is signed. However, this is consistent with designated airspace use; therefore, it is not anticipated that this action, along with the F-35A beddown, would create more than minimal cumulative impacts. Military aircraft would continue to operate under existing flight rules designed to separate aircraft activities. ANG and FAA positive control and management would continue to guide operations within the airspace. The existing number of operations would increase; however, the magnitude of impacts would not be significant and would be the same as those described in Section WI3.2.2.2.

WI4.2.3 Air Quality

Based on the ACAM calculations, the emissions associated with construction activities described in Table WI4.1-1 would not be significant. All of the criteria pollutant emissions are below the comparative indicator values. Based on information on these projects, and in combination with the decrease in annual criteria pollutant emissions anticipated from the proposed F-35A beddown, it is unlikely that significant impacts to air quality, such as violation of a NAAQS, would result. It is more likely that the overall level of criteria pollutant emissions would increase temporarily during construction periods, but at a level that would generate few, if any, impacts.

GHG emissions would modestly increase due to implementing the F-35A beddown, as identified in WI3.3.1.2. All of the projects listed in Table WI4.1-1 and in the bulleted text would generate GHGs and most involve construction, which is of temporary duration. Some long-term benefits may offset the GHGs emitted during construction (for example, energy-efficient buildings or solar generation). While quantification of GHG emissions for all of these projects is not possible, it can generally be assumed that an overall small increase in GHG emissions, compared to the current levels, would occur, primarily as a result of the beddown, which would be an ongoing activity compared to construction projects that have limited timeframes.

Climate change, by definition, is a cumulative impact that results from the incremental addition of GHG emissions from millions of individual sources that collectively have a large impact on a

global scale. Impacts of climate change on the region will include severe rain events and flooding, which could produce negative impacts on mission activities and installation infrastructure.

WI4.2.4 Safety

Providing new and renovated facilities for the 115 FW installation that support operational requirements of the F-35A, and are properly sited with adequate space and a modernized supporting infrastructure, would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 115 FW. Proposed renovation and infrastructure improvement projects listed in Table WI4.1-1 would not impact aircraft take-off and landings or penetrate any RPZs. New building construction is not proposed within RPZs; therefore, construction activity would not result in any greater safety risk or obstructions to navigation. While there are some planned construction projects within the proposed QD arcs, per Air Force Manual 91-201, *Explosive Safety Standards*, all PTRDs and IBDs meet specified NEWQD criteria. No explosives would be handled during construction or demolition activities. Therefore, no additional risk would be expected as a result of implementation of this alternative. AT/FP have also been addressed in all facility construction projects. The fire and crash response capability currently provided by the 115 FW installation is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities under this alternative or those activities described in Table WI4.1-1 is considered low, and strict adherence to all applicable occupational safety requirements further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Within the SUA, ANG and FAA positive control and management would continue to ensure safe operations within the airspace. In summary, implementing the Proposed Action at the 115 FW installation would not result in significant cumulative airspace or airfield safety risks when considered with past, present, and reasonably foreseeable future actions.

WI4.2.5 Land Use

Under the Proposed Action at the 115 FW installation, acreage off-base property experiencing noise levels greater than 65 dB DNL would increase by approximately 1,320 acres, which would be a significant impact. As mentioned in Section WI4.2.1, construction projects are inside the installation boundaries and would introduce short-term noise increases that would not generate noise levels to cumulatively affect or change land use compatibilities. However, given that impacts to land use from the Proposed Action would be significant, cumulative impacts would similarly be considered significant.

WI4.2.6 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table WI4.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase in up to 64 personnel positions. However, short-term cumulative beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of the Proposed Action Alternative and those projects listed in Table WI4.1-1 would not be significant on a regional scale.

WI4.2.7 Environmental Justice and the Protection of Children

None of the projects listed in Table WI4.1-1 would be expected to impact environmental justice communities or children individually. Although the projects listed in Table WI4.1-1 would not be expected to impact residential populations, including minority and low-income populations or children, impacts as a result of the Proposed Action would be significant. Therefore, cumulative impacts to the health or safety of environmental justice populations or children would be significant.

WI4.2.8 Infrastructure

For the purposes of this analysis, infrastructure includes potable, waste, and storm water; electrical and natural gas systems; solid waste management; and transportation. Under the Proposed Action at the 115 FW installation, short- and long-term demand for all services would increase by a minor degree when considered regionally. The Proposed Action and other projects would increase demand for potable water, increase production of wastewater, and create more impervious surfaces to increase stormwater runoff. However, cumulative effects are anticipated to be minimal because there is current and long-term capacity to meet increased demand for drinking water and disposal of wastewater. For stormwater, BMPs such as silt fencing, vegetation management, and ditching would minimize erosion and sedimentation during the short-term construction phases; retention and detention pond systems would avoid excessive runoff due to increases in impervious surfaces in the long term.

Demand for electricity and natural gas would be expected to increase in the short-term due to construction activities and in the long term due to increases in personnel. In the short-term, existing energy systems have the ability to meet increased demand. In the long term, there is capacity to meet the demands of the minor increase in personnel; however, a solar generation plant is planned in the near future and could reduce electricity demand from the local energy service providers. Further, any new facilities and additions associated with these projects would incorporate Leadership in Energy and Environmental Design and sustainable development

concepts to achieve optimum resource efficiency, sustainability, and energy conservation when compared to facilities currently in place.

Under the Proposed Action at the 115 FW installation and reasonably foreseeable future projects, it is anticipated that there would be both short- and long-term increases in solid waste generation. During demolition and construction phases, all materials would be disposed in permitted facilities, which have the capacity to accept these materials. In the long term, solid waste generated by the regionally minor increase in personnel could be handled by existing solid waste management systems.

In terms of transportation, the local traffic network has the ability to meet the short-term increases in traffic during construction activities from the Proposed Action and reasonably foreseeable future projects. In the long term, the transportation network would be able to meet the needs of the minor increase in personnel. In summary, cumulative impacts to infrastructure due to the Proposed Action at the 115 FW installation and reasonably foreseeable future projects would not be significant.

WI4.2.9 Earth Resources

Total acreage disturbed by the F-35A beddown would be up to 212,883 SF (4.9 acres) of temporary soil disturbance, including up to 71,883 SF (1.7 acres) of new impervious surface such as roofs and paved areas. New construction associated with projects listed in Table 4.1-1 would result in up to 1,094,330 SF (25.1 acres) of new construction footprint, including up to 50,600 SF (1.2 acres) of new impervious surfaces. All proposed construction is within the footprint of the developed 115 FW installation. As such, minimal impacts to geology or topography are expected under the Proposed Action at the 115 FW installation.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table WI4.1-1 larger than 1 acre are required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of

engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. However, none of the projects (neither the Proposed Action at the 115 FW installation, nor the present/reasonably foreseeable projects) are proposed on lands subject to the FPPA. In summary, implementing the Proposed Action at Madison, along with other anticipated projects, would not result in significant cumulative impacts to earth resources.

WI4.2.10 Water Resources

Surface Water. Those projects that exceed 1 acre in size under the Proposed Action at the 115 FW installation or other projects, would require coverage under Wisconsin's Construction General Permit. In compliance with coverage under this permit, a Construction BMP Plan (CBMPP) would be implemented and prepared to maintain effective erosion and sediment controls. The CBMPP includes the erosion, sediment, and pollution controls used, identifies periodic compliance inspections, and prescribes maintenance measures for the controls identified, throughout the life of the construction projects. Through compliance with Wisconsin's Construction General Permit, cumulative effects would not be significant when considering the Proposed Action at the 115 FW installation and other projects listed in Table WI4.1-1.

Groundwater. Construction and demolition impacts to groundwater under the Proposed Action at the 115 FW installation, when considered with present and reasonably foreseeable projects, would not extend below ground surface to a depth that would affect the underlying aquifer. Although fuel or other chemicals could be spilled during construction, demolition, and renovation activities, implementation of the required Spill Prevention Control and Countermeasures Plan and immediate cleanup of any spills would prevent any infiltration into groundwater resources. Therefore, cumulative impacts to groundwater resources would not be significant under this alternative.

Stormwater. Construction and demolition activities associated with the Proposed Action at the 115 FW installation, when considered with present and reasonably foreseeable projects, could result in a temporary, cumulative increase in surface water turbidity; however, BMPs associated with the SWPPP are designed to minimize these impacts. These BMPs include practices such as wetting of soils and installation of silt fencing, as well as adherence to federal and state erosion and stormwater management practices, to contain soil and runoff on the project areas. All other present and foreseeable projects would be required to follow the same state and federal guidelines for construction permitting to ensure water quality was protected from possible erosion and sedimentation. This includes implementing project-specific BMPs to minimize impacts to water quality and using stormwater engineering controls (e.g., stormwater runoff control systems

directing water off the developed areas) to decrease future impacts to water quality following construction. The use of spill prevention plans and SWPPPs during construction would minimize impacts to water quality.

Additionally, in accordance with UFC 3-210-10, *Low Impact Development* (as amended, 2016) and EISA Section 438, any temporary increase in surface water runoff as a result of the proposed construction is required to be attenuated through the use of temporary and/or permanent drainage management features. Under these requirements, federal facility projects with over 5,000 SF of new impervious surface must maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow. This would apply to several of the construction projects proposed under this alternative and as such would minimize impacts to stormwater runoff. Cumulative impacts to stormwater would not be significant.

Floodplains. None of the Proposed Action Alternative projects or other projects lie within the 100-year floodplain. Therefore, cumulative impacts to floodplains would not be significant when the Proposed Action at the 115 FW installation is considered along with present and reasonably foreseeable projects.

Wetlands. None of the construction activities are associated with wetlands. Therefore, cumulative impacts to wetlands would not be significant when the Proposed Action at the 115 FW installation is considered along with present and reasonably foreseeable projects.

WI4.2.11 Biological Resources

Noise levels would be expected to increase from the affected environment with the conversion to the F-35A aircraft. However, these noise levels from operations and construction are not expected to impact wildlife in the area because they are likely accustomed to elevated noise levels associated with current aircraft and military operations. The opportunity for bird-aircraft strikes to occur, including those with migratory birds, would remain the same as current levels. No threatened and endangered or special status species are currently known to reside on the 115 FW installation or within the land area under the projected noise contours. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table WI4.1-1 would be minor due to the lack of sensitive vegetation in the project areas. In general, construction activities at the 115 FW installation and at the Dane County Airport would primarily occur on sites that are already highly altered. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that use these areas are typical of urban and suburban areas. No impacts to any federally or state threatened, endangered, or special status species is expected as a result of the Proposed Action at the 115 FW installation; therefore, cumulative impacts to biological resources would not be significant.

WI4.2.12 Cultural Resources

The areas of proposed construction are considered to have no to low probability of containing archaeological resources. In the event of an inadvertent discovery during ground-disturbing operations, work would cease immediately, the area would be secured, and the environmental manager would be contacted. The environmental manager would follow ANG Inadvertent Discovery protocol. None of the facilities listed for renovation and/or modification under the Proposed Action at the 115 FW installation or those listed in Table WI4.1-1 are eligible for listing in the NRHP. No traditional cultural resources have been identified on the installation or in areas proposed for present and future development. Therefore, cumulative impacts to cultural resources would not be significant under the Proposed Action at the 115 FW installation.

WI4.2.13 Hazardous Materials and ~~Waste~~Wastes, and Other Contaminants

The types of hazardous materials needed for maintenance and operation of the F-35A would be expected to remain similar to those currently used for maintenance and operation of the F-16 fleet. Under this alternative, the total number of airfield operations would increase approximately 3 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase. Additionally, it is expected that short-term increases in the quantity of fuel used during construction activities for this action and the present/reasonably foreseeable project would occur. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. The pollution prevention practices would continue to be managed in accordance with the Hazardous Waste Management Plan and would include any construction-related materials or waste associated with aircraft operations. Additionally, no changes to the 115 FW installation's SQG status would be expected to occur due to the no net change in hazardous waste generation from aircraft operations. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established procedures prior to any renovation or demolition activities. ~~A Media Management Plan is recommended for any proposed construction where investigations indicate PFAS or PFOA contamination above federal and/or state regulatory limits. The Media Management Plan should detail the procedures for soil and groundwater sampling in accordance with prior investigative Work Plans, encountering of contaminated media, site erosion controls, media disposal and federal and state agency notification in accordance with current regulatory requirements at the time of construction.~~ Cumulative impacts as a result of the Proposed Action at the 115 FW installation and present/reasonably foreseeable projects would not be significant.

WI4.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA CEQ regulations require environmental analyses under an EIS to identify “...any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented” (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a

reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of nonrenewable resources. Irretrievable resource commitments also involve the loss in value of an affected resource that cannot be restored as a result of the action.

Training operations would involve consumption of nonrenewable resources, such as gasoline used in vehicles and jet fuel used in aircraft. Use of training ordnance would involve commitment of chemicals and other materials. None of these activities would be expected to substantially affect environmental resources because the relative consumption of these materials is expected to change negligibly.

The primary irretrievable impacts of implementation of the Proposed Action at the 115 FW installation or for any of the alternatives would involve the use of energy, labor, materials and funds, and the conversion of some lands from an undeveloped condition through the construction of buildings and facilities on the installation. Irretrievable impacts would occur as a result of construction, facility operation, and maintenance activities. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential.

This page intentionally left blank.