NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ADOPTION OF ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT for
Environmental Assessment Preparation for Air Force Test Mission in the 21st Century: Upgrade and Improve the Test Capability at the Edwards Air Force Base California Test Complex, Edwards Air Force Base, California

National Environmental Policy Act: Construction of a New Vehicle and Air Ground Equipment (AGE) Maintenance Facility at National Aeronautics and Space Administration (NASA) Armstrong Flight Research Center (AFRC) Main Campus Edwards, California

Agency: NASA/AFRC

Action: Finding of No Significant Impact (FONSI)

Summary: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321, *et seq.),* the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500-1508) and NASA NEPA regulations (14 CFR part 1216, subpart 1216.3) and policy and procedures (NASA Procedural Requirements 8580.1A). NASA AFRC has made a Finding of No Significant Impact (FONSI) with respect to the construction of a New Vehicle and AGE Maintenance Facility on AFRC's Main Campus.

This document serves as a record of (1) NASA AFRC's adoption of Edwards Air Force Base's (EAFB) *Environmental Assessment Preparation for Air Force Test Mission in the 21st Century: Upgrade and Improve the Test Capability at the Edwards Air Force Base California Test Complex, Edwards Air Force Base, California*, dated April 2015; (2) NASA AFRC's decision regarding its proposed action, (3) NASA AFRC's finding that the proposed construction of a New Vehicle and AGE Maintenance Facility at AFRC's Main Campus and associated activities would not significantly affect the human environment.

Address: The Environmental Assessment (EA) that serves as the basis for this FONSI are available to view or download on the Defense Technical Information Center (DTIC) website at http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA628458 and at NASA's NEPA portal at http://www.nasa.gov/content/nepa-news. For further information, contact Tina Norwood, NASA NEPA Manager, by mail at NASA Headquarters, Environmental Management Division, 3000 E Street SW, Suite 2U82, Washington, D.C., 20546 or via E-mail: tina.norwood-1@nasa.gov.

Background: NASA leases 838-acres of land to operate the Armstrong Flight Research Center on the EAFB. AFRC is located within the EAFB Test Complex and shares resources with EAFB. In 2015, the Air Force prepared an EA and issued a FONSI for upgrading and improving the EAFB's Test Complex which also includes NASA's AFRC

Main Center. The Draft EA and FONSI received a 30-day public review during which no comments were received. The FONSI was signed by EAFB's Base Civil Engineer on 1 April 2015 and is attached to this letter. Since the Air Force EA and FONSI both received a public review and adequately cover resources shared by NASA AFRC and EAFB, then NASA recommends adoption of the Air Force EA and FONSI to cover the scope of the proposed action to construct a new AGE facility.

The EA to upgrade the EAFB Test Complex analyzed four alternatives involving new construction and building modifications occurring within 2,500 feet from EAFB's taxiways and runways. This includes an environmental impact analysis of up to 1.2 million square feet of new construction (sufficient to cover three hangars, three office buildings and three standard parking lots) with 403,000 square feet of demolition annually which is within the scope of the new AGE facility construction at AFRC.

Three alternatives examined development within unconstrained, moderately constrained and substantially constrained areas, while the No Action Alternative would maintain the status quo ad-hoc methodologies for considering the development of new test facilities. The construction of NASA AFRC's new AGE facility shares similar resource impacts analyzed within the alternatives listed below.

1) Alternative 1 includes development of all unconstrained areas within 2,500 feet of existing runways and taxiways at EAFB Test Complex. Unconstrained areas include buildings ineligible for the National Register of Historic Places (NRHP) listing and land that falls within 500 feet of existing utilities. Development would not occur over contamination plumes or in the vicinity of monitoring wells.
2) Alternative 2 includes moderately constrained areas within 2,500 feet of existing runways and taxiways at EAFB Test Complex. Moderately constrained areas include buildings potentially eligible for the NRHP listing and land outside of utility buffers. Development may require relocation of monitoring wells and remediation of ground contaminants.
3) Alternative 3 includes the development of substantially constrained areas within 2,500 feet of existing runways and taxiways at EAFB Test Complex. Substantially constrained areas include buildings eligible for NRHP listing, land outside utility buffers and highly restricted areas such as land within ammunition storage areas and surrounding explosive safety distance. Development would require relocation of existing monitoring wells or installation of vapor barriers or other mitigation measures for construction over contamination plumes.
4) No Action Alternative would maintain the status quo or ad hoc development methodology at EAFB. New test mission facilities would be considered on a case-by-case basis. Facilities would not be co-located and would be constructed without consolidated guidance of land constraints which results in inefficient duplication of efforts.

NASA AFRC Purpose and Need: A new NASA AFRC AGE Facility is needed to replace rapidly aging and deteriorating AGE facilities (Buildings 4803, 4806, NB-121 and 4809) that were constructed between 1959 and 1969. These prefabricated buildings

have numerous problems such as leaking roofs, failing heating ventilation and air conditioning (HVAC) systems which exposes personnel to jet exhaust fumes, and persisting inefficiencies in the maintenance mission. Subsequently, these four buildings will be demolished and replaced by the new AGE Facility.

NASA AFRC Proposed Action and No Action Alternative: Construct a new 27,000-square foot Vehicle and AGE Maintenance Facility on AFRC's Main Campus. This new AGE facility will be more functional, energy efficient, and environmentally sustainable than the existing old AGE facilities. The new AGE building will be constructed of 75 percent recyclable materials. The new building will be of adequate size and space to include shop space, labs and testing space, repair bays, office areas, training/conference rooms, restrooms, showers, locker rooms, lunch/break room and storage areas.

Under the No Action Alternative, the new AGE Facility would not be constructed and existing AGE facilities will be modified and maintained under the status quo. These buildings have reached their service capacity, are over 50 years old, and do not meet current design standards outlined in the NASA AFRC Master Plan. As indicated in the Purpose and Need section, these old facilities have leaking roofs, failing HVAC systems, lack energy efficiency, are expensive to maintain, expose personnel to jet exhaust fumes, and are presumed to contain asbestos and lead based paint. It is cheaper to construct a new, safer and more energy efficient building than to continue modifying and maintaining aging buildings.

Summary of Environmental Impacts: The 2015 Air Force EA analyzes the environmental impacts to ten resources: Air Quality, Noise, Soils, Water Resources, Hazardous Materials and Waste, Biological Resources, Cultural Resources, Ground Safety and Occupational Health, Utilities and Infrastructures and Socioeconomic Resources.

This FONSI to adopt the 2015 Air Force EA examines the impacts on the previously mentioned ten shared resources as they specifically relate to the construction of the new AGE Facility on AFRC's Main Campus. In addition to these resources, this FONSI also includes Land Use, Geology and Seismicity, and Environmental Justice resources as they relate to new construction activities. A summary of impacts to these thirteen resources are contained in Table 1.

Table 1 Summary of Environmental Impacts

Resource	Proposed Action Alternative	No Action Alternative
Land Use	▪ Annual short-term FOD hazard may temporarily increase during construction of the new AGE Facility. Delivery of construction project materials and equipment to project sites along flight line areas can conflict with ongoing airfield operations. ▪ No long-term FOD hazards would be expected.	Annual short-term FOD hazards for would be the same as the Proposed Action Alternative.
Air Quality	▪ A short-term increase in the annual emissions during the demolition of the old AGE Facility and the construction of the new AGE Facility. ▪ Ozone precursor compounds (for example, VOC and oxides of NO_x) are expected from the operation of combustion engines, generation of PM10 from the wind erosion of exposed soils, and (potential) visibility reduction. ▪ Long-term impacts can include the potential release of pollutants from the operation of installed equipment located at the new AGE facility.	▪ Annual short-term emissions would be the same as the Proposed Action Alternative. ▪ In the case that building maintenance includes the use and installation of new installed equipment, then long-term emissions would be similar to the Proposed Action Alternative.
Noise	▪ **Construction Noise**-During the construction of the new AGE facility, there would be a short-term increase in noise from the operation of machinery. This noise would be intermittent and localized. ▪ **Aircraft Noise**-During outdoor construction near the flightline, construction personnel may be exposed to noise from the operation of aircraft. Development would result	▪ **Construction Noise** -The No Action alternative is the same as the Proposed Action Alternative. ▪ **Aircraft Noise**- The No Action alternative is the same as the Proposed Action Alternative for exterior maintenance and repair projects; however, interior maintenance will involve less exposure to aircraft noise.

	within industrial land use zones, and since NASA AFRC land lies within average sound level noise contours compatible with industrial use, there would be no significant impacts.	
Geology, Seismicity and Soils	▪ In areas prone to ground shaking from earthquakes, building occupants may be exposed seismic safety risks. Site preparation and construction activities can disturb soil surfaces that may be easily eroded during heavy precipitation events. Fill material may be needed for site preparation, grading activities and installation of underground utilities. ▪ Restoration sites and AOCs could become disturbed potentially impacting site remediation efforts or exposing workers to harmful chemicals. Construction activities occurring in areas of soil or groundwater contamination may require prior remediation of underlying soils.	Impacts associated with the No Action Alternative would be similar to the Proposed Action Alternative for maintenance and repair activities that involve ground disturbance.
Water Resources	▪ There are no jurisdictional Waters of the U.S. at NASA AFRC. ▪ NASA AFRC is within and adjacent to floodplains. Construction in and adjacent to floodplains, playas and drainages could increase storm water runoff, flood hazards and the creation of impervious surfaces. ▪ Construction grading or other ground-disturbing activities, as	▪ Floodplain impacts associated with the No Action Alternative would be less than the Proposed Action Alternative because existing facilities would continue to be utilized. ▪ However, impacts associated with the No Action Alternative would be similar to the Proposed Action Alternative for maintenance and repair activities involving ground disturbance.

	well as improperly managed hazardous materials or wastes, could potentially affect surface water quality through storm water runoff. ▪ New construction may have the potential to encounter contaminated soil or groundwater over plume areas.	
Hazardous Materials and Waste	▪ There may be a short-term increase in the use, handling, transport and storage of hazardous materials during construction of the new AGE facility. ▪ Construction activities occurring in areas of soil or groundwater contamination may require remediation of underlying soils and/or the relocation of monitoring wells. ▪ There are no anticipated long-term changes in existing hazardous waste stream or hazardous waste management as a result of the development activities. ACM, LBP and PCBs are covered under Safety and Occupational Health section.	Impacts associated with the No Action Alternative would be similar to Proposed Action Alternative, except maintenance and repair of existing facilities would not result in relocation of monitoring wells.
Biological Resources	▪ Short-term construction activities could potentially impact the desert tortoise (*Gopherus agassizii*), listed as threatened under the Federal Endangered Species Act, and its habitat. ▪ Activities may also impact the Mohave ground squirrel (*Spermophilus mohavensis*), listed as a California State threatened species, and its habitat as a result of ground disturbing activities. ▪ Roosting bats and nesting birds may be disturbed during building construction and demolition activities. ▪ Other sensitive animal and plant species may also occur in	Overall impacts for the No Action Alternative would be similar but less than the Proposed Action Alternative for ground-disturbing activities and roof work, but would be assessed separately.

	project areas.	
Cultural Resources	▪ Site preparation activities required to construct small buildings involving ground-disturbing activities (for example, grading, off-road driving, trenching for utilities, etc.) can result in encountering inadvertent discoveries of archaeological resources. ▪ Impacts to candidate buildings/facilities (Buildings 4800, 4801 and 4802 along with Aprons 13 and 14) with potential for NRHP listing are not anticipated. If the scope of the demolition and new construction changes, prior consultation with the SHPO may be required. If eligible facilities will be impacted, consultation with the SHPO would continue until a resolution of potential adverse effects is reached in a MOA or a PA completing the Section 106 process.	▪ Archaeological resource impacts associated with the No Action Alternative are the same as the Proposed Action Alternative for ground-disturbing activities, but would be assessed separately. ▪ Under the No Action Alternative, there would be no impacts to NRHP eligible buildings.
Utilities and Infrastructure	▪ Short-term impacts to transportation circulation may increase due to construction road closures and restricted traffic flow. ▪ Various service lines (i.e., water, sewer, electrical, communication, natural gas and fuels) can be accidentally severed or placed out of service during site preparation and construction activities. ▪ There may be a slight increase in stormwater runoff during construction. ▪ There would be a temporary increase in solid waste resulting	▪ Impacts associated with the No-action alternative are potentially the same as the Proposed Action Alternative for exterior facility repairs and maintenance, especially minor construction activities to repair and replace service lines.

	from the demolition of old facilities and the construction of new facilities.	
Architectural Compatibility	New construction of buildings and facilities will conform to NASA AFRC's Master Plan and implement required design standards whenever possible.	The No Action Alternative would result in maintaining facilities that are not energy efficient and do not meet current design standards.
Safety and Occupational Health	▪ Elements of the existing environment (i.e., noise; Restoration and AOC sites; asbestos, mercury, lead-, and chromium-based paints; and PCBs) can pose health and safety issues for construction personnel during demolition. ▪ Existing workplace hazards in older buildings (for example, presence of ACM, lead- and chromium-based paints, etc.) can be eliminated by relocating occupant personnel to the newly constructed AGE facility. ▪ During demolition of the four prefabricated buildings, construction personnel may be exposed to ACM and/or lead- and chromium-based paint. If these materials are disturbed, proper safety, health and environmental protocols will be followed.	Impacts for the No Action Alternative are the same as the Proposed Action Alternative during modification of existing buildings to remove those hazards.
Socioeconomic Resources	In the short-term, proposed building construction, relocation or modification activities can generate revenue into the local/regional economy.	NASA AFRC would be maintaining the status quo development method currently employed, which could result in ongoing expenditures.

Environmental Justice	There are no long-term or short-term adverse effects of project activities on minority and low-income populations as the project location is isolated to within NASA AFRC's leased boundary on EAFB.	Impacts for the No Action Alternative are the same as the Proposed Action Alternative.

Notes:

ACM – asbestos containing material
AFRC – Armstrong Flight Research Center
AOC – Area of Concern
EAFB – Edwards Air Force Base
FOD – foreign object damage
LBP – lead-based paint
MOA – Memorandum of Agreement
NASA – National Aeronautics and Space Administration
NO_x – nitrogen oxides
NRHP – National Register of Historic Places
PA – Programmatic Agreement
PCBs – polychlorinated biphenyls
PM10 – particles less than or equal to 10 microns in diameter
SHPO – State Historic Preservation Officer
VOC – volatile organic compound

Summary of Mitigation Measures and Best Management Practices: In addition to examining impacts to resources in Table 1, NASA AFRC recommends measures and Best Management Practices (BMPs) to minimize and reduce impacts to these resources in Table 2. Contingent upon compliance with mitigation/minimization measures and BMPs in Table 2, there would be minor to negligible effects on resources during new construction and demolition activities. Cumulative effects to the same resources would also be minor to negligible. No significant environmental impacts would occur if mitigation/minimization measures and BMPs are implemented.

Table 2 Summary of Mitigation Measures and Best Management Practices (BMPs)

Resource	Measures to Minimize or Reduce Impacts and BMPs
Land Use	No mitigation recommended. BMPs include prior coordination with NASA AFRC and EAFB Airfield Management, FOD inspections, watering to reduce fugitive dust, the covering of stockpiles and bulk debris in trucks, suspension of ground-disturbing or heavy exterior construction during high winds, proper lighting for equipment and flightline drivers training or awareness.
Air Quality	Mitigation: Permits from EKAPCD may be required for internal combustion engines (for example, generators, air compressors, etc.) over 50 bhp prior to construction. Permits will be needed for units subject to NESHAP NSPS (for example, emergency and non-emergency stationary RICE, new boilers and process heaters, new water heaters greater than 120 gallons and 1.6 MMBTU/hr.). Coatings must comply with VOC limits under EKAPCD Rule 410.1. BMPs include watering to reduce fugitive dust, wind erosion measures, no idling of equipment and delivery trucks, and the use of bio-diesel fuel in construction/transport vehicles. BMPs of dust minimization and wind control practices are also covered under the Land Use section.
Noise	Hearing conservation requirements contained in 29 CFR 1910.95 must be followed by project personnel at construction site. The contractor/proponent is also responsible for implementing OSHA hearing protection measures.

Geology, Seismicity and Soils	Mitigation would include compliance with current building codes and seismic construction standards. Structural damage to facilities from an earthquake is anticipated to be minimal. BMPs could include site-specific erosion control plans such as use of silt fences, the covering of stockpiles, revegetation or covering with gravel base rock of disturbed areas in a timely manner and the wetting of soils to prevent fugitive dust and wind erosion. It is expected that by implementing stormwater BMPs, long-term soil erosion would be minimized. Fill material will be obtained from a state licensed borrow area that has appropriate environmental clearances under the CEQA. No fill material from an on-base borrow pit will be used.
Water Resources	No Section 402 Permits are required according to the Clean Water Act. Mitigation: After obtaining an industrial discharge permit from EAFB, domestic and industrial wastewater must be discharged to a sanitary sewer. This project may require a permit under Section 401 and 404 of the Clean Water Act and a FONPA. EO 13690 *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input must be* followed. BMPs to help minimize surface water quality impacts could include good housekeeping practices, preventive maintenance programs, site inspections, employee training, spill response procedures, secondary containment pallets or berms, detention/retention ponds and erosion control measures. Additionally, in order to avoid increased flood hazards, design features to minimize effects of flooding should be implemented. If construction over groundwater plumes is necessary, then remediation and mitigation measures will be implemented to prevent potential harm to personnel including wearing PPE.
Hazardous Materials and Waste	Mitigation: All hazardous materials and wastes would be managed according to established plans and state and federal regulations. BMPs include proper handling, transport and disposal in order to prevent human exposure and environmental contamination. Any hazardous substances, including soil and groundwater encountered during construction, would be managed according to state and federal regulations.
Biological Resources	Minimization measures could include: bat pre-surveys, requiring workers to receive desert tortoise and Mohave ground squirrel awareness briefings, checking all crevices and burrows for burrowing owls before construction, protecting any animal burrows found in close proximity to the construction site, conduct preconstruction avian nest surveys, checking under parked vehicles for desert tortoise and other wildlife species, and keeping equipment and vehicles on established roads and parking areas.
Cultural Resources	Minimization measures could consist of stopping work and clearing work site of personnel when there are inadvertent discoveries of archaeological resources during excavation. Although not anticipated, if project scope changes to include Buildings 4800, 4801 and 4802 or Aprons 13 and 14, a Section 106 Consultation with the SHPO would be required. In the event that these eligible buildings and facilities will be altered, a MOA or PA may be required dependent on the effects to historic properties.
Utilities and Infrastructure	No mitigation is recommended. BMPs would include prior communication to NASA AFRC employees in advance of activities to allow for planning alternate travel routes.
Architectural Compatibility	No mitigation is recommended. BMPs will meet current design standards in NASA AFRC Master Plan.
Safety and Occupational Health	Mitigation includes adherence to federal, state, and local regulations, OSHA regulations. BMPs include implementation of a site specific health and safety plan with a journey management plan that would greatly reduce the potential for injuries and accidents. BMPs to minimize hazardous interactions with the general public would include delineating construction areas with perimeter fencing/tape and placards

	warning of hazardous activities.
Socioeconomic Resources	No mitigation or BMPs are recommended.
Environmental Justice	No mitigation or BMPs are recommended.

Notes:

AFRC – Armstrong Flight Research Center
bhp – brake horsepower
BMP – Best Management Practice
CEQA – California Environmental Quality Act
CFR – Code of Federal Regulations
EAFB – Edwards Air Force Base
EKAPCD – Eastern Kern Air Pollution Control District
EO – Executive Order
FOD – foreign object damage
FONPA – Finding of No Practicable Alternative
hr – hour
MMBTU – million British Thermal Units
MOA – Memorandum of Agreement
NASA – National Aeronautics and Space Administration
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NSPS – New Source Performance Standards
OSHA – Occupational Safety and Health Administration
PA – Programmatic Agreement
PPE – personal protective equipment
RICE – Reciprocating Internal Combustion Engine
SHPO – State Historic Preservation Officer
VOC – volatile organic compound

Determination: Based on the review of the environmental impacts associated with the proposed construction of the New Vehicle and AGE Maintenance Facility and demolition of four buildings at AFRC, NASA has determined there would not be any new environmental effects besides those already analyzed in the *Environmental Assessment Preparation for Air Force Test Mission in the 21st Century: Upgrade and Improve the Test Capability at the Edwards Air Force Base California Test Complex, Edwards Air Force Base, California* and *FONSI*, dated April 1 2015. NASA AFRC has determined that the Proposed Action and No Action Alternatives would not individually or cumulatively have a significant impact on the quality of the human environment. Therefore, in accordance with 40 CFR parts 1500-1508 and 14 CFR part 1216, subpart 1216.3, an environmental impact statement is not required.

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5/31/2017
Date