Final

UNITED STATES AIR FORCE F-35A OPERATIONAL BEDDOWN AIR NATIONAL GUARD ENVIRONMENTAL IMPACT STATEMENT

Executive Summary

February 2020

This volume contains the printed Executive Summary of the United States Air Force F-35A Operational Beddown Air National Guard Environmental Impact Statement and the entire Final EIS on the CD in the pocket below.

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EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) analyzes the potential environmental impacts associated with the United States (U.S.) Air Force (USAF) proposed beddown of F-35A aircraft at two of five alternative Air National Guard (ANG) locations. The F-35A would replace the existing F-15, F-16, or A-10 fighter attack aircraft at the two selected installations. This action would involve the beddown of one F-35A squadron consisting of 18 Primary Aircraft Authorized (PAA) with 2 Backup Aircraft Inventory (BAI) at each of the two selected locations, thereby establishing two F-35A operational locations[1]. Five alternative ANG locations (Figure ES-1) are being considered for this beddown:

- 115th Fighter Wing (115 FW) at Dane County Regional Airport, Madison, Wisconsin
- 124th Fighter Wing (124 FW) at Boise Air Terminal (Boise Airport), Boise, Idaho
- 125th Fighter Wing (125 FW) at Jacksonville International Airport (IAP), Jacksonville, Florida
- 127th Wing (127 WG) at Selfridge Air National Guard Base (ANGB), Michigan
- 187th Fighter Wing (187 FW) at Montgomery Regional Airport, Montgomery, Alabama

The ANG has both federal and state missions. These dual missions result in each guardsman holding membership in the National Guard of his or her state as part of the ANG unit acting in the capacity of a Reserve Component of the USAF. The ANG's federal mission is to maintain well-trained, well-equipped units available for prompt mobilization during wartime and to provide assistance during national emergencies (such as natural disasters or civil disturbances). During peacetime, the combat-ready units and their support units are assigned to most USAF major commands (MAJCOMs) to carry out missions compatible with training, mobilization readiness, humanitarian and contingency operations.

Each of the five alternative ANG F-35A beddown locations evaluated in this EIS have a fighter mission that is assigned to the USAF Air Combat Command (ACC) MAJCOM for their federal missions, and as such they implement a training syllabus associated with ACC.

[1] PAA is the number of aircraft authorized to a unit in order to perform its operational mission, while BAI is the aircraft that would be used only if one of the PAA aircraft is out of commission. From this point forward in the document, only PAA will be discussed.

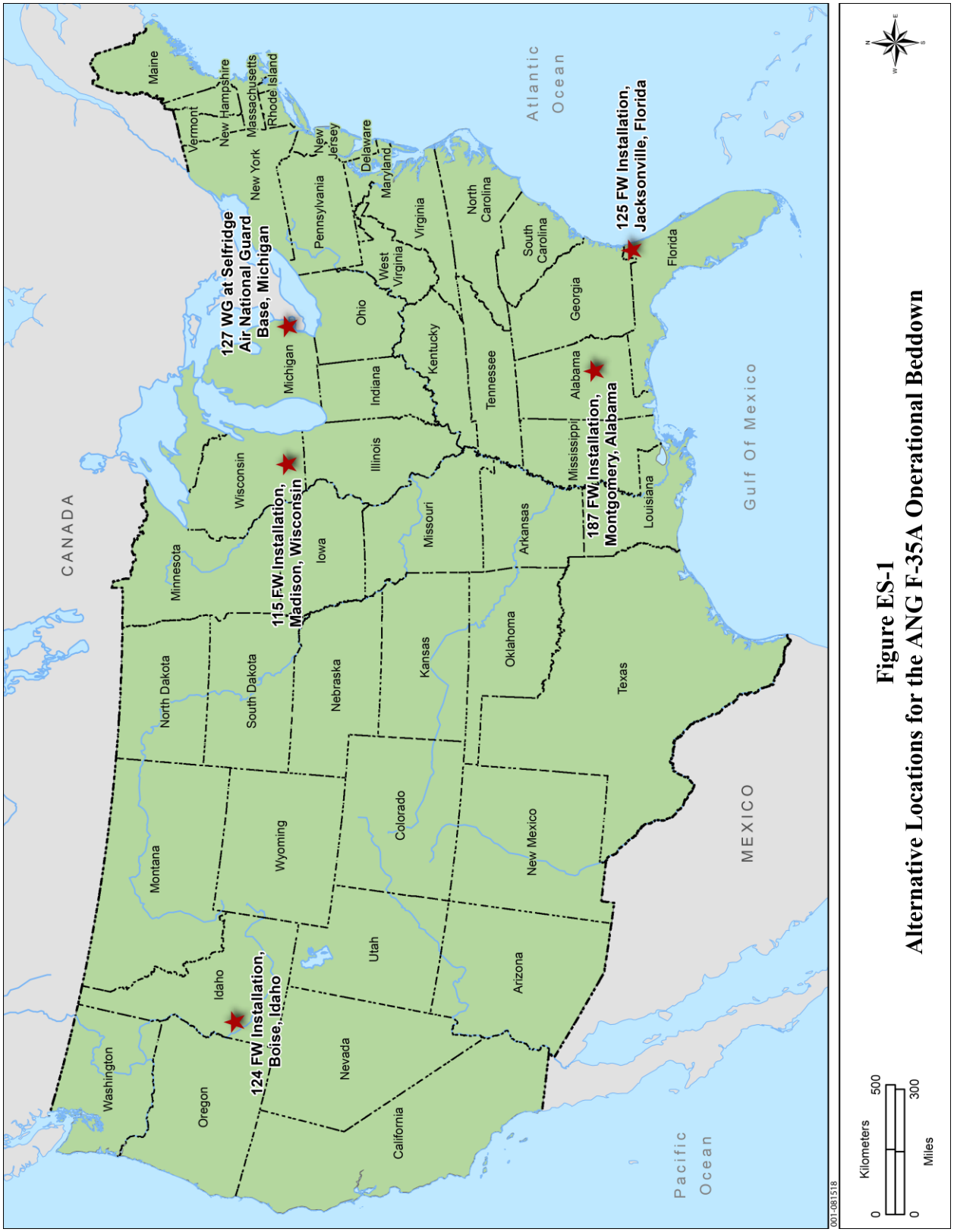

Figure ES-1
Alternative Locations for the ANG F-35A Operational Beddown

The official public scoping period for this proposal was initiated when the Notice of Intent (NOI) to prepare the EIS was published in the *Federal Register* on February 7, 2018 and ended on April 6, 2018. The USAF has released the Draft EIS to the public and agencies for review and comment. A Notice of Availability (NOA) was published in the Federal Register, newspaper advertisements were published, press releases were announced, flyers were posted, and letters accompanied the direct mailing of the Draft EIS document. The Draft EIS was posted on a publicly accessible website at www.ANGF35EIS.com. Copies of the Draft EIS document were also sent to local document repositories.

There was a public comment period following the NOA for the Draft EIS, which was published in the *Federal Register* on August 9, 2019. This initiated the public comment period, during which public meetings were held at each alternative location. Per 32 Code of Federal Regulations (CFR) 989.19, the public review period must be a minimum of 45 days, with the public meetings occurring no sooner than 15 days after the NOA, and ending at least 15 days before the end of the comment period. The original comment period for the Draft EIS was August 9, 2019 through September 27, 2019 (50 days). As a result of comments received, the USAF extended the comment period for another 35 days through November 1, 2019, resulting in a comment period of 85 days. During the public meetings, the National Guard Bureau (NGB) presented details about the proposal, the National Environmental Policy Act (NEPA) process, and provided attendees an opportunity to provide written and/or oral comments. In addition to receiving verbal and written comments at the meetings, the NGB also accepted written comments from the public and agencies through U.S. mail, the website, and email. All substantive comments received during the public comment period were fully considered and addressed in the Final EIS, as appropriate. The USAF responds to substantive comments on a Draft EIS in the Final EIS, consistent with 40 CFR § 1503.4. Substantive comments are regarded as those comments that challenge the analysis, methodologies, or information in the Draft EIS as being factually inaccurate or analytically inadequate; identify impacts not analyzed or identify reasonable alternatives or feasible mitigations not considered by the agency; or offer specific information that may have a bearing on the decision such as differences in interpretations of significance, scientific data, or technical conclusions. Non-substantive comments, which do not require a USAF response, are generally considered those comments that express a conclusion, an opinion, or a vote for or against the proposal itself, or some aspect of it; state a position for or against a particular alternative; or otherwise state a personal preference or opinion.

PURPOSE AND NEED

The federal mission of these ANG units is to support the USAF by maintaining well-trained, well-equipped units available for prompt mobilization during wartime and to provide assistance during national emergencies. As such, the ANG must acquire and train with the current USAF aircraft,

including the F-35A. To meet these requirements, the ANG must operate combat and support aircraft and train personnel for the job, according to the training requirements established by ACC through its Ready Aircrew Program. The purpose of the Proposed Action is to efficiently and effectively maintain combat capability and mission readiness in the full spectrum of USAF aircraft as the ANG faces deployments for conflicts abroad, while also providing for homeland defense. Beddown and operation of the F-35A at two of the five alternative locations would represent a major step toward this goal. These beddown actions and associated training would assure availability of combat-ready pilots in the most advanced fighter aircraft in the world.

The F-35A is the latest generation of fighter aircraft supporting the Combat Air Forces (CAF), which includes ACC, ANG, and Air Force Reserve Command (AFRC). ACC is the primary provider of combat airpower to the U.S.'s warfighting commands. As a component of CAF, the ANG needs to train in the same aircraft as ACC to effectively fulfill these same roles in a reserve capacity. To support global implementation of national security strategy, ACC, ANG, and AFRC operate fighter, bomber, reconnaissance, battle-management, and electronic combat aircraft. As such, ACC, ANG, and AFRC organize, train, equip, and maintain combat-ready forces for rapid deployment and employment while ensuring strategic air defense forces are ready to meet the challenges of peacetime air sovereignty and wartime air defense.

Three factors drive the need to beddown and operate the F-35A in the USAF. *First*, existing and anticipated enemy air defense systems have reached levels of effectiveness sufficient to pose a significant threat to current fighter attack aircraft. In addition, worldwide prevalence of sophisticated air-to-air and surface-to-air missiles continues to grow, increasing the number of threats to which existing USAF fighter attack aircraft are vulnerable. In its role to support the CAF, the ANG needs to identify locations for the F-35A beddown so that their pilots can be trained and combat-ready. Additionally, basing the F-35As at an ANG installation that already supports an Active Duty Associate Unit would allow both active duty and ANG pilots the opportunity to train together. The Active Duty Associate Unit is a squadron of active duty members stationed with an ANG host unit and tasked with flying and maintaining aircraft under the operational control of the host ANG's command (Sjostedt 2010).

Second, the CAF needs to efficiently and effectively maintain combat capability and mission readiness. However, it faces increased difficulty in maintaining an aging fighter attack aircraft inventory. These fighter aircraft need to be replaced as a result of attrition, decreasing service life, and the lack of manufacturing additional fighter aircraft. Therefore, the ANG must replace the aging fighter attack aircraft and aging infrastructure and integrate operational F-35A squadrons into the existing USAF structure.

Third, the ANG F-35A must support CAF core competencies of air and space superiority, global attack, precision engagement, and agile combat support. To do this efficiently and effectively, the

aircraft need to be based at existing locations offering compatible base infrastructure and providing ready access to existing airspace and ranges suitable for the F-35A. Beddown and operation of the F-35A at such locations form a critical priority for the USAF.

ALTERNATIVE IDENTIFICATION PROCESS

Identification and analysis of alternatives is one of the core elements of the Environmental Impact Analysis Process (EIAP) under NEPA and the USAF's implementing regulations. The Secretary of the Air Force may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 CFR 989.8(c)). Based on extensive analysis by the NGB and USAF operations communities, a study was conducted to determine the specific requirements for beddown of the F-35A aircraft and to determine an enterprise definition, from which potential ANG locations would be identified. Following this study, the Secretary of the Air Force and the Chief of Staff of the Air Force approved selection criteria for the F-35A beddown.

In general, the USAF uses the strategic basing process outlined in Air Force Instruction (AFI) 10-503 (2017) to identify potential locations to beddown missions. The process begins by identifying all the installations that could reasonably support a given mission. This enterprise of installations is then evaluated using objective criteria to screen the top alternative installations. Site surveys are then conducted at each alternative location to determine if the installation could reasonably support the mission in question. The Strategic Basing Executive Steering Group oversees the process and reports findings directly to the Secretary of the Air Force and Chief of Staff of the Air Force. This process was mandated by the Secretary of the Air Force to ensure basing decisions were made using a standardized, repeatable, transparent process. This F-35A basing decision followed this general basing process. The following planning conventions were followed:

1. Identify the number of F-35A aircraft scheduled to be delivered between 2023 and 2024. This time period corresponded to the Department of Defense (DoD) 2020-2024 Future Years Defense Program, which is the program and financial plan approved by the Secretary of Defense, and provides a basis for USAF planning. Planning beyond this time period is speculative due to the uncertainty of funding availability.
2. Identify the number of F-35A aircraft to be allocated to operations based on then-current national strategic considerations.
3. Determine the enterprise definition, from which the number of potential locations capable of supporting one squadron of up to 18 PAA can be identified. The PAA are those assigned to meet the primary aircraft authorization and reflect the number of aircraft flown by a unit in performance of its mission.

4. Recognize additional factors of Plans and Guidance and Global Positioning, which include strategic considerations but do not provide meaningful distinction among installations for ANG training within the U.S. and its territories.

Consideration of the planning conventions above led to an initial screening of all ANG installations against the following standards:

1. a unit that currently supports a fourth generation fighter aircraft mission,
2. a runway of at least 8,000 feet in length,
3. units that are not formal training units (FTUs), and
4. an installation had to be located in the contiguous U.S. (CONUS).

The initial screening yielded a defined enterprise of 18 alternative installations to be evaluated for the 5th and 6th Operational Beddowns. NGB presented objective screening criteria to the Strategic Basing Executive Steering Group to be used in the identification of installations for the beddown of the F-35A. The approved criteria were used to screen the enterprise of 18 alternative installations to identify those installations' capacity to successfully support the F-35A mission. The objective criteria included mission, capacity, environmental considerations, and cost, and are described in more detail below:

Ability to meet the mission requirements. Under this criterion, the alternative location should be within reasonable proximity and access to operational training ranges and airspace. For the purpose of this analysis, a distance of 243 nautical miles (NM) was assumed and coincides with optimal training distance for the F-35A Ready Aircrew Program Training.

Capacity. The alternative location should have hangar capacity; runway length and weight-bearing capacity; ramp space; installation operation support capacity; squadron operations facilities with aircraft maintenance units; aircrew, maintenance, and fuselage training capabilities; and the necessary communications infrastructure.

Environmental Constraints. The alternative location should be able to:

- demonstrate conformity with the respective State Implementation Plan (SIP);
- meet the local community's zoning or other land use controls adopted to limit encroachment and protect the public's health, safety, and welfare;
- have an absence of incompatible development such as tall structures in the airport's runway protection zones (RPZs)/installation's clear zone (CZ) and/or accident potential zone (APZ) that create flight safety hazards; and
- have an absence or limited amount of noise-sensitive development located in areas near the airport/installation that are exposed to Day-Night Average Sound Levels (DNL) at and

above 65 decibels (dB) and considered by the Federal Aviation Administration (FAA) and DoD as incompatible land uses (USAF 1999; 14 CFR Part 150).

Cost. Given budgetary constraints, it was important for the USAF to select alternative installations that have a favorable area cost factor based on Unified Facilities Criteria (UFC) 3-701-01, Change 6, *DoD Facilities Pricing Guide\2\/2/* (2014).

The Secretary of the Air Force considered the objective screening results as well as qualitative operational factors in determining the alternative installations for the 5th and 6th F-35A Operational Beddowns. These factors included:

- Plans and Guidance
- Global and Regional Coverage
- Combatant Commander Support
- Total Force
- Beddown Timing
- Force Structure
- Training Requirements and Efficiencies
- Logistic Supportability
- Resources/Budgeting

PROPOSED ACTION AND ALTERNATIVES

Overview of the Proposed Action

The ANG proposes to beddown one squadron of 18 F-35A operational aircraft at two of five ANG installations (each location would have one squadron). Each of these five alternative locations meets the beddown and operational requirements presented later in this chapter. These locations include the following:

- 115 FW at Dane County Regional Airport, Madison, Wisconsin;
- 124 FW at Boise Airport, Boise, Idaho;
- 125 FW at Jacksonville IAP, Jacksonville, Florida;
- 127 WG at Selfridge ANGB, Michigan; and
- 187 FW at Montgomery Regional Airport, Montgomery, Alabama.

The Proposed Action would replace the current fighter aircraft inventory of A-10s, F-16s, or F-15s with 18 PAA F-35A aircraft at the final beddown locations. The Proposed Action also includes personnel needed to operate and maintain the F-35A, and construction of new and/or modification of existing facilities on the installations supporting the F-35A beddown. Pilots operating F-35A

aircraft would conduct training from the installation and in existing Special Use Airspace (SUA) associated with each proposed location. No new SUA or reconfiguration of existing SUA is proposed, or would be required to support the ANG F-35A beddown at any of the alternative locations. Table ES-1 summarized the major components of each alternative.

Action Elements Affecting the Installation

Basing of the F-35A Aircraft

The beddown process would occur in phases associated with manufacture and delivery of F-35A aircraft. Delivery of the first F-35As to an installation could be as early as 2023 and the last is scheduled to be completed by 2024, when the full complement of 18 PAA F-35A aircraft would be based at the two selected locations. Construction activities would precede the arrival of the first aircraft. If an installation with A-10 aircraft were selected, then the existing A-10s would be kept in the USAF inventory to be redistributed as needed at a later date. If an F-16 or F-15 installation were selected, those aircraft would be evaluated for redistribution or removed from the USAF inventory on a case-by-case basis based on aircraft condition. Table ES-1 identifies the current type and number of PAA aircraft at each alternative installation, the number of F-35As proposed for beddown, and the net change in aircraft.

Table ES-1. Summary of Alternatives (Current/Proposed)

	115 FW WI	*124 FW ID*	*125 FW FL*	*127 WG MI*	*187 FW AL*
Aircraft Drawdown (PAA)	18	18	18	18	18
Proposed F-35A Aircraft (PAA) Beddown	18	18	18	18	18
Current ANG Annual Airfield Sorties	2,400	2,500	2,400	2,388	3,076
Proposed ANG F-35A Airfield Sorties	3,061	3,061	3,061	3,061	3,061
Total Current ANG Annual Airfield Operations	4,900	6,152	4,850	5,098	7,026
Total Proposed ANG Airfield Operations	6,222[1]	7,274	6,222	6,746	7,094
Time Spent in Airspace % Change with F-35A	+28%	+47%	+28%	+54%	-17%
Maximum proposed construction (SF [acres])	212,883 (4.9)	249,232 (5.7)	468,492 (10.8)	104,000 (2.4)	208,570 (4.8)
Maximum proposed new impervious surfaces (SF [acres])	71,883 (1.7)	25,000 (0.6)	81,600 (1.9)	59,400 (1.4)	124,589 (2.9)
Proposed Personnel Change	+64	+85	+85	+85	+27

Note: [1]Should the 115 FW be selected for the F-35A aircraft, there would be an increase of 968 F-16 operations for the existing alert mission at Dane County Regional Airport until such a time as the F-35A is operationally prepared to take on the alert mission, at which time, those additional 968 operations would be flown by the F-35A aircraft and the additional 968 operations would drop to zero.

Airfield Operations

To provide the training needed to ensure combat readiness, F-35A aircrews would conduct operations in two types of areas: 1) an airfield associated with an installation, and 2) training ranges and SUA. Based on a 4,500 flying hour program and an average sortie duration of 1.47 hours, the NGB anticipates that each ANG F-35A unit would fly no more than an estimated 3,061 sorties annually. Thus, 18 F-35As at an ANG installation would account for an estimated 6,122 annual airfield operations (in addition to any required local pattern work), regardless of its location. Current airfield operations differ across installations due to several factors: aircraft type, number of pilots requiring Ready Aircrew Program training currency, and the availability of aircraft/training hours. Each aircraft type, such as the A-10, F-15, and F-16, has differing utilization requirements for daily operations; therefore, current airfield operations differ from those identified for F-35As. The number of pilots requiring currency in their Ready Aircrew Program training also differs across installations and is a function of available training hours and the amount of pilots requiring the training.

Total proposed airfield operations numbers, as noted above, would account for 6,122 F-35A arrivals and departures, regardless of the alternative. Closed pattern operations account for the variations among the installations. A closed pattern is a take-off from an airfield, followed by a flight pattern that sets the aircraft up for an immediate landing at the same airfield, without intent to ever leave the local area. However, closed patterns under visual and instrument flight rules (Visual Flight Rules [VFR] and Instrument Flight Rules [IFR]) would also be conducted and are dependent on the installation. The current number of closed patterns per sortie flown was used to predict the proposed F-35A closed patterns at each base. Therefore, if one installation averaged one closed pattern per sortie and another averaged two closed patterns per sortie, the total of airfield operations would differ.

Each of the alternative locations already supports a considerable number of airfield operations; Table ES-1 provides the current legacy aircraft sorties flown at each of the five locations, current as of October 2017, and compares them to the proposed F-35A sorties. Sorties flown by these units in other locations are not reflected in the table. The F-35A sorties are based on a 100 percent manned wing with assigned pilots maintaining combat-ready status in accordance with the requirements of the Ready Aircrew Program. With the exception of Selfridge ANGB, where airfield operations are predominantly military, all airfields are joint-use, where civilian and commercial air traffic may comprise the bulk of the airfield operations. The F-35A beddown would not change the number or type of other based aircraft, transient military aircraft, or civilian and commercial operations.

Afterburner is used on some military aircraft to provide the increase in speed needed to safely lift off from a runway, and as needed in the training airspace to achieve high speeds quickly. Use of afterburner consumes large amounts of fuel, so its use is typically limited to those times when it is absolutely necessary for flight safety (additional thrust is needed) or to achieve higher acceleration rates. During aircraft departures, afterburner could be needed if the aircraft is heavily loaded, or when certain weather conditions exist (such as high temperatures or high-density altitude). For this Proposed Action, the USAF has evaluated the requirement for F-35A afterburner use during a departure at each of the five alternative installations based on a basic training configuration, airfield elevation, runway length, and hottest temperature on record. The evaluation resulted in minimal to no requirement for afterburner use at any of the installations under consideration. There is no training requirement for F-35A pilots to utilize afterburner on take-offs. Although heavily-loaded F-35A training flights may drive afterburner use in rare cases, that training scenario would typically occur off-station, and would not be required at any of the five ANG alternative installations. However, to ensure that afterburner use is considered in this analysis, the USAF has recommended that the F-35A should be modeled to conduct 5 percent of take-offs in afterburner mode at the five alternative installations.

Construction and Modification of Facilities

To accommodate the F-35A aircraft, the installations selected for implementation would require both new construction and modification of some existing facilities. All construction would be located within the airport or ANG installation boundaries. Examples of some basic F-35A facility and infrastructure requirements include:

- Squadron operations/maintenance facilities
- Hangars
- Simulator facilities
- Installation communications infrastructure
- Electrical system upgrades
- Other installation support facilities, such as an engine repair shop and aircraft parking aprons, which vary from installation to installation

While each of the five alternative installations offer most of the basic necessary facilities for the proposed beddown, none of the five alternative locations has all of the required infrastructure and facilities. Construction of new facilities and/or modification of existing facilities would be necessary at each location, although the nature and magnitude of these efforts would differ slightly among the five locations. As noted earlier, the majority of construction and modifications would occur before the first F-35A arrives at the selected installations but may extend after the first aircraft arrives. The duration of construction is dependent upon the complexity and breadth of

development needed to support the F-35A beddown. Construction projects not directly supporting the F-35A are being reviewed under separate NEPA documentation and are analyzed in this EIS under the cumulative impacts sections. Details on construction and modification projects are presented in each installation-specific Chapter 4.

Personnel Changes

It is expected that there would be a minor increase in the overall number of ANG personnel at each installation following conversion to the F-35A. Up to approximately 35 new personnel would be added at each installation to provide security and contract oversite for the Full Mission Simulator (FMS) and the Autonomic Logistics Information System (ALIS) (7 field service, 15 ALIS support, 10 training, and 3 security personnel).

In addition, there would be an Active Duty Associate Unit established at any selected alternative. The Active Duty Associate Unit would be composed of up to 5 pilots, 40 maintenance staff, and approximately 5 other support staff. For those installations that currently have an Active Duty Associate Unit (the 187 FW and the 115 FW), those associate units would be supplemented up to the 50 total personnel, who would serve on a 3-year rotation.

Action Elements Affecting Training Airspace and Ranges

Training Airspace and Range Operations

The Ready Aircrew Program requirements indicate that to fulfill the multiple roles currently performed by the fighter aircraft it is replacing, the F-35A aircraft must be used to conduct training exercises to ensure combat readiness for five major types of missions. Each of these five major missions requires the necessary airspace and range assets (e.g., targets and strafing pits) to permit realistic training. Existing training airspace associated with each of the five alternative locations has the requisite airspace and range assets to support F-35A combat readiness training; no new airspace or reconfigurations are needed or proposed to support the ANG F-35A beddown. Due to their higher altitude missions, advanced electronics, and speed, F-35As would not use Military Training Routes; rather, they would primarily operate in Military Operations Areas (MOAs), Air Traffic Control Assigned Airspace (ATCAAs), Restricted Areas, and/or Warning Areas.

Variation in the number of operations among the five locations would result from differences in the number, size, arrangement, and proximity of the airspace units to the installation. These differences also reflect adaptation of training activities to existing airspace.

Although F-35A aircraft would perform missions similar to the aircraft they are replacing, they have distinctive capabilities and would fly somewhat differently. The following highlights some

of the expected differences in the F-35A operational capabilities relative to fighter attack aircraft they are replacing.

- More effective in air-to-air engagements
- More effective in executing missions against fixed and mobile targets
- More effective in non-traditional intelligence, surveillance, reconnaissance, and suppression of enemy air defenses and destruction of enemy air defenses missions
- Self-sufficient or part of multi-system and multi-service combat operations
- Able to rapidly transition between air-to-ground and air-to-air missions while still airborne
- Reduced detection with low-observable technologies and tactics

Due to these capabilities and the breadth of the F-35A mission requirements, operational use of existing airspace and ranges would change under any of the alternatives. No changes to airspace size or structure are proposed; rather, how the F-35A aircraft flies within the existing airspace configuration would change from the legacy aircraft. Due to its capabilities and expected tactics, the F-35A would occasionally (2 percent or less) fly below 5,000 feet above ground level (AGL), and would consistently operate (93 percent) above 10,000 feet mean sea level (MSL). To train with the full capabilities of the aircraft, F-35A pilots would employ supersonic flight (i.e., flying at or greater than the speed of sound). All supersonic flight would occur within airspace and at altitudes previously approved for such activities. NGB anticipates that time spent in air-to-air combat training would involve supersonic flight for a maximum of 2 to 3 minutes per sortie. Supersonic speeds enable the F-35A to employ weapons at greater distances than an adversary aircraft with less supersonic capability. After simulated weapon employment, the F-35A uses its speed to evade adversary missiles and aircraft. Supersonic flight would be conducted above 15,000 feet MSL, with 90 percent of these supersonic events occurring above 30,000 feet MSL, again within airspace already approved for supersonic activities.

Due to their capabilities and based on individual mission scenarios; current aircraft typically activate multiple contiguous SUA units rather than individual components, such as a single MOA. For example, pilots may schedule and use two or more MOAs and their overlying ATCAAs for one training activity. However, no new airspace or reconfiguration of existing airspace is proposed, or would be required to support the ANG F-35A beddown at any of the alternative locations. To conduct its training missions, the F-35A would use airspace units in combination rather than singly.

As noted for airfield operations, F-35A pilots would need to train after dark since combat can occur 24 hours a day. Under most circumstances, these after dark operations are and can be completed before environmental night (10 p.m. to 7 a.m.). The fighter aircraft being replaced fly between 0 and 3 percent of the time during environmental night. Typical ANG flight schedules would not

require F-35A departures during environmental night. Nighttime arrivals would be consistent with existing legacy aircraft nighttime operations but would not exceed 3 percent. Contingencies such as weather or special combat mission training may result in rare, unplanned operations during this period.

Defensive Countermeasures

Historic use of defensive countermeasures varies in the airspace for the five alternative locations. Although F-35A missions and training would retain similarities with those of the fighter aircraft it is replacing, tactics and training events continue to develop. Chaff and flare use by the F-35A would conform to existing altitude and seasonal restrictions to ensure fire safety. These restrictions would continue to minimize the potential for fires, so the impacts of chaff and flare use would not exceed the negligible impacts already occurring. Based on the emphasis on flight at higher altitudes for the F-35A, roughly 90 percent of F-35A flares released throughout the authorized airspace units would occur above 15,000 feet MSL, further reducing the potential risk for accidental fires. For the purposes of this analysis, it is estimated that F-35A chaff and flare expenditure would be approximately the same or decrease from the legacy aircraft on a per operation basis.

Ordnance Use

The F-35A has the requirement and capability to perform air-to-ground missions. For the F-35A operational aircraft, air-to-ground training would represent about 60 percent of the training sorties flown, with the air superiority mission accounting for the remaining 40 percent of the sorties flown. While most air-to-ground training would be simulated, where nothing is released from the aircraft, there is a need to conduct realistic ordnance delivery at approved ranges. 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 legacy aircraft. The F-35A is capable of carrying and employing several types of ordnance. Internally, it can carry 5,700 pounds of ordnance and up to 22,000 pounds when carried internally and externally. The standard internal payload for F-35A aircraft includes two AIM-120C air-to-air missiles and two 2,000-pound Guided Bomb Unit (GBU)-31 Joint Direct Attack Munitions (JDAM) for air-to-ground ordnance delivery (Lockheed Martin 2018). In addition, the F-35A carries an internal, 25-millimeter (mm) Aircraft Gun Unit (GAU)-22/A cannon, which requires occasional tactical strafing training. Strafing involves flying toward and firing at a prescribed strafing target for a short burst of time; however, with a capacity of 182 rounds, strafing by the F-35A would be limited. Altitude and flight profiles while strafing vary with mission, weather, threat, tactics, and other considerations. As is the case for air-to-air and other air-to-ground ordnance training, strafing activities must follow specific rules and safety procedures identified in AFI 11-214, *Air Operations Rules and Procedures*, and be employed only on approved ranges and targets. Under the Proposed Action, the ANG F-35A aircraft would

primarily employ air-to-ground ordnance and conduct strafing at the following approved ranges: the 115 FW at the Hardwood Range; the 124 FW at the Saylor Creek and Juniper Butte Ranges; the 125 FW at Townsend Bombing Range; the 127 WG at Grayling Range; and the 187 FW at Camp Shelby.

The F-35A Block 3F aircraft is not "nuclear-capable"; therefore, the F-35A aircraft that would be based at any of these five alternative locations would not have the hardware necessary for a nuclear mission. There are no plans to add the hardware necessary to make these F-35A aircraft nuclear-capable at this time. Only units with a nuclear mission are provided the hardware necessary to carry nuclear weapons; therefore, because none of these five alternatives have a nuclear mission, should any of the aircraft associated with this F-35A beddown ever be fitted with Block 4 upgrades, they still would not be nuclear-capable.

Identification of the Preferred Alternatives

Based on an evaluation of operational parameters, the Secretary of the Air Force has identified the 115 FW in Madison, Wisconsin as the preferred alternative for the 5th Operational Beddown, and the 187 FW in Montgomery, Alabama as the preferred alternative for the 6th Operational Beddown.

ENVIRONMENTAL CONSEQUENCES

Comparing and differentiating among alternatives comprises a fundamental premise of NEPA. For the basing alternatives and scenarios identified for this Proposed Action, summaries and comparisons of consequences are presented in Table ES-2.

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
Noise					
Installation: 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. Changes in DNL results in an additional 1,320 acres within the 65 dB noise contour where compatible land use recommendations are triggered. As a result, the number of households located within the 65 dB DNL contour would increase by 1,019 and the number of people exposed would increase by 2,215. One hundred thirty-two of the households and 292 persons would be located in the 70-75 DNL contour where housing is incompatible absent an exception. Interference with classroom speech would remain the same or	Installation: 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. Changes in DNL results in an additional 446 acres within the 65 dB noise contour where compatible land use recommendations are triggered. As a result, the number of households located within the 65 dB DNL contour would increase by 272 and the number of people exposed would increase by 665. Eighty-three of the households and 199 persons would be located in the 70-75 DNL contour where housing is incompatible absent an exception. Three of the school POIs located within the ROI would experience an increase in the number of events causing speech	Installation: Based on context and intensity, the change in the noise environment associated with the Proposed Action would not be considered significant in the area surrounding the airfield. Changes in DNL results in a reduction of 688 acres within the 65 dB noise contour where compatible land use recommendations are triggered. As a result, the number of households located within the 65 dB DNL contour would decrease by 4 and the number of people exposed would decrease by 15. Interference with classroom speech would increase at one school by one event per hour. Speech interference in residential areas would remain the same or increase by one event per hour. The	Base: 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. Changes in DNL results in an additional 1,073 acres within the 65 dB noise contour where compatible land use recommendations are triggered. As a result, the number of households located within the 65 dB DNL contour would increase by 1,034 and the number of people exposed would increase by 2,902. Forty-five of the households and 130 persons would be located in the 70-75 DNL contour where housing is incompatible absent an exception. Interference with classroom speech	Installation: 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. Changes in DNL results in an additional 1,219 acres within the 65 dB noise contour where compatible land use recommendations are triggered. As a result, the number of households located within the 65 dB DNL contour would increase by 46 and the number of people exposed would increase by 113. Sixteen of the households and 35 persons would be located in the 70-75 DNL contour where housing is incompatible absent an exception. Interference with classroom speech is predicted not to change. Speech interference in residential areas would remain the same or	The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or Federal Aviation Regulations Part 150 airfield compatibility programs. There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
increase by one event per hour. Speech interference in residential areas would remain the same or increase by one event per hour. The probability of awakening would remain low at between 2% and 4% of the population with windows open and 1% or less with windows closed. The potential for hearing loss to off-installation personnel is not anticipated.	interference but only Owyhee-Harbor Elementary School would exceed L_{eq} of 65 dB. Speech interference in residential areas would remain the same or increase by one event per hour. The probability of awakening would either remain the same or increase by 1%. The potential for hearing loss to off-installation personnel is negligible.	probability of awakening would remain low at less than 1% of the population with windows open and with windows closed. The potential for hearing loss to off-installation personnel is negligible.	would remain the same or increase by one event per hour. Speech interference in residential areas would remain the same or increase by one event per hour. The probability of awakening would change between 0 and 1% in eight areas, remaining at between <1% and 5% of the population with windows open and 1% or less with windows closed. The potential for hearing loss to off-installation personnel is negligible.	increase by one event per hour. There is no change in the probability of awakenings. The potential for hearing loss to off-installation personnel is negligible.	
<u>Airspace:</u> Impacts to the acoustic environment beneath the SUA would not be significant. The increase in L_{dnmr} as a result of subsonic operations would be between 1 and 4 dB, with the greatest change (4 dB) beneath the Volk East MOA, and highest L_{dnmr} of 57dB beneath the Volk South MOA. Increases in CDNL as a result of	<u>Airspace:</u> Impacts to the acoustic environment beneath the SUA would not be significant. The increase in L_{dnmr} as a result of subsonic operations would be between 1 and 8 dB. While the greatest change is 8 dB, the L_{dnmr} is predicted to remain below 45 dB. Increases in CDNL as a result of supersonic flight operations would be	<u>Airspace:</u> Impacts to the acoustic environment beneath the SUA would not be significant. The increase in L_{dnmr} as a result of subsonic operations would be between 1 and 2 dB, with the greatest change (2 dBA) beneath the Palatka 1 and Palatka 2 MOAs, and highest L_{dnmr} of 49 dBA beneath the	<u>Airspace:</u> Impacts to the acoustic environment beneath the SUA would not be significant. The increase in L_{dnmr} as a result of subsonic operations would be between 4 and 9 dB, with the greatest change (9 dB) beneath the Pike East MOA and the highest L_{dnmr} of 58 dB beneath R-4201A. Increases in	<u>Airspace:</u> Impacts to the acoustic environment beneath the SUA would not be significant. The increase in L_{dnmr} as a result of subsonic operations would be between 0 and 15 dB, with the greatest change (15 dB) beneath the Birmingham, Birmingham 2, and Camden Ridge MOAs. The highest L_{dnmr} of 50 dB would be beneath the	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
supersonic flight operations would be between 1 and 2 dBC, with overall CDNL remaining below 50 dBC. Overall, the Proposed Action would be anticipated to result in significant impacts to the airport noise environment, but have no significant impacts in the SUA. 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	between 0 and 5 dBC, with overall CDNL remaining below 50 dBC. Overall, the Proposed Action would be anticipated to result in significant impacts to the airport noise environment, but have no significant impacts in the SUA. 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	Coastal 1 East and West MOAs. Supersonic flight operations would only occur over water in the Warning Areas. Overall, the Proposed Action would not result in significant impacts to the airport noise environment, or in the SUA.	CDNL as a result of supersonic flight operations would be between 1 and 2 dBC, with overall CDNL remaining below 50 dBC. Overall, the Proposed Action would be anticipated to result in significant impacts to the airport noise environment, but have no significant in the SUA. The USAF does not have authority to expend appropriated funds on facilities that are not under the control of the USAF. Procedures implemented through the AICUZ program at Selfridge ANGB would be similar to the Part 150 program at the civilian installations, but does not provide the ability to conduct off-base mitigation to structures within the community.	Birmingham, Birmingham 2, and Camden Ridge MOAs. Increases in CDNL as a result of supersonic flight operations would be 6 dBC, with overall CDNL remaining below 45 dBC. Overall, the Proposed Action would be anticipated to result in significant impacts to the airport noise environment, but have no significant in the SUA. 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	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
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.	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.			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.	

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
Airspace					
Installation: There would be a 47% increase in military operations at the airfield (this would drop to 27% once the F-35A adopts the alert mission), 3% increase in total airfield operations. There would be no significant impacts to airspace management and use within the local air traffic environment.	Installation: There would be an 18% increase in military operations at the airfield, 1% increase in total airfield operations. There would be no significant impacts to airspace management and use within the local air traffic environment.	Installation: There would be a 28% increase in military operations at the airfield, 1% increase in total airfield operations. There would be no significant impacts to airspace management and use within the local air traffic environment.	Base: There would be a 32% increase in 127 WG operations; 8% increase in total airfield operations. There would be no significant impacts to airspace management and use within the local air traffic environment.	Installation: There would be a 1% increase in military operations at the airfield, less than 1% increase in total airfield operations. There would be no significant impacts to airspace management and use within the local air traffic environment.	No changes to the number of operations or frequency of use of training would occur. Operations would remain as current. There would be no significant impacts to Airspace at each alternative installation under the No Action Alternative.
Airspace: No change to the current configuration of SUA (MOAs, Restricted Areas or Ranges). Impacts on SUA use and management would not be significant. There would be an approximate 28% increase in time spent within the airspace. The existing agreements in place between the scheduling agencies, and 115 FW would be sufficient to support F-35A flight operations. A new LOA with the	Airspace: No change to the current configuration of airspace. Impacts on airspace use and management would not be significant. There would be up to an approximate 47% increase in time spent within the airspace. Use of existing procedures and continued close coordination for scheduling use of the MOAs, ATCAAs, and Restricted Areas would continue to ensure safe air traffic operations	Airspace: No change to the current configuration of airspace. Impacts on airspace use and management would not be significant. There would be an approximate 28% increase in time spent within the airspace. Close coordination of scheduling and use of the SUA by the 125 FW with the scheduling agencies would continue to ensure safe air traffic operations throughout the region. Impacts to	Airspace: No change to the current configuration of airspace. Impacts on airspace use and management would not be significant. There would be up to an approximate 54% increase in time spent within the airspace. Close coordination of scheduling and use of the SUA by the 127 WG with the scheduling agencies would continue to ensure safe air traffic operations throughout the region.	Airspace: No change to the current configuration of airspace. Impacts on airspace use and management would not be significant. There would be up to an approximate 17% decrease in time spent within the airspace. Close coordination of scheduling and use of the SUA by the 187 FW with the scheduling agencies would continue to ensure safe air traffic operations throughout the region. Impacts to civil and commercial aviation traffic in 187 FW training	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
FAA would be required to support the need for increased ATCAA altitudes. The FAA retains control of ATCAA leading to negligible effects to air traffic. Impacts to civil and commercial aviation traffic in 115 FW training airspace would be negligible.	throughout this region. In accordance with previous agreements, supersonic activity would occur only in the airspace and at altitudes and times currently approved for supersonic flight. Seasonal restrictions for supersonic flight below 15,000 feet AGL along the Owyhee River system would not change. Flight restrictions over the boundaries of the Duck Valley Reservation would remain in place. The addition of F-35A supersonic events occurring above 10,000 feet AGL and below 30,000 feet MSL in the Owyhee North and Jarbidge North MOAs/ATCAAs could result in an exceedance of the number of supersonic operations (730 events) approved in the 2016 supersonic waiver (366th Operations Support Squadron/OSO 2016). Impacts to civil and commercial aviation	civil and commercial aviation traffic in 125 FW training airspace would be negligible.	Impacts to civil and commercial aviation traffic in 127 WG training airspace would be negligible.	airspace would be negligible.	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
	traffic in 124 FW training airspace would be negligible.				
Air Quality					
Installation: Area is in attainment for all criteria pollutants; no conformity determination required. Impacts to air quality would not be significant. Emissions would not exceed threshold levels.	Installation: Area is in maintenance for CO and PM_{10}. Impacts to air quality would not be significant. Emissions for both construction and aircraft operations would not be anticipated to exceed *de minimis.*	Installation: Area is in attainment for all criteria pollutants; no conformity determination required. Impacts to air quality would not be significant. Emissions would not exceed threshold levels.	Base: Area is in non-attainment for ozone and maintenance area for CO and $PM_{2.5}$. Impacts to air quality would not be significant. Emissions for both construction and aircraft operations would not be anticipated to exceed *de minimis.*	Installation: Area is in attainment for all criteria pollutants; no conformity determination required. Impacts to air quality would not be significant. Emissions would not exceed threshold levels.	Air Quality at each alternative airfield would remain as it currently is. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no significant impacts to Air Quality at each alternative installation under the No Action Alternative.
Airspace: Emissions within the training airspace would not be significant because over 99% of the operations would occur well above the mixing height.	Airspace: Emissions within the training airspace would be not be significant because over 99% of the operations would occur well above the mixing height.	Airspace: Emissions within the training airspace would not be significant because over 99% of the operations would occur well above the mixing height.	Airspace: Emissions within the training airspace would not be significant because over 99% of the operations would occur well above the mixing height.	Airspace: Emissions within the training airspace would not be significant because over 99% of the operations would occur well above the mixing height.	
Safety					
Installation: Impacts to safety would not be significant. Existing facilities for fire response and crash recovery meet F-35A beddown requirements. New building construction is not	Installation: Impacts to safety would not be significant. Existing facilities for fire response and crash recovery meet F-35A beddown requirements. New building construction is not	Installation: Impacts to safety would not be significant. Existing facilities for fire response and crash recovery meet F-35A beddown requirements. New building	Base: Impacts to safety would continue to be significant due to residential encroachment in the CZ. No other impacts related to safety would be significant. Existing	Installation: Impacts to safety would not be significant. Existing facilities for fire response and crash recovery meet F-35A beddown requirements. New building construction is not	Both ground and flight safety at each alternative airfield would remain as they currently are. There would be no significant impacts to Safety under the No Action Alternative.

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
proposed within RPZs or APZs. None of the planned construction would be in conflict with the proposed QD arcs. No explosives would be handled during construction or demolition activities.	proposed within RPZs or APZs. None of the planned construction would be in conflict with the proposed QD arcs. No explosives would be handled during construction or demolition activities.	construction is not proposed within RPZs or APZs. None of the planned construction would be in conflict with the proposed QD arcs. No explosives would be handled during construction or demolition activities.	facilities for fire response and crash recovery meet F-35A beddown requirements. New building construction is not proposed within RPZs or APZs, with exception of the BAK 12/14 arresting system, which is not considered a safety hazard. None of the planned construction would be in conflict with the proposed QD arcs. No explosives would be handled during construction or demolition activities.	proposed within RPZs or APZs. None of the planned construction would be in conflict with the proposed QD arcs. No explosives would be handled during construction or demolition activities.	
Airspace: Impacts to safety would not be significant. All current fire risk management procedures would remain unaffected due to the F-35A basing. Increase of approximately 3% in total Dane County Regional Airport airfield operations. The use of ordnance and chaff and flares would	Airspace: Impacts to safety would not be significant. All current fire risk management procedures would remain unaffected due to the F-35A basing. Increase of approximately 1% in total Boise Airport airfield operations. The use of ordnance and chaff and flares would be approximately the same or decrease from those	Airspace: Impacts to safety would not be significant. All current fire risk management procedures would remain unaffected due to the F-35A basing. Increase of approximately 1% in total Jacksonville IAP airfield operations compared to the affected environment.	Airspace: Impacts to safety would not be significant. All current fire risk management procedures would remain unaffected due to the F-35A basing. Increase of approximately 8% in total airfield operations compared to the affected environment. The use of ordnance and chaff and flares	Airspace: Impacts to safety would not be significant. All current fire risk management procedures would remain unaffected due to the F-35A basing. Less than 1% increase in total Montgomery Regional Airport airfield operations compared to the affected environment. The use of ordnance and chaff and flares would be approximately the same	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
be approximately the same or decrease from those currently employed by legacy aircraft. No increase of BASH and aircraft mishaps beyond current levels.	currently employed by legacy aircraft. No increase of BASH and aircraft mishaps beyond current levels.	The use of ordnance and chaff and flares would be approximately the same or decrease from those currently employed by legacy aircraft. No increase of BASH and aircraft mishaps beyond current levels.	would be approximately the same or decrease from those currently employed by legacy aircraft. No increase of BASH and aircraft mishaps beyond current levels.	or decrease from those currently employed by legacy aircraft. No increase of BASH and aircraft mishaps beyond current levels.	
Land Use					
Installation: No change to the existing airfield-related RPZs and CZs. Off-airport area affected by noise levels equal to or greater than 65 dB DNL increases 1,320 acres overall. Approximately 199 additional acres of 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.	Installation: No change to the existing airfield-related RPZs and CZs. Off-airport area affected by noise levels equal to or greater than 65 dB DNL increases approximately 446 acres overall. Approximately 74 additional acres of residential land use would be included in the 65-80 dB DNL noise contour, rendering this acreage potentially incompatible for residential land use, which would be considered a significant impact.	Installation: No change to the existing airfield-related RPZs and CZs. Off-airport area affected by noise greater than 65 dB DNL would decrease by approximately 688 acres; no residential land use would fall under areas affected by noise greater than 65 dB DNL. Therefore, there would be no significant impacts.	Base: There would be no change to the existing airfield-related APZs and CZs. Off-airport area affected by noise greater than 65 dB DNL would increase by approximately 1,073 acres overall. Approximately 475 acres of 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.	Installation: There would be no change to the existing airfield-related RPZs and CZs. Off-airport area affected by noise greater than 65 dB DNL would increase by approximately 1,219 acres overall. Approximately 37 additional acres of 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.	Land Use at each alternative airfield would remain as it currently is. There would be no significant impacts to Land Use under the No Action Alternative at any of the alternative locations.

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
Airspace: Impacts to land use under the airspace would not be significant. There would be no changes to the status or use of underlying lands, nor would the Proposed Action affect existing plans or policies implemented for land management. The beddown action would not require changes in SUA attributes, volume, or proximity. Changes in noise levels from the Proposed Action would not affect general land use patterns, land ownership, or affect management of lands or special use land areas.	Airspace: Impacts to land use under the airspace would not be significant. There would be no changes to the status or use of underlying lands, nor would the Proposed Action affect existing plans or policies implemented for land management. The beddown action would not require changes in SUA attributes, volume, or proximity. Changes in noise levels from the Proposed Action would not affect general land use patterns, land ownership, or affect management of lands or special use land areas.	Airspace: Impacts to land use under the airspace would not be significant. There would be no changes to the status or use of underlying lands, nor would the Proposed Action affect existing plans or policies implemented for land management. The beddown action would not require changes in SUA attributes, volume, or proximity. Changes in noise levels from the Proposed Action would not affect general land use patterns, land ownership, or affect management of lands or special use land areas.	Airspace: Impacts to land use under the airspace would not be significant. There would be no changes to the status or use of underlying lands, nor would the Proposed Action affect existing plans or policies implemented for land management. The beddown action would not require changes in SUA attributes, volume, or proximity. Changes in noise levels from the Proposed Action would not affect general land use patterns, land ownership, or affect management of lands or special use land areas.	Airspace: Impacts to land use under the airspace would not be significant. There would be no changes to the status or use of underlying lands, nor would the Proposed Action affect existing plans or policies implemented for land management. The beddown action would not require changes in SUA attributes, volume, or proximity. Changes in noise levels from the Proposed Action would not affect general land use patterns, land ownership, or affect management of lands or special use land areas.	
Socioeconomics					
Installation: There would be no significant impacts to socioeconomics. Up to 64 additional military personnel. Less than 0.1% increase in population of Dane	Installation: There would be no significant impacts to socioeconomics. Up to 85 additional military personnel. Less than 0.1% increase in the population of Ada	Installation: There would be no significant impacts to socioeconomics. Up to 85 additional military personnel. Less than 0.1% increase in the	Base: There would be no significant impacts to socioeconomics. Up to 85 additional military personnel. 0.9% increase in the population of Harrison	Installation: There would be no significant impacts to socioeconomics. Up to 27 additional military personnel. Less than 0.1% increase in population of	Socioeconomics at each alternative installation would remain as described in the affected environment section for each alternative. The minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
County, which would be a negligible impact. Construction spending would have short-term benefits for the local economy. Negligible impact on the housing market in the city of Madison. Overall, the potential lost property value would represent between 0.03 and 0.27 percent of the tax base of Dane County.	County, which would be a negligible impact. Construction spending would have short-term benefits for the local economy. Negligible impact on the housing market in the city of Boise. Overall, the potential lost property value would represent between 0.01 and 0.13 percent of the tax base of Ada County.	population of Duval County, which would be a negligible impact. Construction spending would have short-term benefits for the local economy. Negligible impact on the housing market in the city of Jacksonville or Duval County. Overall, the potential lost property value would represent between less than 0.01 and 0.01 percent of the tax base of Duval County.	Township and less than 0.1% of the population of Macomb County, which would be a negligible impact. Construction spending would have short-term benefits for the local economy. Negligible impact on the housing market in Harrison Township and in Macomb County. Overall, the potential lost property value would represent between 0.04 and 0.38 percent of the tax base of Macomb County.	Montgomery County, which would be a negligible impact. Construction spending would have short-term benefits for the local economy. Negligible impact on the housing market city of Montgomery or Montgomery County. Overall, the potential lost property value would represent between 0.01 and 0.14 percent of the tax base of Montgomery County.	installations. There would be no significant impacts to Socioeconomics under the No Action Alternative.
Environmental Justice and the Protection of Children					
Installation: There would be significant disproportionate impacts to low-income and minority populations as well as children. The increase in noise exposure to the south of the airport would disproportionately impact low-income	Installation: Census blocks associated with the expected changes in off-base noise contours associated with the proposed F-35A beddown are not considered to be disproportionately low-income or minority areas. Further, none of these census blocks indicate that there is a	Installation: Census blocks associated with the expected changes in off-base noise contours associated with the proposed F-35A beddown are not considered to be disproportionately low-income or minority areas. Further, none of these census blocks	Base: There would be no significant disproportionate impacts to low-income or minority populations. Census blocks associated with the expected changes in off-base noise contours associated with the proposed F-35A beddown are	Installation: There would be significant disproportionate impacts to low-income and minority populations as well as children. Since all of the block groups surrounding the airport and under the noise contours are considered environmental justice communities and there	Environmental Justice and the Protection of Children at each alternative installation would remain as described in the affected environment section for each alternative. There were no disproportionate impacts to low-income populations, minorities, or children identified under any of the action alternatives. There would be no significant impacts

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
areas and the increase in noise exposure to the east of the airport would disproportionately impact a low-income minority population. In addition, the Proposed Action could disproportionately impact children.	higher population of children within them. Therefore, impacts to environmental justice associated with the Proposed Action are not considered to be significant.	indicate that there is a higher population of children within them. Therefore, impacts to environmental justice associated with the Proposed Action are not considered to be significant.	not considered to be disproportionately low-income or minority areas. Some schools would be affected by increased noise levels, with associated adverse impacts of interrupted speech and hindrance of learning. In addition, there are six impacted block groups that have higher proportions of children than the surrounding area and there are four impacted block groups that have lower proportions of children than the surrounding area. Therefore, the Proposed Action would significantly disproportionately impact children.	would be increased impacts, there would be disproportionate impacts on low-income and minority populations under the Proposed Action. Three of the five block groups with noise levels above 65 dB DNL under the Proposed Action have a higher proportion of children than Montgomery County as a whole. Together with the increased impacts at Martin Luther King Elementary School, there could be an adverse and disproportionate impact to children, to include low-income and minority children under the Proposed Action.	as a result of the No Action Alternative.
Infrastructure					
Installation: Impacts to infrastructure resulting from construction and operations would not be significant since any interruption of utility services or increased demand on infrastructure would be	Installation: Impacts to infrastructure resulting from construction and operations would not be significant since any interruption of utility services or increased demand on infrastructure would be minor,	Installation: Impacts to infrastructure resulting from construction and operations would not be significant since any interruption of utility services or increased demand on infrastructure would be	Base: Impacts to infrastructure resulting from construction and operations would not be significant since any interruption of utility services or increased demand on infrastructure would be	Installation: Impacts to infrastructure resulting from construction and operations would not be significant since any interruption of utility services or increased demand on infrastructure would be minor,	Infrastructure at each alternative installation would remain as they currently are. There would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no significant

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
minor, temporary or infrequent. Existing roadway networks, potable water supply, and installation sanitary sewer, stormwater drainage, and electrical and natural gas systems are adequate to support any temporary or minor changes as a result of the Proposed Action.	temporary or infrequent. Existing roadway networks, potable water supply, and installation sanitary sewer, stormwater drainage, and electrical and natural gas systems are adequate to support any temporary or minor changes as a result of the Proposed Action.	minor, temporary or infrequent. Existing roadway networks, potable water supply, and installation sanitary sewer, stormwater drainage, and electrical and natural gas systems are adequate to support any temporary or minor changes as a result of the Proposed Action.	minor, temporary or infrequent. Existing roadway networks, potable water supply, and installation sanitary sewer, stormwater drainage, and electrical and natural gas systems are adequate to support any temporary or minor changes as a result of the Proposed Action.	temporary or infrequent. Existing roadway networks, potable water supply, and installation sanitary sewer, stormwater drainage, and electrical and natural gas systems are adequate to support any temporary or minor changes as a result of the Proposed Action.	impacts under the No Action Alternative.
Earth Resources					
<u>Installation:</u> New construction footprint of up to 4.9 acres and 1.7 acres of new impervious surface. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the FPPA does not apply to this alternative. Therefore,	<u>Installation:</u> New construction footprint of up to 5.7 acres and 0.6 acre of new impervious surface. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the FPPA does not apply to this alternative. Therefore,	<u>Installation:</u> New construction footprint of up to 10.8 acres and 1.9 acres of new impervious surface. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the FPPA does not apply to this alternative. Therefore,	<u>Base:</u> New construction footprint of up to 2.4 acres and 1.4 acres of new impervious surface. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the FPPA does not apply	<u>Installation:</u> New construction footprint of up to 4.8 acres and 2.9 acres of new impervious surface. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the FPPA does not apply to this alternative. Therefore, impacts to soils would not be significant.	Soils at each alternative airfield would remain as they currently are. There would be no significant impacts to Soils as a result of the No Action Alternative.

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
impacts to soils would not be significant.	impacts to soils would not be significant.	impacts to soils would not be significant.	to this alternative. Therefore, impacts to soils would not be significant.		
Water Resources					
Installation: Construction would be limited to the area of ground disturbance. A site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures. No significant impacts to surface water, groundwater, and floodplains. Construction activities would have no impact on wetlands.	Installation: Construction would be limited to the area of ground disturbance. A site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures. No significant impacts to surface water, groundwater, and floodplains. Construction activities would have no impact on wetlands.	Installation: Construction would be limited to the area of ground disturbance. A site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures. No significant impacts to surface water, groundwater, and floodplains. Wetland impacts as a result of the construction of the MSA Administration building would result in a permanent fill of the wetlands. Federal permitting under Section 404 of the CWA would be necessary. State of Florida permitting under Chapter 62-330,	Base: Construction would be limited to the area of ground disturbance. A site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures. No significant impacts to surface water, groundwater, and floodplains. Construction activities would have no impact on wetlands.	Installation: Construction would be limited to the area of ground disturbance. A site-specific SWPPP would include measures to minimize potential impacts associated with stormwater runoff during construction, including BMPs and standard erosion control measures. No significant impacts to surface water, groundwater, and floodplains. Construction activities would have no impact on wetlands.	Water Resources at each alternative airfield would remain as they currently are. There would be no additional impacts to Water Resources as a result of the No Action Alternative.

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
		Florida Administrative Code, would also be necessary. A Finding of No Practicable Alternative would be required.			
Biological Resources					
Installation: Impacts to biological resources would not be significant. Impacts to the vegetation at the installation would not be significant due to the lack of sensitive vegetation in the project area. No impacts to federally- or state-listed species. 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. Indirect impacts from construction noise would not be significant.	Installation: Impacts to biological resources would not be significant. Impacts to the vegetation at the installation would not be significant due to the lack of sensitive vegetation in the project area. No impacts to federally- or state-listed species. 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. Indirect impacts from construction noise would not be significant. No increase of BASH and aircraft mishaps beyond current levels.	Installation: Impacts to biological resources would not be significant. Approximately 6.8 acres of forested wetland vegetation would be removed (see water resources section). Impacts to other vegetation would not be significant. 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. No increase of BASH and aircraft mishaps beyond current levels. No impacts to federally- or state-listed species.	Base: Impacts to biological resources would not be significant. Impacts to the vegetation at the installation would not be significant due to the lack of sensitive vegetation in the project area. 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. Indirect impacts from construction noise would not be significant.	Installation: Impacts to biological resources would not be significant. Impacts to the vegetation at the installation would not be significant due to the lack of sensitive vegetation in the project area. 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. Indirect impacts from construction noise would not be significant. No increase of BASH and aircraft mishaps beyond current levels. No impacts to federally- or state-listed species.	There would be no change to Biological Resources under this alternative. There would be no significant impacts to Biological Resources as a result of the No Action Alternative.

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
No increase of BASH and aircraft mishaps beyond current levels.		Two state-listed plant species occur near proposed construction areas. However, if these projects were implemented, the 125 FW would avoid disturbance to these plant populations.	No increase of BASH and aircraft mishaps beyond current levels. No impacts to federally- or state-listed species. Noise from proposed construction and operations is not expected to affect special status species since they are likely accustomed to elevated noise levels associated with current aircraft and military operations.		
Airspace: Ordnance delivery and chaff and flare use would not exceed current levels and would occur in locations already used and authorized for those purposes. Impacts to migratory birds protected under the MBTA would not be significant. No significant impacts to the federal- and state-listed species from the proposed change in	Airspace: Ordnance delivery and chaff and flare use would not exceed current levels and would occur in locations already used and authorized for those purposes. Impacts to migratory birds protected under the MBTA would not be significant. No significant impacts to the federal- and state-listed species from the proposed change in subsonic and supersonic operations.	Airspace: Ordnance delivery and chaff and flare use would not exceed current levels and would occur in locations already used and authorized for those purposes. Impacts to migratory birds protected under the MBTA would not be significant. No significant impacts to the federal- and state-listed species from the proposed change in	Airspace: Ordnance delivery and chaff and flare use would not exceed current levels and would occur in locations already used and authorized for those purposes. Impacts to migratory birds protected under the MBTA would not be significant. No significant impacts to the federal- and state-listed species from the proposed change in	Airspace: Ordnance delivery and chaff and flare use would not exceed current levels and would occur in locations already used and authorized for those purposes. Impacts to migratory birds protected under the MBTA would not be significant. No significant impacts to the federal- and state-listed species from the proposed change in subsonic and supersonic operations.	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
subsonic and supersonic operations.		subsonic and supersonic operations.	subsonic and supersonic operations.		
Cultural Resources					
Installation: No significant impacts to archaeological, architectural, or traditional historic properties.	Installation: No significant impacts to archaeological or traditional historic properties. Building 1524 is an eligible storage magazine built in 1958. The proposed exterior renovations to Building 1524 include the installation of a canopy over the Munitions Assembly Conveyor pad, grounding, and lights. proposed undertaking would have an adverse effect on this resource; however, mitigation of the adverse effect of the renovation of ammunition storage magazines is covered under the Program Comment.	Installation: No significant impacts to archaeological, architectural, or traditional historic properties.	Base: No significant impacts to archaeological, architectural, or traditional historic properties.	Installation: No significant impacts to archaeological, architectural, or traditional historic properties.	Cultural Resources at each alternative installation would remain as they currently are. None of the proposed facility construction/ renovations would occur at any of the installations, and thus there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no significant impacts to Cultural Resources as a result of the No Action Alternative.
Airspace: No adverse effects to NRHP-eligible or listed archaeological resources, architectural resources, or traditional cultural properties. All agreements currently in	Airspace: No adverse effects to NRHP-eligible or listed archaeological resources, architectural resources, or traditional cultural properties. All agreements currently in	Airspace: No adverse effects to NRHP-eligible or listed archaeological resources, architectural resources, or traditional cultural properties. All agreements currently in	Airspace: No adverse effects to NRHP-eligible or listed archaeological resources, architectural resources, or traditional cultural properties. All agreements currently	Airspace: No adverse effects to NRHP-eligible or listed archaeological resources, architectural resources, or traditional cultural properties. All agreements currently in	

Table ES-2. Summary of Impacts
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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
place would remain in effect.	place would remain in effect.	place would remain in effect.	in place would remain in effect.	place would remain in effect.	
Hazardous Materials and Wastes, and Other Contaminants					
Installation: Impacts relative to hazardous materials, wastes, and other contaminants would not be significant. There would not be an increased risk of hazardous waste releases or exposure from this alternative. Omission of hydrazine, cadmium fasteners, chrome plating, copper-beryllium bushings, and the use of a non-chromium primer. Increase in airfield operations would increase the throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations. Six ERP sites (Site 1, Site 4, Site 5, Site 7, Site 8 Area 1, and Site 8 Area 2) overlap with the	Installation: Impacts relative to hazardous materials, wastes, and other contaminants would not be significant. There would not be an increased risk of hazardous waste releases or exposure from this alternative. Omission of cadmium fasteners, chrome plating, copper-beryllium bushings, and the use of a non-chromium primer. Increase in airfield operations would increase the throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations. There is a potential of impact from PFOS/PFOA potential release sites Hangar 148, Hangar 1529, Hangar 1530, and Hangar 155 due to potential PFOS/PFOA contamination in soil and groundwater. A	Installation: Impacts relative to hazardous materials, wastes, and other contaminants would not be significant. There would not be an increased risk of hazardous waste releases or exposure from this alternative. Omission of cadmium fasteners, chrome plating, copper-beryllium bushings, and the use of a non-chromium primer. The increase in airfield operations would increase the throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations. One ERP site, Site 4 OWS at Hush House, overlaps with the proposed construction under this alternative.	Base: Impacts relative to hazardous materials, wastes, and other contaminants would not be significant. There would not be an increased risk of hazardous waste releases or exposure from this alternative. Omission of cadmium fasteners, chrome plating, copper-beryllium bushings, and the use of a non-chromium primer. The increase in airfield operations would increase the throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations. Three ERP/AOC sites (Site 7, Site 21, and TU051) and two PFOS/PFOA sites (#4, and #15) overlap with	Installation: Impacts relative to hazardous materials, wastes, and other contaminants would not be significant. There would not be an increased risk of hazardous waste releases or exposure from this alternative. Omission of cadmium fasteners, chrome plating, copper-beryllium bushings, and the use of a non-chromium primer. Minimal change in airfield operations, therefore no noticeable change in throughput of petroleum substances (e.g., fuels, oils) used during F-35A operations. Two ERP sites and three PFOS/PFOA sites overlap with the proposed construction under this alternative. As applicable, the 187 FW	Hazardous materials, wastes, and other contaminants at each alternative installation would remain as described in the affected environment section for each alternative location. The throughput and management of hazardous materials, wastes, and other contaminants would not be expected to change. There would be no significant impacts to hazardous materials, wastes, and other contaminants under the No Action Alternative.

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115 FW	*124 FW*	*125 FW*	*127 WG*	*187 FW*	*No Action Alternative*
proposed construction under this alternative. All six ERP sites are closed. Three perfluorinated compound PRLs including Hangar 400, Hangar 406, and Hangar 414 overlap with the proposed construction. As applicable, the 115 FW would coordinate with the WDNR regarding proposed construction near ERP sites. 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.	construction plan would be created for the proposed renovations at Hangars 148, 1529, 1530, and 155 to minimize direct contact with soil and groundwater. No other ERP sites overlap with the proposed construction under this alternative. One ERP site (Site 9) overlaps with proposed construction under this alternative. This site has been recommended for NFA with site closure. The 124 FW will comply with Air Force Guidance Memorandum (AFGM2019-32-01) *AFFF-Related Waste Management Guidance* to manage waste streams containing PFOS/PFOA.	There is a potential of impact from PFOS/PFOA potential release sites Hangar 1001, Hangar 1029, Old Fire Station #1, Old Fire Station #2, and Current Fire Station. The 125 FW will comply with Air Force Guidance Memorandum (AFGM2019-32-01) *AFFF-Related Waste Management Guidance* to manage waste streams containing PFOS/PFOA.	the proposed construction under this alternative. As applicable, the 127 WG would coordinate with the EGLE[1] regarding proposed construction near ERP sites, on Selfridge ANGB. The 127 WG will comply with Air Force Guidance Memorandum (AFGM2019-32-01) *AFFF-Related Waste Management Guidance* to manage waste streams containing PFOS/PFOA.	would coordinate with the ADEM, regarding proposed construction near ERP. The 187 FW will comply with Air Force Guidance Memorandum (AFGM2019-32-01) *AFFF-Related Waste Management Guidance* to manage waste streams containing PFOS/PFOA.	

Note: [1]Agency name changed from Michigan Department of Environmental Quality by Executive Order 2019-02 effective 7 April 2019.

Legend: 115 FW = 115th Fighter Wing; 124 FW = 124th Fighter Wing; 125 FW = 125th Fighter Wing; 127 WG = 127th Wing; 187 FW = 187th Fighter Wing; ADEM = Alabama Department of Environmental Management; AFGM = Air Force Guidance Memorandum; AGL = above ground level; AICUZ = Air Installation Compatible Use Zone; ANGB = Air National Guard Base; AOC = Area of Concern; APZ = Accident Potential Zone; ATCAA = Air Traffic Control Assigned Airspace; BASH = Bird/Wildlife Aircraft Strike Hazard; BMP = Best Management Practice; CDNL = C-weighted Day-Night Average Sound Level; CFR = Code of Federal Regulations; CO = carbon monoxide; CWA = Clean Water Act; CZ = Clear Zone; dB = decibel; dBA = A-weighted decibel; dBC = C-weighted decibel; DNL = Day-Night Average Sound Level; EGLE = Michigan Department of Environment, Great Lakes, and Energy; ERP = Environmental Restoration Program; FAA = Federal Aviation Administration; FPPA = Farmland Protection Policy Act; IAP = International Airport; L_{dnmr} = Onset-Rate Adjusted Day-Night Average Sound Level; L_{eq} = Equivalent Sound Level; LOA = Letter of Agreement: MBTA = Migratory Bird Treaty Act; MOA = Military Operations Area; MSA = Munitions Storage Area; MSL = mean sea level; NFA = No Further Action; NRHP = National Register of Historic Places; OWS = Oil/Water Separator; PFAS = polyfluoroalkyl substances; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; PFOA = perfluorooctanoic acid; PFOS = perfluorooctane sulfonate; POI = Point of Interest; PRL = Potential Release Location; QD = quantity-distance; ROI = Region of Influence; RPZ = Runway Protection Zone; SIP = State Implementation Plan; SUA = Special Use Airspace; SWPPP = Stormwater Pollution Prevention Plan; USAF = United States Air Force; WDNR = Wisconsin Department of Natural Resources.