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PROGRAMMATIC ENVIRONMENTAL ASSESSMENT
2020 REAL PROPERTY MASTER PLAN
Fort Jackson, South Carolina

Prepared by Savannah District,
U.S. Army Corps of Engineers
for U.S. Army Garrison Fort Jackson

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Acronyms and Abbreviations

ACM	Asbestos Containing Materials
ACPs	Access Control Points
ADP	Area Development Plan
AHMP	Asbestos Hazard Management Plan
AIRFA	American Indian Religious Freedom Act
AIT	Advanced Individual Training
AOC	Area of Concern
AR	Army Regulation
ARPA	Archaeological Resources Protection Act
AT/FP	Anti-Terrorism/Force Protection
ATC	Army Training Command
BCT	Basic Combat Training
BMP	Best Management Practices
BES	Building Envelope Standard
CEQ	Council on Environmental Quality
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CDC	Child Development Centers
CEPs	Central Energy Plants
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
COR	Contracting Officer's Representative
CWA	Clean Water Act
dB	decibels
dBA	A-weighted sound level measurements
DDESB	Department of Defense Explosives Safety Board
DERP	Defense Environmental Restoration Program
DESC	Dominion Energy South Carolina
DNL	Day-Night Sound Level
DOD	Department of Defense
DOI	Department of Interior
DPW	Directorate of Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
ENV	Environmental Division
EO	Executive Order
EPA	Environmental Protection Agency

EPAct	Energy Policy Act
ESA	Endangered Species Act
ESMC	Endangered Species Management Component
FCU	future capital upgrade
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FUDS	Formerly Used Defense Sites
HAZCOM	Hazardous Communication
ICRMP	Integrated Cultural Resources Management Plan
ICU	initial capital upgrades
ICUZ	Installation Compatible Use Zone
IDG	Installation Design Guide
IET	Initial Entry Training
IMT	Initial Military Training
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
IRP	Installation Restoration Program
ISSA	Inter-service Support Agreement
ITAM	Integrated Training Area Management
kV	kilovolt
LBP	lead-based paint
LUC	Land Use Controls
MAHC	Moncrief Army Health Clinic
MC	munitions constituents
MGD	million gallons per day
MHPI	Military Housing Privatization Initiative
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MP	Master Planning
MPTM	Master Planning Technical Manual
MS4	Municipal Storm Sewer System
MTC	McCrady Training Center
MVA	megavolt amperes
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCU	new capital upgrade
NEFF	New Equipment Fielding Facility
NEPA	National Environmental Policy Act
NGR	National Guard Regulation
NHPA	National Historic Preservation Act

NOA	Notice of Availability
NO2	Nitrogen Dioxide
NOX	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O3	Ozone
ONMP	Operational Noise Management Plan
ORAP	Operational Range Assessment Program
PAL	Privatization of Army Lodging
Pb	lead
PCB	polychlorinated biphenyl
PCPI	per capita personal income
PEA	Programmatic Environmental Assessment
PM 2.5	fine particulate matter
PM10	particulate matter
POL	petroleum oil and lubricants
POW	Prisoners of War
PS	Pumping Station
PSUS	Palmetto State Utilities Service
R&R	renewals & replacement projects
RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
RCW	red-cockaded woodpecker
REC	Record of Environmental Consideration
ROI	Region of Influence
RPC	Request for Proposed Change
RPMP	Real Property Master Plan
RPO	Radiation Protection Officer
SC	South Carolina
SCADA	Supervisory Control and Data Acquisition
SCAPCR	South Carolina Air Pollution Control Regulations
SCARNG	South Carolina Army National Guard
SCDHEC	South Carolina Department of Health and Environment
SCDNR	South Carolina Department of Natural Resources
SCIAA	South Carolina Institute of Archaeology and Anthropology
SES	Street Envelop Standards
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SPCC	Spill Prevention, Control and Countermeasure
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan

TRADOC	US Army Training and Doctrine Command
TSCA	Toxic Substances Control Act
UEPH	unaccompanied enlisted personnel housing
USACE	US Army Corps of Engineers
USAPHC	US Army Public Health Command
USATC	United States Army Training Center
USDA	United States Department of Agriculture
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds

Executive Summary

ES-1 Introduction

This Programmatic Environmental Assessment (PEA) has been prepared in compliance with the National Environmental Policy Act (NEPA), as implemented by the President's Council on Environmental Quality (CEQ) regulations for Implementing the Procedural Provisions of NEPA, Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508. In turn, CEQ regulations are supplemented by procedures adopted on an agency-specific basis. For the Army, pertinent regulations are 32 CFR 650 Environmental Protection and Enhancement and 32 CFR 651 Environmental Analysis of Army Actions, Army Regulation (AR) AR 200-1. Environmental Protection and Enhancement, and AR 200-2. Environmental Effects of Army Actions.

This PEA does not analyze specific environmental effects of an individual action, it identifies and evaluates broad types of actions and analyses their potential impacts. It provides information to make environmentally sound training, proposed project, and operational decisions during the earliest stages of the Master Planning (MP) process. It eliminates the need for preparation of repetitive individual environmental documents for minor or routine actions that are similar to those already evaluated. However, it does not relieve the burden to satisfy NEPA requirements for actions and projects not sufficiently addressed herein

ES-2 Proposed Action.

This PEA evaluates a Proposed Action that includes the implementation of the Fort Jackson 2020 Real Property Master Plan (RPMP) and its component plans: Installation Planning Standards, Real Property Vision Plan, Palmetto and Villages Districts Area Development Plan (ADP), Semmes District ADP, and Victory District ADP. The RPMP process is based on guidance provided in AR 210-20, which assigns responsibilities and prescribes policies and procedures relating to the development, content, submission, and maintenance of a RPMP. This provides direction for future development, operation, management, and maintenance of resources in a framework sustaining compliance with all applicable laws and regulations.

ES-3 Alternatives

NEPA requires the proponent of a proposed action or project identify and describe reasonable alternatives. This PEA limits the scope of its analysis to the comparison of the No Action Alternative and "Adoption of the RPMP".

Alternative 1- No Action

Fort Jackson would continue to utilize and develop land in accordance with the 2012 RPMP. Maintenance, repair, and existing operational and support facilities would also continue. The Installation could not accept any new missions requiring the substantial renovation of or additions to existing buildings or supporting infrastructure.

Alternative 2- Adoption of the RPMP

Fort Jackson would implement the 2020 RPMP and all its components. The proposed projects would be completed, along with any associated demolition, as required to support all elements of the RPMP and associated current and future mission requirements. The Installation would be able to accept new

missions that would require renovation or additions to existing buildings or supporting infrastructure, and modify land use to accommodate any changes in on-going and future missions.

ES-4 Environmental Consequences

Alternative 1- No Action

The implementation of Alternative 1 would result in the 2012 RPMP continuing to guide land use and installation development. New construction projects would not occur, and ongoing mission activities would continue to occur at current baseline levels. This would result in the continued use of existing deteriorating, maintenance-intensive, and inefficient facilities that are approaching, or past the end of their useful life. This would have an adverse impact on current and future missions as well as environmental resources as discussed further in the EA.

Alternative 2- Adoption of the RPMP

Under Alternative 2, proposed construction projects would be implemented over an extended period of time that would result in some short- and long-term adverse impacts to physical, water, and biological resources. These impacts are within the range of those normally expected with construction activities, no critical or unique sensitive resources would be impacted, and no significant adverse impacts would occur.

ES-5 Conclusions

The Preferred Alternative and the environmentally preferred action is Alternative 2 – Adoption on the RPMP. After public review, if significant environmental impacts are not demonstrated, a Finding of No Significant Impact is recommended. Many of the proposed 2020 RPMP projects, current site plans, and future contributing plan actions are conceptual and subject to change; therefore, this PEA cannot be used as a blanket document to cover all actions now and in the future. The conclusions are as follows:

(1) Implementation of Alternative 2 would not result in significant environmental impacts, provided that Best Management Practices to mitigate these potential environmental impacts are adhered to during construction and operation of the proposed projects;

(2) Implementation of Alternative 2 will provide infrastructure improvements that will allow the Army to achieve mission requirements;

(3) Construction and operation of proposed projects will provide necessary facilities to satisfy Basic Combat Training and Advanced Individual Training requirements;

(4) Implementation of Alternative 2 is consistent with the land use planning objectives, and

(5) Implementation of Alternative 1 (No Action) would eliminate the negligible to minor environmental impacts associated with Alternative 2, but would also eliminate the beneficial effects of the Proposed Action.

1. Introduction

This document evaluates the 2020 *Real Property Master Plan (RPMP) for the U.S. Army Training Center and Fort Jackson* (hereafter referred to as Fort Jackson). It includes ongoing mission activities as they exist during the development of this Programmatic Environmental Assessment (PEA). Master Plan (MP) elements and related operations are subject to continuous change in response to a wide range of influencing factors; therefore, the PEA also includes the evaluation of environmental impacts relating to future actions and plans.

1.1 Scope of this PEA

This PEA is designed to address potential environmental impacts resulting from the implementation of the proposed updated 2020 RPMP and related ongoing mission activities. It identifies and evaluates broad types of actions and establishes analysis for those actions relative to their potential environmental effects. This information will be considered when making environmentally sound training, project, and operational decisions during the earliest stages of the on-going MP process, thus improving the overall efficiency of the planning and environmental review process.

The PEA is the appropriate level of National Environmental Policy Act (NEPA) review for the proposed updated RPMP, which proposes a series of recurring actions, including the construction and addition of new buildings, building complexes, building expansions and additions, utility renewals and replacements (R&R) projects, and transportation network improvements.

The PEA eliminates the need for repetitive individual environmental documents for minor or routine actions similar to the ones evaluated. If the review process concludes that the PEA does not sufficiently address a proposed action, future documentation required by NEPA may be tiered from this PEA, minimizing duplication of effort, complexity, and size.

1.2 Programmatic Analysis Procedure

The Programmatic Analysis Procedure is the screening process implemented to evaluate potential environmental impacts of a proposed action, and the need for additional environmental documentation to implement a proposed action. Overall guidance is provided by a series of seven decision-based flow charts described in the *South Carolina Environmental Assessment of the Master Plan and Ongoing Mission.* These flow charts identify when Fort Jackson Environmental Division (ENV) should be consulted to help determine if this PEA is applicable to the proponent's action and assist with the specific evaluation of the type, extent and level of environmental effects associated with the proposed action.

Additional environmental documentation would not be required if the proposed new action: (1) is similar to those evaluated in this PEA, (2) is located in an appropriate land use zone, (3) does not impact sensitive resources, and (4) conforms to properly applied management plans, guidelines, and regulations.

1.3 Assumptions Regarding the Programmatic Analysis Procedure

The following list of assumptions is provided to further define the specific intent and use of this PEA, and to ensure that the document is applied in a consistent and logical manner:

- In accepting and signing this PEA, Fort Jackson has agreed to accept the findings of the document, and commit physical and monetary resources, subject to the availability of funds, to ensure that referenced environmental protection measures are implemented as required to comply with applicable laws and regulations. The proponent of a proposed action should understand that the same obligations should be incorporated into their project planning using this PEA to evaluate their proposed action.
- This PEA does not provide blanket coverage and actions similar to those described herein can proceed based on a Record of Environmental Consideration (REC) that tiers off this PEA. Subsequent tiered Environmental Assessment (EA) documents must include evidence of an evaluation, anticipated impacts, and mitigation commitments.
- A future action may include MP activities or ongoing mission activities that fall into one of the MP projects or ongoing mission activity categories established in this PEA.
- The final determination that this PEA is applicable to a proposed action, or that the action has the potential to have an adverse effect on any of the resource categories evaluated in this document, will be made by qualified ENV personnel.
- All mitigation actions (regardless of size) will be documented in a REC.

1.4 Regulatory Authority

This PEA has been prepared in compliance with NEPA, as implemented by the President's Council on Environmental Quality (CEQ) regulations for implementing the Procedural Provisions of NEPA, Title 40 Code of Federal Regulations (CFR) Parts 1500–1508. In turn, CEQ regulations are supplemented by procedures adopted on an agency-specific basis. For the Army, the pertinent regulations are 32 CFR 650 *Environmental Protection and Enhancement* and 32 CFR 651 *Environmental Analysis of Army Actions*, and Army Regulation (AR) 200-1*, Environmental Protection and Enhancement*.

1.4.1 NEPA

NEPA requires Federal agencies to use a systematic, interdisciplinary approach to ensure that the impacts of Federal actions on the environment are considered during the decision-making process. The NEPA process is designed to provide an overview of the major environmental resources to be affected, the interrelationship of these components, and potential conflicts.

NEPA includes provisions for the development of programmatic documents and tiering for the evaluation of broad actions. As referenced in the CEQ regulations (40 CFR 1502.20), whenever a programmatic EA or Environmental Impact Statement (EIS) has been prepared, subsequent environmental documents need only summarize the issues that are specific to the subsequent actions. It is only necessary to incorporate, by reference, any pertinent issues that have already been covered by an approved initial document.

If a later action associated with the preferred alternative is expected to: (1) create impacts not described in the PEA; (2) create impacts greater in magnitude, extent, or duration than those described in the PEA; or (3) require mitigation measures to keep impacts below significant levels that are not described in the PEA, then a supplemental EA would be prepared to address the specific action and would be tiered from this PEA in accordance with 40 CFR 1508.28.1. Actions determined to require a more detailed environmental review would be subject to stand-alone NEPA documentation.

1.4.2 Army Regulations (AR)

ARs stipulate policies, responsibilities, and procedures for integrating environmental considerations into Army planning and decision-making. 32 CFR Part 651, *Environmental Analysis of Army Actions*; Final Rule (March 2002) was issued with respect to NEPA establishing the Army's responsibility for the early integration of environmental consideration into planning and decision-making. Actions requiring an EA include changes to established land use that may generate impacts on the environment.

1.4.3 Other Environmental Laws, Regulations, and Executive Orders

Army decisions that affect environmental resources and conditions occur within the framework of numerous laws, regulations, and Executive Orders (EOs). Some authorities prescribe standards for compliance, and others require specific planning and management actions to protect environmental values potentially affected by Army actions. These include the Clean Air Act (CAA), Clean Water Act (CWA), Noise Control Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), Resource Conservation and Recovery Act (RCRA), Energy Policy Act (EPAct), Energy Independence and Security Act (EISA), and Toxic Substances Control Act (TSCA).

EOs that apply to the proposed action include: EO 11988 (Floodplain Management); EO 11990 (Protection of Wetlands); EO 12088 (Federal Compliance with Pollution Control Standards); EO 12580 (Superfund Implementation); EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations); EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks); EO 13175 (Consultation and Coordination with Indian Tribal Governments); EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds); EO 13423 (Strengthening Federal Environmental, Energy, and Transportation Management); and EO 13514 (Federal Leadership in Environmental, Energy, and Economic Performance). The text of EOs can be accessed at http://www.archives.gov/federal-register/executive-orders/, and the text of public laws can be accessed at http://www.archives.gov/federal-register/laws/.

1.4.4 Fort Jackson Environmental Guidance Documents and Regulations

In addition to Federal, state and local regulations, Fort Jackson implements its environmental programs through various plans and programs (see Table 1.1) that conform to requirements defined in Federal regulations and guidance. Project managers would coordinate with ENV to ensure compliance with all local, state, and Federal environmental regulations.

Table 1.1 Fort Jackson Guidance Documents and Regulations

Fort Jackson Guidance Documents and Regulations	
Asbestos Hazard Management Plan (FJ, 2009)	Installation Compatible Use Zone Study (USAPHC, 2017)
Fort Jackson Regulation 200-8 (Environmental Quality, Environmental Protection and Enhancement) (FJ, 2019a)	Integrated Natural Resources Management Plan (2016)
Fort Jackson Land Disturbance Handbook (Woolpert, 2017)	Integrated Pest Management Plan (FJ, 2019b)
Hazardous Substance Management Plan (FJ, 2020)	Fort Jackson Operational Noise Management Plan (2015)
Comprehensive Energy and Water Master Plan (2010)	Installation Planning Standards (2015)
Integrated Cultural Resources Management Plan (2016)	Spill Prevention, Control, and Countermeasures Plan (2020

1.5 Fort Jackson

1.5.1 Location and Description

Fort Jackson is centrally located in Richland County, SC and is located within the city limits of Columbia approximately five miles east of the business district (Figure 2.1). Charleston is located approximately 110 miles southeast, and Greenville is located approximately 105 miles northwest. Shaw Air Force Base is located approximately 35 miles east; Charlotte, NC, is located approximately 90 miles north; and Augusta, GA, is located approximately 75 miles to the southwest.

Major highway systems in the area consist of Interstate 20 (I-20), which runs east and west through Columbia; I-26, which runs northwest and southeast; and I-77, which runs north from Columbia, across the northern boundary of the cantonment area, and connects with I-26 to the southwest. Combined US Highway 76/378 is located to the south, US Highway 1 is located north, and the Columbia Metropolitan Airport is located approximately 10 miles west.

Fort Jackson encompasses more than approximately 51,316 acres of land and includes 1,150 buildings and over 100 ranges and field training sites. The Installation is surrounded by a 3,000-foot buffer. The majority is range area, which includes approximately 17,000 acres of training areas and 11,000 acres of developed areas, while the remainder is devoted to managed woodlands. The cantonment area occupies approximately 5,500 acres in the south-western corner of the Installation.

The cantonment area consists of soldier and family housing, along with educational, community, and commercial services. Family housing and elementary schools are located in separate adjacent areas on the eastern perimeter of the cantonment, while troop housing is located to the north and west. Community and commercial services are concentrated to the south and west of the family housing area, including the Post Exchange, Commissary, bank, and credit union, Class VI stores, indoor recreational facilities and Moncrief Army Health Clinic (MAHC). Public works, logistics, and maintenance are concentrated in the southern, central portion. The cantonment area is adjacent to reserved land and buffer areas to the north and east as a transition to the range and training areas.

The SC Army Reserve National Guard (SCARNG) is licensed to use approximately 15,000 acres of Fort Jackson's property in the south-eastern corner referred to as the McCrady Training Center (MTC), and includes the area east of Weston Lake Road, south and east of the East Impact Area, and south of Messers Pond Road. Their cantonment area is just over 500 acres, while the remaining 14,000+ acres are dedicated to training lands.

The 585-acre Fort Jackson National Cemetery is on land that was formerly part of Fort Jackson at the northern end of the Installation. The site includes administration facilities, a public information center, restrooms, maintenance facilities, committal shelters for funeral services, a flag assembly area, supporting infrastructure, and a cemetery entrance area.

1.5.2 History

Since its inception, Fort Jackson has been used to train soldiers. A portion was originally part of the Wade Hampton Estate that the City of Columbia purchased in the early 1900s, as it was an ideal location for a training camp for officers and enlisted soldiers in support of the World War I war effort. Local citizens donated an additional 1,192 acres that are within the existing cantonment area.

The Installation was named in honor of Andrew Jackson, Major General of the Army and the seventh President of the United States. In June 1917, the camp was designated as the sixth national cantonment and one of 16 national cantonments constructed to support the war. In 1922, the camp was deactivated and closed. In 1925, Camp Jackson was re-opened and became a training ground for the SCARNG.

During World War II, Fort Jackson became a permanent military Installation used for infantry training, with new facilities and infrastructure constructed in support of incoming troops. It expanded to nearly 53,000 acres as more land was purchased by the Federal government. In addition to training infantry, Fort Jackson also served as a training field for soldiers in field artillery, combat arms, and tanks. From 1944 to 1946, it became home to approximately 2,000 German Prisoners of War.

In June 1947, Fort Jackson became one of four permanent replacement training centers. Three years later, after the 5th Infantry Division moved to Indiantown Gap Military Reservation in Pennsylvania, it was again slated for closure while only the 31st Infantry Division, made up of National Guard units from Alabama and Mississippi, and a few hundred personnel, remained. Over 9,000 troops were stationed at Fort Jackson as part of their annual summer training after the Korean War began so the planned closure was put on hold. Thousands of soldiers trained at the Installation during the Korean and Vietnam Wars.

Permanent steel and concrete buildings were constructed in 1964 replacing the wooden barracks that had been used since the early 1940s. With the establishment of the all-volunteer Army in 1970, modern facilities were constructed and enhanced to promote the attractiveness of service life. In 1973, Fort Jackson was designated as one of four permanent U.S. Army Training Centers (USATCs) (RPMP, 2012).

1.5.3 Population

Active military, dependents, civilians, and retirees collectively make up the Fort Jackson community. Typically, the Installation hosts an on-post population in excess of 34,000, which includes 1,120 permanent military officers, 5,391 civilian personnel, and 27,000 trainees. Approximately 30% of the permanent military personnel reside on the Installation, while the remaining 70% live in the surrounding communities, primarily in Richland County. Fort Jackson's military population is projected to remain fairly stable.

1.5.4 Fort Jackson Mission and Operations

The primary mission of Fort Jackson is to provide Basic Combat Training (BCT) and Advanced Individual Training (AIT) to Army personnel. The U.S. Army Basic Combat Training Center of Excellence is part of the US Army Training and Doctrine Command (TRADOC). In addition to training nearly half of all Army soldiers in BCT and AIT every year, other missions include several Initial Military Training (IMT) schools operated by TRADOC. Fort Jackson contains two brigades, nine battalions, and 54 companies focused solely on training Soldiers in BCT and serves as the largest Initial Entry Training (IET) Center in the U.S. Army. Approximately 45,000 Soldiers are trained annually. Major units include the following:

BCT

- 193rd Infantry Brigade
- 165TH Infantry Brigade

AIT

- 369th Adjutant General Battalion AIT

Other Units

- Headquarters and Headquarters Battalion
- 81st Regional Support Command
- U.S. Army Soldier Support Institute
- U.S. Army Chaplain Center and School
- U.S. Army Drill Sergeant Academy
- National Center for Credibility Assessment
- SCARNG
- Leader Training Brigade
- 282nd U.S. Army Band
- Columbia Recruiting Battalion Navy Reserves
- Marine Corps

1.6 Organization of this PEA

This PEA identifies, documents, and evaluates environmental effects of implementing the RPMP, while also providing specific elements to meet programmatic review goals.

Section 1 provides an introduction to the PEA, including the scope of the analysis and the Programmatic Analysis Procedure to be implemented to evaluate the potential environmental impact of a proposed action, and covers the applicable laws and regulations.

The *Purpose and Need for the Proposed Action* is described in Section 2.

The *Description of the Proposed Action and Alternatives* provided in Section 3 includes an evaluation of a broad range of proposed projects and ongoing mission activities typical of actions that are likely to be identified and evaluated in the future.

Section 4, *Affected Environment and Environmental Consequences*, provides a description of the existing physical, social, and economic conditions within and adjacent to Fort Jackson that result from all past and ongoing actions. The Proposed Action is analyzed against this baseline data to determine the environmental impacts, which will be useful in evaluating the potential impact of future actions.

Section 5 addresses the potential for cumulative effects, and mitigation measures are identified where appropriate.

1.7 Agency Coordination and Public Involvement

The NEPA process is designed to inform members of the public of the potential environmental consequences of a proposed action and involve them in the Federal decision-making process. Formal notification and opportunities for public participation, as well as informal coordination with government agencies and planners, are incorporated into the NEPA process. Coordination and consultation letters and responses that are received will be included in Appendix A of the Final PEA.

If the PEA concludes that the Proposed Action would not result in significant environmental effects, the Army would issue a draft Finding of No Significant Impact (FONSI). A Notice of Availability (NOA), for the Draft PEA and FONSI will be published in *The State* newspaper (online and print copy). The copy of the public notice will be included in Appendix A of this PEA. Publication of the NOA will initiate a 30-day public review period. This also serves as the public's opportunity to review and comment on cultural resources addressed in the PEA, as required under Section 106 of the NHPA. The draft PEA and FONSI

will be available for review at: https://www.sas.usace.army.mil/About/Divisions-and-Offices/Planning-Division/Plans-and-Reports/. Written comments will be considered for up to 30 days from the publication of the NOA and should be directed to: Ms. Sarah Smith, NEPA Coordinator, Directorate of Public Works-Environmental Division, 2563 Essayons Way, Fort Jackson, SC 29207 or by email at sarah.e.smith347.civ@mail.mil.

At the end of the 30-day review period, the Army will consider any comments received. If the Army concludes that comments received would not require substantive changes to the draft PEA or FONSI, then the Army would sign the FONSI and proceed with implementing the preferred alternative.

2. Purpose and Need for the Proposed Action

2.1 Proposed Action

This PEA evaluates a multi-faceted Proposed Action that includes implementation of the 2020 Fort Jackson RPMP and its three area development plans (ADPs):

1. Victory District ADP;
2. Semmes District ADP; and
3. Palmetto and Villages Districts ADP.

The PEA describes and provides a programmatic evaluation of Ongoing and New Mission Activities. However, it does not cover ranges and training lands, because these items are not addressed in the RPMP. Figures 2.1 and 2.2 show maps of Fort Jackson and the Installation Framework Plan, respectively.

The Proposed Action also includes the implementation of the Fort Jackson component plans: Installation Planning Standards and Real Property Vision Plan. The RPMP process is based on guidance provided in AR 210-20, *Real Property Master Planning for Army Installations* which assigns responsibilities and prescribes policies and procedures relating to the development, content, submission, and maintenance of a RPMP. This process provides direction for future development, operation, management, and maintenance of resources in a framework sustaining compliance with all applicable laws and regulations.

2.2 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to sustain and adapt the military mission requirements at Fort Jackson by adopting the 2020 RPMP. Land, equipment, and facilities support direct mission activities, as well as the housing and general living needs of its residents. The adoption of the 2020 RPMP is needed due to aging infrastructure, mission adaption, and future planning needs. The utility infrastructure, particularly water and wastewater, is aging and in poor condition. It requires annual capital upgrades, and Renewal and Replacement projects (R&R) projects to support mission execution.

All U.S. Army installations are required to maintain a RPMP, as per AR 210-20. It outlines long-term strategies for growth, while addressing off-Post/regional, Installation-wide, and site-specific planning considerations. It is a living document that assists the Garrison in achieving the goals of the Army and Fort Jackson through real property and infrastructure planning.

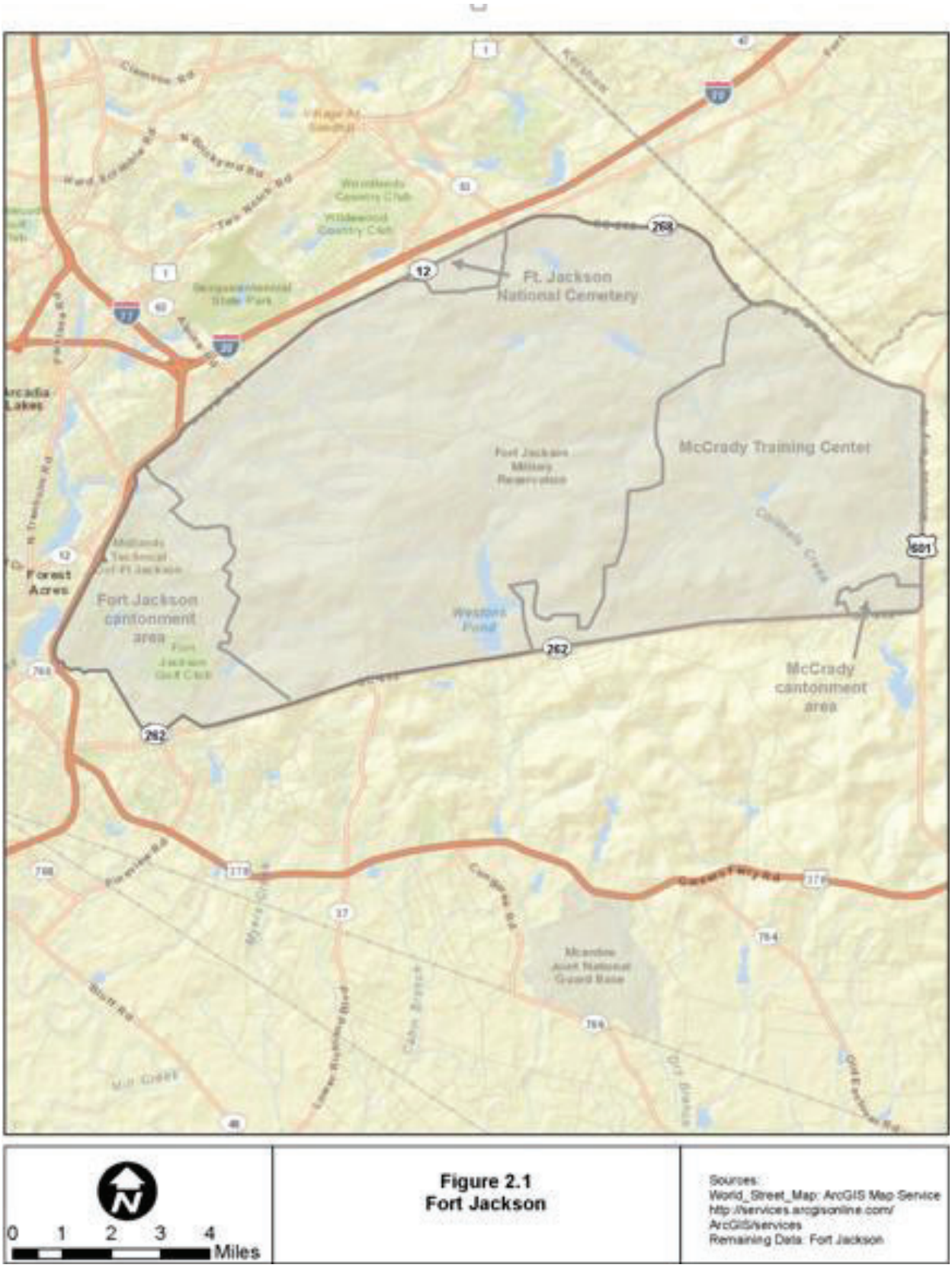

Figure 2.1 Fort Jackson, SC

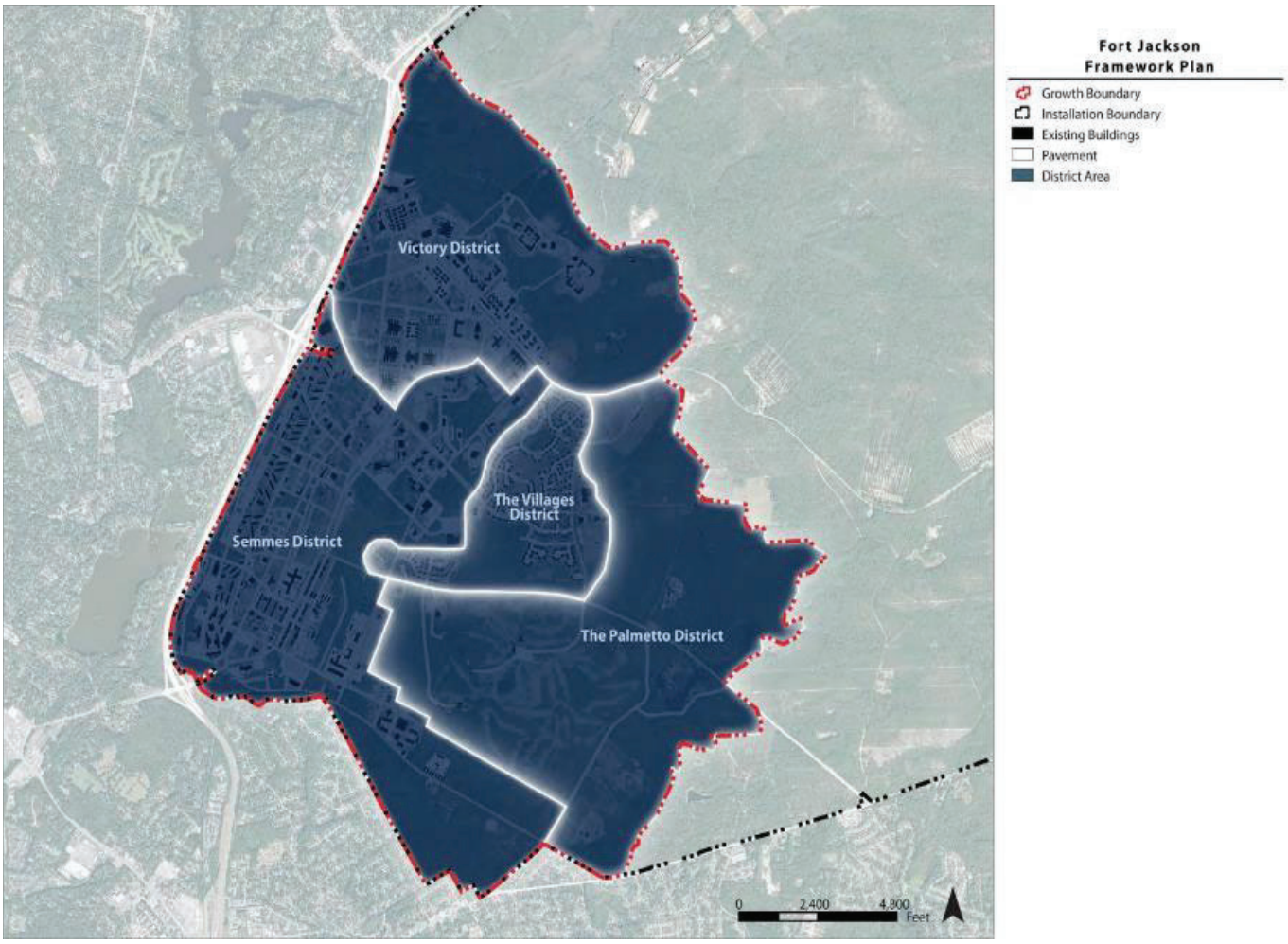

Figure 2.2 Installation Framework Plan

3. Description of the Proposed Action and Alternatives

3.1 No Action Alternative

Fort Jackson would continue to utilize and develop land in accordance with the 2012 RPMP. Maintenance, repair, and operation of existing operational and support facilities would continue as currently conducted. The Installation could not accept any new missions requiring substantial renovation or demolition of existing buildings or supporting infrastructure or new construction.

3.2 Proposed Action- Adoption of the 2020 RPMP

Fort Jackson would implement the proposed 2020 RPMP and all its component plans: Installation Planning Standards, Real Property Vision Plan, Palmetto and Villages Districts ADP, Semmes District ADP, and Victory District ADP. The proposed projects would be completed, along with any associated demolition, as required to support all elements of the RPMP and associated current and future mission requirements. Fort Jackson could accept any new missions that would require substantial renovation of, or additions to, the existing building stock or supporting infrastructure. The Installation would be able to modify land use to accommodate changes in on-going and future missions.

3.3 Master Planning Process

The MP is a continual evolving process that is designed to provide direction for the continued development, operation, management and maintenance of resources, including land, facilities and infrastructure. It provides a framework whereby resources are managed in compliance with all applicable laws and regulations. Future updates of the RPMP will occur and reflect new and evolving Army MP Guidance.

3.4 Master Plan Vision and Goals

Fort Jackson conducted workshops targeting long-term sustainability. The vision and goals developed during these workshops provide direction to the RPMP.

Fort Jackson's RPMP goals are as follows:

- **Sustainable -** Provide facilities and infrastructure that are environmentally friendly, energy efficient, easily maintainable, and conserve our natural resources.
- **Adaptable -** Infrastructure that accommodates and supports the fluid needs of Fort Jackson by creating sustainable, multi-purpose facilities with a well-managed open space to accommodate future mission requirements.
- **Inter-connected Campuses -** Enhance and develop mixed-use linked communities by encouraging pedestrian activity through multi-modal routes, paths, and landscapes, while improving virtual connectivity throughout the installation.
- **Inviting and Strong Sense of Place -** Develop a common image that reflects Fort Jackson's heritage, tradition, and character by establishing welcoming landmarks and celebrating public open spaces.

3.5 Real Property Master Plan Components

The RPMP documents the comprehensive planning process consisting of five components: Real Property Vision Plan, Installation Planning Standards, Victory District ADP, Semmes District ADP, and Palmetto and Villages Districts ADP.

The RPMP Vision Framework Plan divides Fort Jackson into identifiable and connected Districts based on geographical features, land use patterns, building types, and/or transportation networks. Focusing on Districts allows for the identification of unique needs due to mission, requirements, or command priority changes. ADPs are prepared for each District identified in the Framework Plan. ADPs follow an iterative and collaborative planning process. The ADPs include the following components: Analysis of Real Property Vision; Goals and Objectives; Analysis of Existing Conditions; Analysis of Planning Standards; Development and Evaluation of Alternatives; Fully Developed Preferred Alternative; Preparation of the Regulating Plan/Form-Based Code; Illustrative Plan; and Implementation Plan.

3.5.1 Victory District ADP

The Victory District is the point of transition for Trainees and families. The District reflects Fort Jackson's heritage, tradition, and character by establishing welcoming landmarks and celebrating public open spaces (see Figure 3.1). Table 3.1 provides a list of projects for Victory District ADP to be considered in this PEA.

Table 3.1 Victory District ADP Projects

Improve existing training path
Demolish relocatable buildings
Convert a portion of Gordon Ave for mission-only circulation
Demolish old wooden training structures in vicinity of NBC
Construct walking path connecting BCT3 to BCT4
Demolish old map reading buildings; Demolish old structures in vicinity of Nuclear, Biological, Chemical course.
Convert Kemper St for mission-only circulation
Convert McLows St and Kelly St for mission-only circulation
Convert Manigault St and Johnson St for mission-only circulation
Demolish EST relocatable buildings
Improve intersection of Benning Road and Marion Avenue; Renovate 193rd Brigade Headquarters (Bldg. 5385)
Construct traffic circle at Lee Road and Hampton Parkway
BCT 5
Construction of Two Troop Chapels
Expand Drill Sergeant Academy
Construct Engagement Skills Trainer (EST)

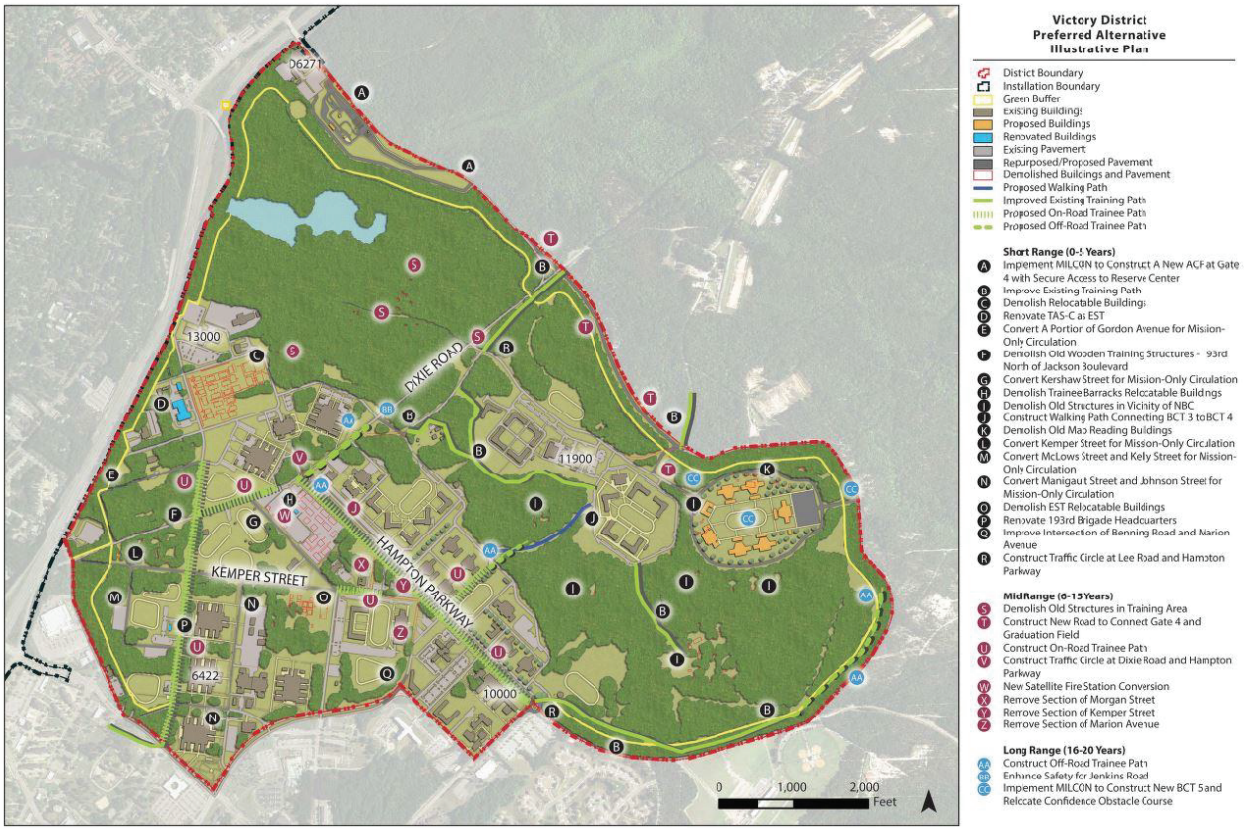

Figure 3.1 Victory District ADP- Preferred Alternative

3.5.2 Semmes District ADP

The Semmes District is one of the primary soldier and community support areas on Fort Jackson, largely occupied by troop barracks, battalion headquarters, troop and community support organizations, and Army Training units. Table 3.2 provides a list of projects for Semmes District ADP to be considered in this PEA.

Table 3.2 Semmes District ADP Projects

Demolish outdated facilities (Phase 1) - rolling pin barracks, administrative buildings, and logistics buildings (between Magruder Avenue and Sumter Avenue).
Improve select bus shelters
Repurpose Bldg. 3220 for new courtroom
Repurpose Bldg. 2100 for DPW
Renovate Single Soldier Complex campus
Upgrade Gate 1 AT/FP standards
Remove relocatables (on Washington Road near Reception Complex)
Demolish World War II wood buildings on Essayons Way
Upgrade Gate 2 AT/FP Standards
Contstruct Fitness Center
Construct new courtroom on Washington Road (next to Bldg. 2594)

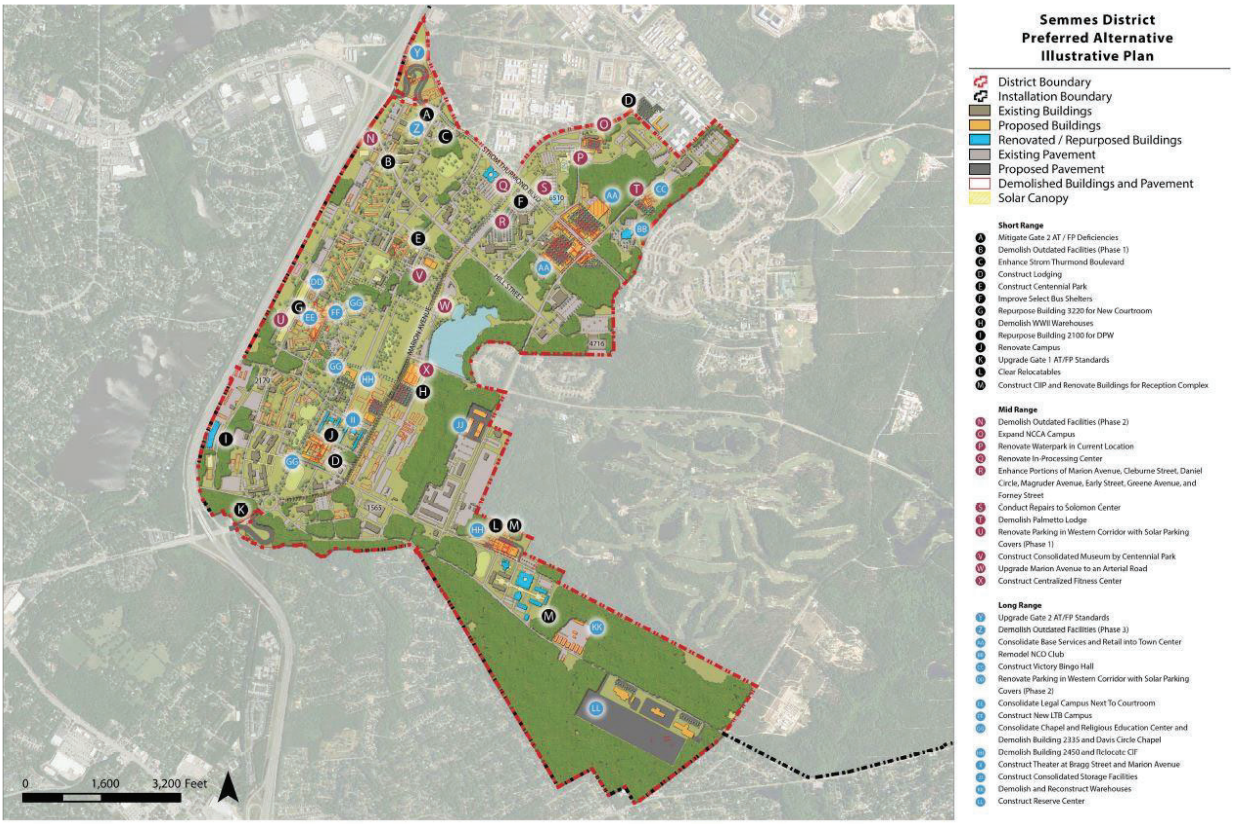

Figure 3.2 Semmes District ADP- Preferred Alternative

3.5.3 Palmetto and Villages Districts ADP

The Palmetto District is one of the largest, occupied by open space, recreational facilities, and natural amenities. It also contains Twin Lakes Recreation Area, Fort Jackson Golf Club, and Hilton Field. Additional green spaces are interspersed throughout, used in part for training.

The Villages District is one of the primary Soldier and community support areas, consisting primarily of Family housing. It also includes Pierce Terrace Elementary School, Child Development Centers (CDCs), and numerous community-gathering spaces. The District borders Semmes District, with all its services and amenities, and the Palmetto District with vast recreational opportunities. Palmetto and Villages Districts were combined into one comprehensive ADP due to their proximity and their similar nature (see Figure 3.4). Table 3.3 provides a list of projects for Palmetto and Villages District ADP to be considered in this PEA.

Table 3.3 Palmetto and Villages Districts ADP Projects

Expand parking for fields
Construct permanent vendor space at Hilton Field
Construct trail to new Pierce Terrace Elementary School
Enhance Carter Road Trail to new Pierce Terrace Elementary School
Create utility structure vegetative buffer (Bldg. F1000)
Add Wayfinding to Parking by Legion Pool (Bldg. 2761) and Victory Hall (Bldg. 3630)
Renovate Victory Hall (Bldg. 3630)
Twin Lakes Recreation Area- demolish old shelters and construct new shelters
Demolish horse stables
Construct Child Development Center

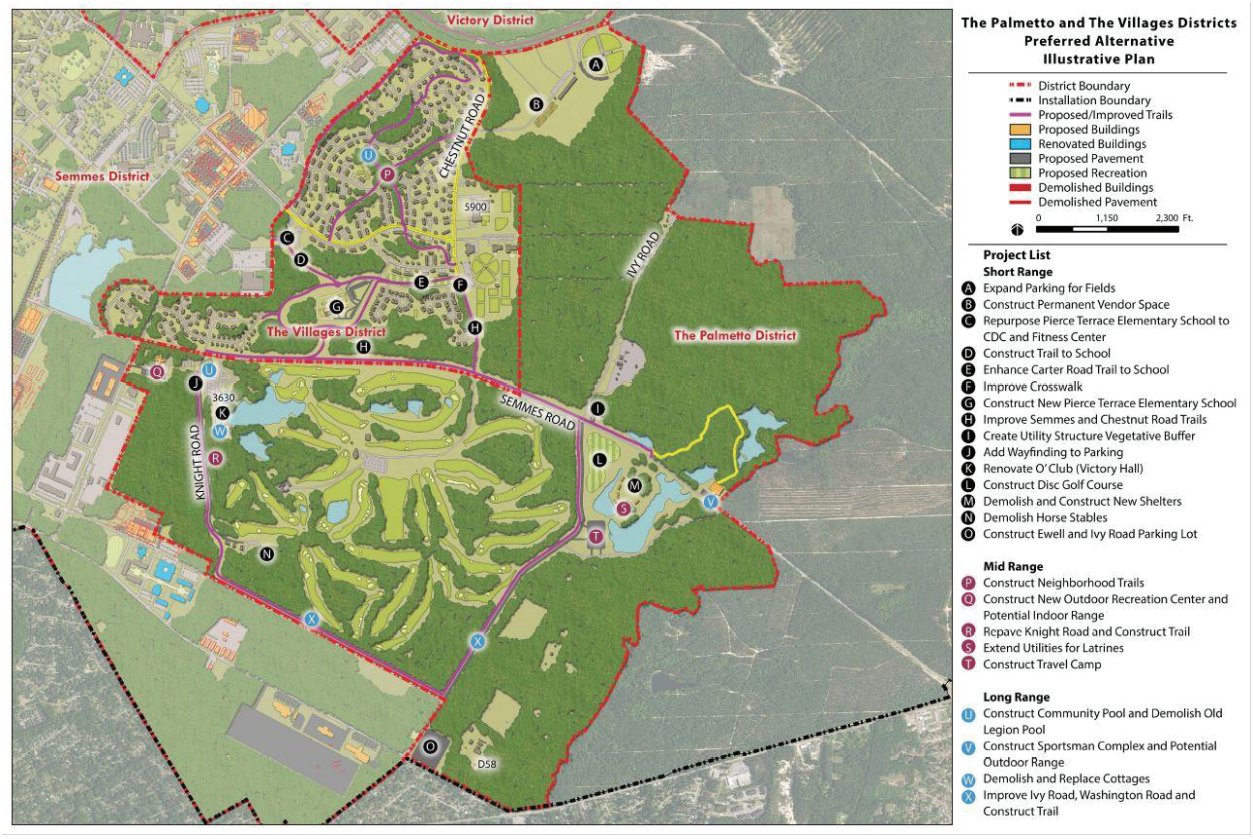

Figure 3.3 Palmetto and Villages Districts ADP- Preferred Alternative

3.6 Ongoing Mission Activities

Fort Jackson's primary ongoing mission is to provide BCT and AIT and provides training to approximately 45,000 soldiers per year, approximately 50% of all soldiers entering the Army. It is also home to additional tenants and support functions aligned with its soldier-centric mission. The ongoing mission activities are primarily public works and commercial service functions required to allow people to live and work on the Installation like those conducted in any community of equal size; are regulated by the same Federal, state, and local environmental regulations; and include the execution of actions documented in service maintenance contracts, Memoranda of Understanding (MOU), Memoranda of

Agreement (MOA), Inter-service Support Agreements (ISSA), licenses, leases, permits, easements, consents, and agreements.

3.6.1 General

Fort Jackson is potentially subject to mission changes as the Army continues to respond to changing global security requirements. Mission changes are common for various operating units, as well as the Installation. These units rely on required facilities and training lands. They may be the result of new technology, changes in force structure and alignment, and other factors. Fort Jackson must be prepared to receive new missions, therefore the MP and facility development process must be flexible to accommodate potential changes. This PEA includes programmatic review procedures to be used to evaluate the environmental impacts of new mission activities as they are identified.

Relatively small increases in military strength, which result from the realignment of civilian and/or military personnel, are considered routine actions that are readily accommodated by existing facilities and operations that do not require specific evaluation of environmental consequences. The Installation has the ability to absorb some new mission assignments without major facility modifications or new construction, since it also loses tenants or mission activities periodically in response to force structure adjustments.

3.6.2 Future New Mission Initiatives

At the time that base data was assembled in support of this PEA, there were no known plans for any new missions to be assigned to Fort Jackson. If major new missions are assigned to Fort Jackson that have the potential to cause significant adverse impacts, then additional environmental documentation may be required.

4. Affected Environment and Environmental Consequences

The existing environmental and human resource conditions are described, as necessary, to analyze the potential environmental consequences the alternatives may have on areas and components from the proposed RPMP activities, as well as future activities. Information has been obtained from the *Fort Jackson Real Property Master Plan Programmatic Environmental Assessment* (Atkins, 2013).

Each resource is defined, including resource attributes and any applicable regulations. The expected geographic scope of any potential consequence is defined as the region of influence (ROI). The boundary of Fort Jackson is the ROI for most resources, while some resources (i.e., Socioeconomics) extend over a larger region unique to the resource.

The Affected Environment is described to provide a baseline to compare potential future effects. The Cumulative Impacts analysis provides a review of many of these actions, to include natural events, prehistoric and historic events, prior activities, and activities associated with the continuation of existing ongoing missions.

Environmental constraints can be natural resources (water, vegetation, habitat, topography, soils, air quality, and/or cultural resources) and/or operational resources (hazardous waste).

4.1 Air Quality

4.1.1 Affected Environment

Under the authority of the CAA (42 USC 7401-7671q), the Environmental Protection Agency (EPA) has been given the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment, with an adequate margin of safety. The EPA developed NAAQS for six principal "criteria pollutants" to represent the maximum allowable atmospheric concentrations and are as follows: particulate matter (measured as particulate matter [PM10] and fine particulate matter [PM2.5]), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_X), ozone (O_3), and lead (Pb). Federal regulations designate levels below the NAAQS as *attainment* areas.

4.1.1.1 Regional Air Quality

South Carolina is one of 28 eastern states under the Clean Air Interstate Rule (CAIR), a program to permanently cap emissions of SO_2 and NO_x. CAIR assists in meeting and maintaining NAAQS for ground-level ozone and fine particle pollution (SO_2 and NO_x contribute to the formation of fine particles (PM), and NO_x contributes to the formation of ground-level ozone). South Carolina has many other programs and regulations to promote better air quality, such as a State Implementation Plan (SIP), Diesel Emissions Reduction Program (www.scdhec.gov/dera), Breathe Better Program (www.scdhec.gov/b2), and Lawn Mower Exchange (www.scdhec.gov/lawnmowerexchange). Richland County is classified as in attainment for all six criteria pollutants, and the majority of SC is in attainment for air quality.

4.1.1.2 Fort Jackson Air Quality

Fort Jackson is part of EPA Region 4 (Southeast), and is in attainment for all NAAQS criteria pollutants. Fort Jackson currently operates under the Air Permit issued by the South Carolina Department of Health and Environmental Control (SCDHEC). Permit requirements include an annual inventory for all significant stationary sources of air emissions and covers monitoring, recordkeeping, and reporting requirements and updated, as necessary. Any new stationary sources of air emissions would be

reviewed by the Installation's Air Program Manager to determine if they would be subject to air permitting regulations. Any required permits (i.e., SCDHEC construction permit) would be obtained or modified accordingly prior to installation and operation. Fort Jackson's 2018 installation-wide air emissions for all significant stationary sources are listed below in Table 4.1.

Table 4.1 Fort Jackson Annual Emissions for Significant Statutory Sources

Pollutant	Emissions (tons/year)
NO_x	15.5
CO	16.44
VOCs	1.01
PM10/PM2.5	2.377
SO_2	0.092

Note: SO_2 = sulfur dioxide; VOCs = Volatile organic compounds

4.1.2 Environmental Consequences

Air emissions resulting from implementation of the projects were evaluated in accordance with Federal, state, and local air pollution standards and regulations. Air quality impacts resulting from the proposed projects are defined as those that raise ambient air pollution levels above any NAAQS; factor into an existing NAAQS violation; or hinder or postpone NAAQS attainment per the CAA.

4.1.2.1 Alternative 1- No Action

The No Action Alternative would not affect ambient air quality. No new construction emissions would be generated.

4.1.2.2 Alternative 2- Adoption of the RPMP

Projects that involve construction or demolition activities could have direct, short-term, adverse impacts on local air quality. Temporary adverse impacts may result from construction, land clearing, paving off-gases, or dust, all of which would end upon completion.

During construction, precautions outlined in the South Carolina Air Pollution Control Regulations (SCAPCR), such as controlling fugitive dust, would be required. All contractors would comply with Federal, state, and local air regulations. All persons responsible for any operation, process, handling, transportation, or storage facility that could result in fugitive dust would take precautions to prevent such dust from becoming airborne. Best Management Practices (BMPs) during land clearing operations and construction activities assist in minimizing the release of dust.

The use of alternative fuels and applicable emission controls on older equipment and efficient practices would help reduce emissions. In addition, construction would be executed in full compliance with all regulatory requirements, compliant practices, and products. These requirements include, but are not limited to, control of fugitive particulate matter (SCAPCR 61-62.6) and prohibition of open burning (SCAPCR 61-62.2).

Execution of Alternative 2 (Adoption of the RPMP) may introduce new stationary sources of pollutants, which may require modification to the current air permit. New emission sources may also require a construction permit from SCDHEC.

4.2 Biological Resources

4.2.1 Affected Environment

Fort Jackson has a rich diversity of flora and fauna. This section focuses on plant and animal species and habitat types that are typical or an important element of the ecosystem, of special category importance (of special interest due to societal concerns) or protected under state or Federal law or statute regulatory requirement. The ROI is Fort Jackson.

4.2.1.1 Fish and Wildlife

The majority of fish and wildlife species found on Fort Jackson are typical of the Sand Hills region of South Carolina. Over the years, baseline and planning level surveys have been performed for various classifications of flora and fauna. There is a wide variety of wildlife, including more than 700 species of mammals, birds, fishes, invertebrates, reptiles, and amphibians that have been documented utilizing the diverse ecosystems. Five species of animals and three species of plants documented on Fort Jackson are listed as at-risk, threatened, or endangered by the U.S. Fish and Wildlife Service (USFWS; list dated 15 September 2020).

Fish and wildlife management is addressed in the Integrated Natural Resources Management Plan (INRMP), which was prepared in accordance with the Sikes Act (Public Law 99-561), AR 200-3, *Natural Resources – Land, Forest and Wildlife Management*, and the Cooperative Plan Agreement among the Installation Commander, the USFWS, and the South Carolina Department of Natural Resources (SCDNR). Since military missions and resource management programs affect fish and wildlife habitat, their management activities focus upon programs designed to create and enhance habitat that are consistent with Installation's missions. Two primary goals for natural resources conservation are: (1) ensure no net loss in the capability of installation lands to support existing and projected military training and operations, and (2) use ecosystem management philosophies to protect, conserve, and enhance native flora and fauna with an emphasis on biodiversity enhancement.

Wildlife is affected mostly by forest management practices, particularly prescribed fire. Prescribed fire is one of the primary tools used in the management of the forested ecosystems and is detailed in the INRMP. Other wildlife management practices include silvicultural practices, ongoing inventory and monitoring as well as creation and maintenance of wildlife openings, transition zones, and nesting structures. Hunting and fishing activities also play an important role in the management of certain wildlife populations. Hunting occurs during established hunting seasons and is regulated by Fort Jackson Regulation 28-4, *Hunting and Fishing Regulation* (FJ, 2017). Management of invasive species is also performed.

4.2.1.2 Vegetation

Fort Jackson contains a wide variety of vegetative communities, ranging from xeric longleaf pine and upland hardwood forests to vegetated and open water wetlands. Twelve vegetation cover types have been recognized for the purpose of cover type mapping, with at least 30 plant community types and 11 subtypes. The installation's landscape is naturally vegetated, except where development has cleared land in support of military missions. Over 720 flora species have been documented on Fort Jackson.

Prescribed fire is the primary tool used to manage forest vegetation. The objectives of prescribed fire include restoring ecological processes and enhancing native vegetation, controlling invasive plants, and reducing fuel loading. Silvicultural practices, including timber harvests, reforestation, and timber stand improvement, are also used to manage forest lands, with an emphasis on longleaf pine ecosystem restoration and maintenance.

4.2.1.3 Wetlands

There are approximately 5,250 acres of wetlands on Fort Jackson. Four aquatic and wetland vegetative communities occur on the Installation: Ponds and Lakes, Depressions, Wetland Hardwood, and Pine-Wetland Hardwood. In accordance with the Clean Water Act (CWA) Section 404(b)(1) and EO 11990, wetlands must be protected from development, silting, and other degradation. Through the NEPA review process, all soil-disturbing activities are reviewed to ensure that impacts to wetlands are avoided or minimized. Permits from U.S. Army Corps of Engineers (USACE) are obtained for unavoidable impacts.

Erosion sites identified affecting wetlands in training areas receive high priority in the Installation's Land Rehabilitation and Maintenance program. Before land disturbing activities are initiated, an environmental review is conducted to ensure that wetlands will not be affected. Timber harvesting may be conducted in wetlands if operations are in accordance with applicable USACE and EPA requirements and conditions. Any proposed cutting will be coordinated with the Forestry Branch. Wheeled or tracked vehicle maneuvers are prohibited in wetlands.

4.2.1.4 Threatened, Endangered, and Protected Species

Under Section 7 of the ESA, the Army must ensure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any Threatened and endangered species or result in the destruction or adverse modification of habitats. No land on Fort Jackson has been identified as critical habitat for any Federally-listed endangered or threatened species.

Flora. Two Federally-listed endangered plant species have been located on Fort Jackson. Rough-leaved Loosestrife (*Lysimachia asperulaefolia*) and the Smooth Coneflower (*Echinacea laevigata*) were identified during a Threatened and endangered plant survey conducted in 1992. Purple balduina (*Balduina aropurpurea)*, an at-risk species, is also found on Fort Jackson.

Rough-leaved Loosestrife is an herbaceous, perennial, rhizomatous member of the Primulaceae (Loosestrife family). The Fort Jackson population, which represents the single, extant SC occurrence, is found on the eastern edge of the East Impact Area, along with purple balduina.

Smooth Coneflower is a rhizomatous perennial which blooms with a pale purple or pink flower from late May through July. Fort Jackson provides habitat for two populations of Smooth Coneflower near Statue of Liberty Road and on Lundy's Lane on the eastern end of the installation.

Given the presence of these Federally-listed endangered species, Endangered Species Management Components (ESMCs) have been prepared. The objective of the ESMC for the *Flora Endangered Species Management Component of the INRMP for Smooth Coneflower and Rough-leaved Loosestrife U.S. Army Training Center and Fort Jackson* (FJ, 2015) is to conserve these endangered plant species as required by the ESA, while providing for training readiness and other mission requirements.

Fauna. Fort Jackson provides habitat for one resident Federally-listed endangered animal species, the Red-cockaded Woodpecker (RCW) (*Dryobates borealis*), a non-migratory bird that is endemic to the pine forests of the south-eastern U.S. It is found in association with longleaf pine forests, although it can be found in other pine habitats, including loblolly, shortleaf, slash, and others. There are 51 active RCW clusters on Fort Jackson.

The RCW population and associated habitat is managed in accordance with the *RCW Endangered Species Management Component* (ESMC) (FJ, 2013a) and *Management Guidelines for the Red-cockaded Woodpecker on Army Installations* (DA, 2007). The cantonment area has been excluded as a defined RCW Habitat Management Unit (i.e., an area to be managed for RCW use).

The American bald eagle (*Haliaeetus leuocephalus*) is no longer listed as endangered but is protected under the Bald and Golden Eagle Protection Act. One active nest is known to exist near Dupre Pond.

The American wood stork (*Mycteria americana*) has been documented foraging on the installation, but no long-term occupation or nesting has been observed.

Although not currently listed as threatened or endangered, Fort Jackson provides habitat for three at-risk animal species, including: Chamberlain's dwarf salamander (*Eurycea chamberlaini*), Tri-colored bat (*Perimyotis subflavus*), and Southern hognose snake (*Heterodon simus*).

4.2.2 Environmental Consequences

4.2.2.1 Alternative 1- No Action

Alternative 1 would not change the existing conditions.

4.2.2.2 Alternative 2- Adoption of the RPMP

While common species of wildlife may be disturbed or displaced during the construction phase, full implementation of projects, including appropriate BMPs, would not impact contiguous forested areas used by interior dwelling wildlife species. All projects would be implemented in compliance with the INRMP, which would ensure impacts to fish and wildlife would be minimal.

Impacts to vegetation would be minimized by only removing necessary trees and implementing construction BMPs. MP projects that would impact forest stands and other vegetation include the improvement and construction of walking trails, upgrades to Gates 1 and 2, the BCT 5, the new EST near range 1, and construction and demolition activities. Areas would be permanently re-vegetated as quickly as possible upon completion of construction or demolition activities to assist with limiting soil erosion and sediment transport to surface waters. No "Significant Natural Areas" will be impacted through the proposed projects.

The impacts of each project on wetlands and associated wildlife would be evaluated independently in a REC, as detailed siting and design is being developed. Once the extent of impacts are determined, BMPs and mitigating actions required for permitting would be implemented, including obtaining any required CWA permits.

Under Section 7 of the ESA, any impacts to listed species would be documented in a REC and consultation completed with the USFWS as required. Fort Jackson would ensure that any action authorized, funded, or carried out would not likely jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of their habitats.

Biological resources, including vegetation, fish, wildlife, wetlands, and threatened and endangered species, may all be impacted by construction and demolition activities. The degree of impact depends upon the importance of the resource; percentage of the resource that would be disturbed relative to its occurrence in the region; sensitivity of the resource to the project activities; and duration of ecological implications.

4.3 Cultural Resources

The Army is required to comply with Sections 106 and 110 of the NHPA (regarding historic properties) and the implementing regulations for Section 106 under 36 CFR 800. Compliance is also required for preservation of the following:

- Cultural items, as defined in the Native American Graves Protection and Repatriation Act (NAGPRA);
- Archaeological resources, as defined in the ARPA;
- Sacred sites, as defined in EO13007 to which access is provided under the American Indian Religious Freedom Act (AIRFA); and
- Collections, as defined in 36 CFR 79 Curation of Federally-Owned and Administered Collections.

The Fort Jackson Integrated Cultural Resources Management Plan (ICRMP) outlines the policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements. The ICRMP is a component of the Installation's RPMP and incurs minor revisions annually and major revisions if necessary every five years.

4.3.1 Affected Environment

Fort Jackson's primary cultural resources are archaeological sites, historic buildings, and cemeteries. Within its boundaries, there are no identified access routes to or sites of religious or ceremonial rites of the Native Americans, no properties listed on the National Register of Historic Places (NRHP), no properties listed on the World Heritage List, and no properties designated as a National Historic Landmark. Building 2495 is eligible for listing on the NRHP. Archaeological site locations are not a matter of public record.

The SC Department of Archives and History State Historic Preservation Office (SHPO) and Tribal Historic Preservation Offices (THPO) of the consulting Federally Recognized Native American Indian Tribes (FRNAIT) (consulting tribes) were contacted concerning the proposed action (Appendix A). If comments or concerns are raised by the SHPO or the consulting tribes regarding the resources, documentation of the discussions will be added to this PEA.

A Programmatic Agreement (PA) between Fort Jackson the SHPO, and the Advisory Council on Historic Preservation was reviewed in 2015. The PA provides stipulations by which Fort Jackson can establish a program of operation, maintenance, and development that is in compliance with the Army's Section 106 responsibilities. The PA identifies projects and activities that are exempt from review, as well as those that can receive an internal review.

4.3.1.1 Archaeological Sites

Archaeological surveys have been completed in all areas where surveying is permitted (SCIAA 2008). Follow up studies are conducted on a case-by-case basis. Locations of all archaeological sites are contained within a GIS database maintained by Fort Jackson. Details of these sites, including individual

reports, are on file at Fort Jackson ENV and the SC Institute of Archaeology and Anthropology (SCIAA) State Site Files. Monitoring of sites eligible for listing on the NRHP is conducted annually or more frequently as needed.

4.3.1.2 Historic Buildings and Structures

To date, historic property inventories have identified three structures that are eligible for listing on the NRHP. Of these three structures, all received Historic American Building Survey/Historic American Engineering Record (HABS/HAER) documentation, and two were demolished. The remaining structure, Building 2495, is a Morale, Welfare, and Recreation general maintenance facility.

4.3.1.3 Cemeteries

The ICRMP defines historic cemeteries as burial grounds, usually marked by headstones and/or fenced areas, associated with families, churches, or communities that were established within Fort Jackson between European settlement and acquisition by the Army. The definition does not include the unknown, unrecorded, and unmarked human burials that may be within the boundaries of Fort Jackson. There are 27 recorded cemeteries on the installation, and these are monitored annually or as needed. One cemetery, the James Hammond Cemetery (Cemetery 7), is located east of Golden Arrow Road near the boundary of BCT5 (see Figure 4.1).

The ICRMP states that none of the cemeteries are considered eligible for NRHP inclusion but all should be protected (SCIAA, 2018). For management purposes, all cemeteries are treated in the same manner as NRHP eligible cultural resources. They are to be preserved in place.

Figure 4.1 Victory District- BCT 5 Proposed Project Site

4.3.2 Environmental Consequences

Cultural resources may be directly or indirectly impacted or affected by physically changing, damaging, or ruining all or part of the resource, changing attributes of the resource's surroundings that contribute to the resource, modifying the character of the resource through visual or audible means, or neglecting the resource. Fort Jackson would continue to comply with the ICRMP and PA and would continue to consult, as needed, for any effects regardless of the alternative selected.

4.3.2.1 Alternative 1- No Action

This Alternative would result in minimal disruption of existing historical and cultural resources, since this alternative would generally limit activities to existing facilities, unless those facilities are historic.

4.3.2.2 Alternative 2- Adoption of the RPMP

This Alternative would have no effect on identified access routes to, or sites of, religious or ceremonial rites of Native Americans as none of these are located on-Post. This alternative would have no effect on historic properties (archaeological or historic) listed on the NRHP or the World Heritage List.

One NRHP-eligible historic structure (Bldg. 2495) is located on-Post. Fort Jackson previously mitigated this facility pursuant to Section 106 of the NHPA. No proposed construction projects or operation would interfere with this structure.

Although the ICRMP states that none of the 27 cemeteries are considered eligible for NRHP inclusion, all should be protected (SCIAA, 2018). One cemetery, the James Hammond Cemetery (Cemetery 7), is located east of Golden Arrow Road near the boundary of BCT5. There are no proposed designs that would impact this cemetery.

The majority of undisturbed areas in the cantonment area have been surveyed for cultural resources. Four protected archaeological sites are located within the cantonment area. All component projects included in this analysis will avoid any adverse impacts to these known sites.

Previously disturbed areas within the cantonment area do not require an archaeological survey (Cantonment Area, Fort Jackson, SC, Letter from the State Historic Preservation Office, Dec. 15, 1993). In addition, surveys will be performed for any proposed project to be located in an area that has not been surveyed, where required. Adverse impacts to any new historic properties discovered from these surveys will be avoided. Given that each of the component projects included in this analysis are within the cantonment area, and protected historic properties will be avoided, the proposed projects would not result in any impacts to cultural resources.

4.4 Environmental Restoration and Compliance

4.4.1 Affected Environment

4.4.1.1 Hazardous Waste

Hazardous waste on Fort Jackson is managed according to the *Hazardous Substance Management Plan* (FJ, 2020). It provides the proper handling and disposal of hazardous wastes and is consistent with all applicable local, state, and Federal regulations. Common types of hazardous materials and wastes include paints, adhesives, sealants, fuels, lubricants, solvents, contaminated absorbents, cleansers, non-bio-medical hazardous waste from the MAHC and clinics, fuel filters, and universal waste batteries and lamps. Bio-medical wastes generated within the MAHC, troop clinics, and dental clinics are handled and disposed of in compliance with US Army Medical Command Regulation 40-35, *Medical Services*

Management of Regulated Medical Wastes; and SC Infectious Waste Management Act, Regulation 61-105, Infection Waste Management Regulation.

Fort Jackson is a RCRA Large Quantity Generator of hazardous waste and operates under permit number SC3 210 020 449, which was renewed on October 14, 2020. Facility inspections are conducted at least bi-annually by internal EPAS, and typically on an annual basis by SCDHEC, as well as every five years by the EPA.

4.4.1.2 Installation Restoration Program (IRP)

Fort Jackson is required to comply with applicable Federal, state, local, and Department of Defense (DoD) requirements for the clean-up of contamination on Defense Environmental Restoration Program (DERP) and non-DERP eligible sites (including the IRP, Military Munitions Response Program [MMRP], Compliance Clean-up Program, and Operational Range Assessment Program [ORAP] sites). All program sites at Fort Jackson are primarily regulated under the RCRA or, to a lesser extent, the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

The IRP also encompasses the MMRP and ORAP efforts, which are comprehensive programs designed to address contamination from past or current activities and restore Army lands to useable conditions. These programs are established under the DERP to identify, investigate, and clean up hazardous substances, pollutants, contaminants, unexploded ordnance (UXO), discarded military munitions, and munitions constituent (MC) contaminants that pose environmental health and safety risks at active military installations and formerly used defense sites (FUDS). Fort Jackson currently has approximately 32 active sites, generally referred to as an Area of Concern (AOC) or Solid Waste Management Unit (SWMU).

An Installation Action Plan for Fort Jackson is generated annually and includes the IRP, MMRP, and ORAP sites statuses and scheduled path forward for active DERP funded sites.

4.4.1.3 Munitions

Training, range clearance, and emergency munition operations are exempt from RCRA regulations, as documented in a negotiated agreement between Fort Jackson, SCDHEC, and the EPA. This exemption does not apply to disposal of ordnance at a location that is designated for repeated detonations on a routine basis. If a location is utilized or is planned to be utilized to support the mission, a RCRA Subpart X permit would be required to conduct repeated routine treatment or disposal of regulated ordnance. If a Subpart X permit is not in place, it would be a violation of state and Federal waste rules and regulations.

Former range sites that are no longer designated under Real Property as within an active operational or impact area are eligible to be managed under the MMRP. Transport of soil or sediment with munition or munition debris constituents without a previously approved regulatory document, or as a part of an MMRP managed site, would also be a violation of state and Federal waste rules and regulations. Depending on the constituent, they would be included in the regulatory framework under CERCLA or RCRA.

4.4.1.4 Land Use Controls (LUCs)

LUCs are remedial actions that include any type of physical, legal, or administrative mechanism that restricts the use of property in accordance with a remedial decision. LUCs, as applied to real property,

refer to any restriction or control that limits the use of any portion of that property, including water resources, arising from the need to protect human health and the environment. LUCs are used to mitigate risks associated with exposure to in-place residual contamination instead of eliminating those risks through removal actions or implementation of other remedial measures.

Examples of various forms of LUCs are as follows:

- Physical Mechanisms - Physical mechanisms, also referred to as access controls, encompass a variety of engineered remedies that reduce exposure to contaminated media. Such controls are intended to prevent trespassing, warn individuals of potential dangers, or restrict potential contaminant migration. Examples of physical mechanisms include a dermal cover, fencing, and signage.
- Administrative Mechanisms - Administrative mechanisms include notices and existing permitting or land use management systems that may be used to ensure compliance with use restrictions. Inclusion of LUC sites within the RPMP is also an administrative mechanism. These include prohibitive directives such as limitations on installation of drinking water wells and excavation zone exclusions.
- Legal Mechanisms - Legal mechanisms are legally binding documents that ensure land use restrictions remain in place. Institutional controls are an example of a binding legal mechanism.

Physical LUCs

Fort Jackson is an active military facility with active and passive security measures currently in place with limited access. Access is restricted around the perimeter of the entire Installation by a combination of physical barriers, such as gates controlled by Fort Jackson personnel, fencing, military installation signage, earth berms to obstruct roadways, and natural obstructions, such as forest and wetlands.

Administrative LUCs

The RCRA Permit (Number SC3 210 020 449) is the primary administrative LUC for Fort Jackson, as well as inclusion of these sites within the RPMP The RCRA permit is the governing document for all Fort Jackson SWMUs and AOCs. The permit outlines the regulations and requirements for all corrective actions, including LUCs. The routine management and its associated compliance with LUCs involve utilization of Fort Jackson's REC process. No project at SWMUs and AOCs can proceed until all significant impacts are mitigated to non-significant levels through adherence to the review procedures established under the REC process.

In accordance with the Fort Jackson RCRA Permit, when LUCs are part of a final corrective action, written notification (Request for Proposed Change [RPC]) must be provided to SCDHEC at least 60 days prior to implementation of any Significant Change in Land Use (except in emergency situations, in which notice should be given as soon as practicable). This may include typical above-grade activities, such as timber harvesting. LUCs may also include limited access and prohibition of excavation. Any subsurface proposed activities must be submitted with an RPC and, due to the historic nature of the subject property, on-call construction support for UXO, MC, munitions debris, and munitions and explosives of concern for potential safety concerns may be warranted.

4.4.1.4 Polychlorinated Biphenyls (PCBs)

Guidance for the management of PCBs is contained in Headquarters TRADOC PCB policy. Most PCB-containing transformers on Fort Jackson have been replaced with non-PCB transformers. PCB-

containing waste will be handled and disposed of in accordance with all applicable Federal, state and local regulations.

4.4.1.5 Petroleum, Oil, and Lubricants (POLs)

The Underground Storage Tank (UST) Program conforms to the requirements of the Federal and state UST management regulations and the Federal Spill Prevention, Control and Countermeasure (SPCC) regulations. They provide the guidance with respect to inventory notification/reporting of data; leak detection and tank testing; remedial action; tank closing procedures; new construction of tanks; and leak detection monitoring systems for USTs.

There are eight USTs on the Installation: four tanks at the Gate 2 Shoppette (Building 4120), three at the Gate 1 Shoppette (Building 2420), and one at MAHC (Building 4500). The USTs at the two Shoppettes are double-wall fiberglass tanks with double-wall underground piping. They have spill and overfill protection as well as state-of-the-art electronic inventory monitoring equipment. There are 12 unregulated USTs located at Central Energy Plant (CEP) 1 (4 USTs) and CEP 2 (8 USTs) that are in the process of being removed. It is possible that there are other USTs abandoned in place on the Installation.

The SPCC details spill prevention and procedures for responding to accidental releases of POLs. Hazardous Communication (HAZCOM) training is required for any potentially exposed personnel. Fort Jackson does not use transportation pipelines to bring POLs to facilities and does not have pipelines that could reasonably be expected to spill oil into or upon the navigable waters of the US.

Assessments are ongoing at several former aboveground storage tanks and UST sites that have been impacted by POL contamination. The work plans are approved by SCDHEC, then the sites are assessed to determine the extent of contamination and identify the most efficient, effective, and economical method of clean-up under IRP.

4.4.1.6 Asbestos

Asbestos-containing materials (ACM) are managed and disposed of in accordance with all applicable Federal, state, and local regulations and the *Fort Jackson Asbestos Hazard Management Plan* ([AHMP]; FJ, 2009). The AHMP provides the documentation for ACM management efforts and procedures carried out in support of the Toxic Substance Management Program. The SCDHEC regulation 61-86.1, "*Standards of Performance for Asbestos Projects"* and Title 40 CFR, Part 61, Subpart M, *"National Emission Standards for Hazardous Air Pollutants - Asbestos"* state the facility or portion of the facility being renovated or demolished shall be thoroughly inspected to detect the presence, location, condition, and estimated quantity of ACM which may be disturbed.

Inspections must be performed by a person who has been trained and licensed as an asbestos building inspector in accordance with state training and licensing requirements. All facilities maintain the three-year time period required for inspections to obtain accurate and reliable information on the presence and condition of ACM in each. ACM can be found in many products, including floor tiles, vinyl floor covering, duct joint compound, roofing materials, mastics, and dry wall.

4.4.1.7 Lead-Based Paint (LBP)

It is possible that surfaces in buildings constructed before 1978 may contain lead-based paint (LBP). AR 200-1outlines a strategy for a LBP Management Program to identify potential LBP hazards where

children are present by performing risk assessments, controlling or eliminating these hazards through abatement, and continually monitoring painted surfaces that may contain lead.

Army policy controls LBP by using in-place management to prevent deterioration over time for surfaces possibly containing LBP, followed by replacement as necessary. LBP surveys are conducted for facilities when demolition or renovation is necessary and require removal and disposal of LBP in accordance with state and Federal guidelines.

4.4.1.8 Pest Management

Pesticides are listed commercial products that become a hazardous waste when discarded in a manner inconsistent with their intended use. 40 CFR 261.2(c)(1)(B)(ii) states that the commercial chemical products listed in 40 CFR 261.33 are not solid or hazardous wastes if they are applied to the land in their ordinary manner of use. If pesticides are identified in soils around buildings per their intended purpose, it would not constitute a release or affect the environmental condition of the property.

The *Integrated Pest Management Plan* ([IPMP], FJ, 2019b) describes pest management policies and procedures, provides a complete list of all pesticides used, and outlines the resources necessary for administration of the program, including health and environmental safety, pest identification and management, storage, transportation, application and disposal. The IPMP was developed to decrease reliance on pesticide usage, improve environmental protection, and make best use of IPMP techniques. It details physical, cultural, biological, and chemical controls to be used separately and together to stop potential pest infestations.

The two pesticide mixing and storage sites on the Installation are in the Directorate of Public Works (DPW) compound (Building 2558) and the golf course (Building 3664). Application is carried out by authorized, trained, and certified personnel under the supervision of quality assurance evaluators or the Installation Pest Management Coordinator. Only EPA and SC registered pesticides are on the Army approved pesticide list. Excess concentrated pesticide formulations are disposed of in accordance with Federal, state, local, and Army laws, rules, or directives.

4.4.1.9 Radioactive Waste

Medical and non-medical radioactive wastes are generated at Fort Jackson. Medical radioactive waste is generated primarily as a by-product of therapy/treatments and diagnostic medical imaging. The procedures and practices for the hospital are licensed under the Nuclear Regulatory Commission and the Department of the Army Radioactive Materials Authorization. Medical radioactive waste is inspected and monitored by a Radiation Protection Officer (RPO) and stored in a secure locker at the MAHC (Building 4500). They are stored for 10 half-lives, then disposed of by an approved contractor. Non-medical radioactive wastes are overseen by a separate RPO and comprised of components of outdated equipment, such as calibration equipment, wristwatches, and compasses. They are stored temporarily in a secured arms room in Building 3290 until disposed of by an approved contractor.

4.4.2 Environmental Consequences

4.4.2.1 Alternative 1- No Action

Alternative 1 would not result in any changes to the existing storage, handling, generation, or use of hazardous or toxic materials/wastes. There would be no special waste generation from facility demolition or renovation. Over the long-term, ACM and LBP presents a continuing management problem and potential threat to health and the environment. The IRP, LUCs, PCBs, POLs, LBP, munitions,

pest management and radioactive waste would not have any changes due to no changes in current on-going actions occurring.

4.4.2.2 Alternative 2- Adoption of the RPMP

Renovation or demolition of old structures would eliminate long-term environmental restoration and compliance concerns associated with ACM and LBP; however, short-term adverse impacts could result during the management and disposal of these wastes. All other hazardous materials and waste associated with renovation, demolition, and construction would be handled and disposed of in accordance with Federal, state, and local regulations and procedures discussed above. Therefore, implementation of the proposed projects in this PEA may have minor short-term adverse effects, but will not have any significant effects on the human and natural environment, and long-term beneficial effects are also expected.

4.5 Geology and Soils

Geologic resources include subsurface and exposed rock. Soils include particulate, unconsolidated materials formed from in place underlying bedrock or other parent material, or transported from distant sources via glacial transport, water, and wind. Soils serve a critical role in the natural and human environment, affecting vegetation and habitat, water and air quality, and the success of the construction and stability of roads, buildings, and shallow excavations. The ROI is the land within Fort Jackson, including MTC.

4.5.1 Affected Environment

4.5.1.1 Physiography, Geology, and Topography

Fort Jackson is in Richland County, which is made up of two physiographic provinces: the Piedmont Plateau and the Atlantic Coastal Plain. Fort Jackson is located in the north-western portion of the Atlantic Coastal Plain, referred to as “Sand Hills”. The Sand Hills are a region of low to moderate relief and gently rolling plains with numerous streams and springs that are fed by groundwater. Local relief in the high plains of the reservation is largely between 165 and 250 feet. Slopes are predominately between 3-8%. In the areas along narrow stream valleys, slopes commonly exceed 15%. The highest elevation is 540 feet above sea level in the west-central portion near the Weir Tower; the lowest point is less than 160 feet above sea level occurring in the floodplain of Colonels Creek in the south-eastern portion.

4.5.1.2 Soils

A soil survey conducted by the U.S. Department of Agriculture (USDA) concluded that Fort Jackson Coastal Plain soils are predominantly well drained on the higher plains and side slopes and somewhat poorly drained in the valleys. These soils have a sandy surface layer and a predominantly loamy sub-soil. Primary soil classifications are identified as follows: Lakeland, Vaucluse-Ailey-Pelion, Fuquay-Troup-Vaucluse, and Pelion-Johnston-Vaucluse.

The removal of vegetation and the length and percentage of slope are concerns related to soil erosion potential. Soils that are absent of vegetation or located on long, steep slopes can be highly erodible. While the sandy soils do not erode as easily as clay soils, once they do begin to erode, they do so more quickly and are more difficult to stabilize. Areas of known concern have been identified in the Land Rehabilitation and Maintenance component of the Integrated Training Area Management (ITAM) Program.

4.5.2 Environmental Consequences

4.5.2.1 Alternative 1- No Action

Alternative 1 would result in minimal disruption of physical resources, since this scenario would limit activities to existing facilities. The use of existing facilities for ongoing activities is being conducted in compliance with existing regulations.

4.5.2.2 Alternative 2- Adoption of the RPMP

Construction and demolition activities involving grading and site preparation activities would have direct short-term adverse impacts on physical resources. Soils would be moved, and sedimentation could occur while the ground cover becomes established. To minimize impacts, erosion and sedimentation control measures would be implemented, including, the use of BMPs at the construction sites, such as silt fencing, hydro-mulching, sediment traps, and vegetated filter strips. All activities would be conducted in accordance with applicable Federal, state, and Army regulations. Placement of new facilities on steep slopes would be avoided.

4.6 Land Use

This section describes existing land use regulated by management plans, policies, and regulations determining the type and extent of land use allowable in specific areas, and protection specifically designated for environmentally sensitive areas. Natural land use classifications include wildlife areas, forests, and other open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, utilities, agricultural, and recreational uses. The ROI for land use is Fort Jackson.

4.6.1 Affected Environment

4.6.1.1 Fort Jackson Land Use

Fort Jackson encompasses approximately 51,316 acres of land and is surrounded by a 3,000-foot buffer. The majority of the base is range area, which includes approximately 17,000 acres of range/training areas and 11,000 acres of impact areas. The cantonment area consists of 5,500 acres and includes administrative buildings, troop housing (barracks) and family housing, retail and commercial businesses (e.g., the commissary, bank, and gas station), medical centers, schools, recreation areas, motor pools and other mission support facilities. The remainder of the acreage is managed woodlands.

Fort Jackson has outgrants in the form of easements, leases, licenses, and permits. Examples include easements for utility lines that grant utility service providers access to the line for maintenance, leases for cellular communication towers, and licenses for the use of Army buildings/land by private organizations.

4.6.2 Environmental Consequences

4.6.2.1 Alternative 1- No Action

The No Action Alternative would not impact existing land use within the cantonment area or the surrounding area because there would be no changes.

4.6.2.2 Alternative 2- Adoption of the RPMP

Alternative 2 would not result in any changes to the land use within the cantonment area. Surrounding land use would not interfere with the proposed projects, and execution of this alternative would not conflict with adjacent land use.

4.7 Noise

The Noise Control Act of 1972 (Public Law 92-574) directs Federal agencies to comply with applicable Federal, state, and local noise control regulations. In 1974, the EPA provided information suggesting continuous and long-term noise levels in excess of day-night sound level (DNL) 65 dBA are unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. South Carolina's Environmental Noise Act of 1974 limits noise to a level which will protect the health, general welfare, and property of the people of the state. The Richland County Noise Ordinance (Chapter 18, Section §18-3) maintains that noise levels in excess of 62 A-weighted sound level measurements (dBA) between the hours of 7:00 a.m. and 10:00 p.m. and 55 dBA between the hours of 10:00 p.m. and 7:00 a.m. are unlawful, and that non-residential operation of construction equipment shall not be used between the hours of 10:00 p.m. and 6:00 a.m. (Chapter 26, Section §26-97). The ROI is Fort Jackson and its surrounding areas.

4.7.1 Affected Environment

Fort Jackson has five helicopter landing zones within the cantonment area mainly used for emergency medical evacuation. Aircraft stationed at McEntire Joint National Guard Base conduct low-level training. Pilots comply with National Guard Regulation (NGR-95-1) to maintain minimum altitudes of 500 feet above ground level for unpopulated areas, 1,000 feet above ground level for populated areas, and 800 feet above ground level for the installation (U.S. Army Public Health Command [USAPHC], 2017). A study of noise generators and noise impacts conducted by the USAPHC noted that the primary noise generators were small arms, demolition, and artillery. The *Installation Compatible Use Zone Study* (ICUZ) (USAPHC, 2017) was updated using the noise contours developed by the USAPHC to aid in the process of identifying areas which experience high levels of noise. The study resulted in the mapping of areas that are within the contour lines of Noise Zones II and III:

- Zone III is where the DNL is greater than 75 decibels, dBA. It is considered an area of severe noise exposure and is unacceptable for noise-sensitive activities.
- Zone II is where the sound level is between 65 and 75 dBA DNL. It is considered to have a significant noise exposure and is "normally unacceptable" for noise-sensitive land uses.

When substantial changes occur in the type, frequency, or size of range operations, new noise contour models are prepared and the results are appended to the ICUZ study or a new ICUZ is prepared. While noise complaints are not frequent, the Operational Noise Management Plan (ONMP) provides guidelines for noise management pertaining to Installation functions. The goal of the ONMP is to achieve compatibility between the Army and the surrounding communities so that soldier training will not be interrupted or restricted due to public concern over noise levels produced. The ONMP listed the following conclusions from a 2009 analysis (U.S. Army Center for Health Promotion and Preventive Medicine [USACHPPM], 2009):

- The Noise Zones from small arms training are contained within the Installation boundaries.
- Due to deployments and reorganizations, current large caliber operations are not frequent enough to generate Noise Zone II or Noise Zone III levels.
- Large caliber operations may produce peak noise levels that can generate a moderate or high risk of complaints beyond the Installation boundary.

Fort Jackson has established sound buffer areas adjacent to portions of the perimeter to mitigate any potential for disturbance of noise-sensitive uses located off-Post. These zones, which are approximately 900 meters wide, are located adjacent to Leesburg Road and Highway 601 along the southern and eastern borders of the installation, respectively. MTC, located in the south-eastern portion of the Installation, is also a contributor to noise generation. While MTC is contained within the boundary, its missions, operations, and administration are autonomous and separate from Fort Jackson.

The handling of noise complaints from training activities on Fort Jackson is in accordance with FJ Regulation 350-14*, Post Range and Training Land Regulation* (FJ, 2019c). This regulation requires Range Operations and/or the Directorate of Emergency Services to investigate all noise complaints and report back to the Directorate of Plans, Training, Mobilization, and Security. Fort Jackson also maintains a Noise Complaint Management Program under AR 200-1. This program forwards all noise complaints to the SCARNG so they can take any necessary corrective actions.

4.7.2 Environmental Consequences

4.7.2.1 Alternative 1- No Action

Under Alternative 1, there would be no change in noise resulting from construction or expansion of new facilities, parking lots, or roadways. The No Action Alternative would not have any impact.

4.7.2.2 Alternative 2- Adoption of the RPMP

The potential for limited short-term adverse impacts on noise would occur during construction and demolition projects with the adoption of the RPMP. Once construction or demolition was complete, the noise levels would return to acceptable levels.

4.8 Socioeconomic Resources

This section describes the economy and the sociological environment of the ROI surrounding Fort Jackson, defined as Lexington and Richland counties, South Carolina. Socioeconomic data for South Carolina and the U.S. are presented for comparative purposes.

4.8.1 Affected Environment

4.8.1.1 Regional Economy

Employment and Industry. Labor force and unemployment data are provided in Table 4.2. The region's labor force increased at a rate of 9.5% between 2010 and 2019, higher than the national labor force at 6.1%. The ROI 2019 annual unemployment rate was 2.9%, lower than the state and national unemployment rates of 3.2% and 3.7%, respectively. The primary sources of ROI employment were government and government enterprises; retail trade; health care and social assistance; and other services. Together, those industry sectors accounted for almost 50% of regional employment (U.S. Census Bureau, 2019a).

Fort Jackson is a major contributor to the local, regional, and state economy. As the largest and most active IET Center in the Army, Fort Jackson circulated more than $1.2 billion in the greater Columbia area. More than 3,500 active duty Soldiers and about 12,000 family members are assigned to the installation. Fort Jackson employs almost 5,400 civilians and provides services for more than 60,000 retirees and their family members. An additional 27,000 students annually attend courses at the Soldier Support Institute, Chaplain Center and School, and Drill Sergeant School.

Table 4.2 Labor Force and Unemployment Change (2010-2019)

Location	2010 Civilian Labor Force	2019 Civilian Labor Force	Labor Force Change 2010–2019	2019 Annual Unemployment Rate
Lexington County	133,603	150,098	12.4%	2.4%
Richland County	384,504	418,482	8.8%	2.9%
South Carolina	2,150,576	2,380,658	10.7%	3.2%
United States	153,889,000	163,940,000	6.5%	3.7%

Source: U.S .Bureau of Labor Statistics 2019

Income. ROI income levels were higher than state levels, but lower than national income levels as demonstrated below in Table 4.3. The ROI per capita personal income (PCPI) was $44,180, which is 101% of the state PCPI of $43,702 and 82% of the national PCPI of $53,820. The ROI median household income of $58,483 was 110% of the state median household income of $53,199 and 93% of the national median household income of $62,843 (U.S. Census Bureau, 2019a).

Table 4.3 2019 Income Level Comparison

Location	Per Capita Personal Income (PCPI)	Median Income Per Household
Lexington County	$44,497	$61,173
Richland County	$43,863	$54,767
South Carolina	$43,702	$53,199
United States	$53,820	$62,843

Source: U.S. Census Bureau 2019a

Population. The ROI's 2019 population was 714,509, an increase of 65,352 persons since 2010. The ROI's population growth of 7.75% exceeded the national growth rates of 6%, as provided in Table 4.4.

Table 4.4 Population Change (2010-2019)

Location	2010 Population Estimates	2019 Population Estimates	Population Change (2010–2019)
Lexington County	263,299	298,750	13.5%
Richland County	385,858	415,759	7.75%
South Carolina	4,635,649	5,148,714	11%
United States	309,321,666	328,239,523	6%

Source: U.S. Census Bureau 2019b

4.8.1.2 Housing

Fort Jackson Housing. The Army provides transient lodging for Soldiers and their families on temporary duty and during permanent change of station travel. Currently, there are 866 unaccompanied enlisted personnel housing (UEPH) spaces available for both assigned and visiting personnel. The Post's older UEPH spaces are located in the "rolling pin" barracks situated on Magruder and Sumter Avenues in the western portion of the cantonment.

Funding shortfalls have prevented the proper maintenance, repair, or replacement of facilities. Approximately 80% of the Army's lodging inventory has been found to fall short of acceptable quality

standards. The Privatization of Army Lodging (PAL) program is an initiative to improve facilities and services for transient lodging users. It is founded on the Military Housing Privatization Initiative (MHPI) established in the 1996 Defense Authorization Act. The MHPI authorizes the Army to obtain private capital by leveraging government contributions, making efficient use of limited resources, and using a variety of private-sector approaches to build, renovate, and operate lodging.

Off-Post Housing. The total number of housing units in Richland County was estimated at 173,043, and 59% were owner-occupied. The total number of housing units in Lexington County was estimated at 124,406 and 74.2% were owner-occupied with the remaining 24.8 % renter-occupied; 10.2% were vacant (U.S. Census Bureau, 2019a).

Approximately 43% of the permanent party military personnel live off-Post, with approximately half owning their own home, and the remainder renting either a single-family home, apartment, or mobile home. Most off-Post military personnel live in Richland County, with Columbia and the surrounding area being the primary areas of residency. Fort Jackson's stable military population has resulted in an adequate off-Post housing supply with respect to housing types, prices, and rent levels.

4.8.1.3 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, was issued on February 11, 1994. The EO requires that Federal agencies take into consideration disproportionately high and adverse environmental effects of governmental decisions, policies, projects, and programs on minority and low-income populations.

Minority populations composed 54.1% of the ROI's total population. In comparison, that is higher than the South Carolina and national minority populations of 31.5% and 38.7%, respectively. The ROI poverty rate was 16.9%, which was higher when compared to the South Carolina poverty rate of 15.3%, and the national poverty rate of 11.8% (U.S. Census Bureau, 2019a).

4.8.1.4 Protection of Children

EO 13045, *Protection of Children from Environmental Health and Safety Risks*, issued on April 21, 1997, requires Federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. Children are at Fort Jackson as residents and visitors (e.g., residing in on-Post family housing, using recreational facilities, attending on-Post events). The Army takes precautions for their safety through a number of means, to include using fencing, limiting access to certain areas, and requiring adult supervision.

4.8.2 Environmental Consequences

4.8.2.1 Alternative 1- No Action

Alternative 1 has long-term indirect adverse, socioeconomic impacts associated with soldier housing and other aged facilities. Failure to implement the component projects would result in the continued use of existing deteriorating, maintenance-intensive, and inefficient facilities which are approaching, or past, the end of their useful life. These semi-permanent and temporary facilities are more expensive to maintain, require additional utilities to heat and cool, are not effectively designed to support current missions, are visually unattractive, and fail to meet the appearance guidelines contained in the Installation Design Guide (IDG).

Fort Jackson's population has increased over the past few years, putting a substantial strain on current facility capacities. The lack of infrastructure to support the additional traffic, training, and adequate maintenance building space provide facility and transportation limitations that are considered to be long-term adverse impacts. If the proposed projects are not provided, mission changes would cause severe overcrowding at current facilities.

The No Action Alternative would result in a general degradation of the efficiency and effectiveness of instructional programs and maintenance activities. Insufficient transportation capacity and the poor quality of the housing present morale concerns that could affect the ability to keep enlisted soldiers, thereby affecting the ability to meet the mission. The No Action Alternative would not affect the regional economy, environmental justice, or the protection of children.

4.8.2.2 Alternative 2- Adoption of the RPMP

A short-term beneficial impact on the local economy would result from the projects through hiring of local construction companies. The replacement barracks, housing projects, transportation features, and other facilities would provide long-term beneficial impacts on the socioeconomic resources. The increased capacity would support the growing population and limit overcrowding and traffic issues while the modernization of the units would also serve as a morale incentive to personnel. The proposed projects could assist in retaining enlisted soldiers, thereby improving the ability to meet the overall military mission. The construction of new facilities would also result in long-term beneficial impacts by reducing maintenance requirements and providing more energy-efficient facilities. This alternative considers environmental justice and protection of children, and these would result in no adverse effects.

4.9 Transportation and Traffic

The ROI for transportation is defined as the Installation and its immediate vicinity. An established transportation network brings soldiers for basic training from locations nationwide. While the primary means of transportation is via roadway network, the proximal location to the greater Columbia region provides potential connectivity to a transportation network that adds mass transit and air, rail, port, and freight facilities as well as pedestrian trails and bike paths.

4.9.1 Affected Environment

4.9.1.1 Off-Post Roadways

The greater Columbia regional roadway network serves the community by providing local access to nearby destinations, major commuter routes that connect Fort Jackson to other outlying communities and the Columbia core, and long-distance access to the entire eastern U.S. for both commercial and personal vehicle traffic. This network includes three major interstates that converge in Columbia to form an informal beltway around the city.

Primary access is provided via Forest Drive/Strom Thurmond Boulevard, Jackson Boulevard, and I-77. Jackson Boulevard and Gate 1 connect the southern portion of the cantonment to I-77. Forest Drive/Strom Thurmond Boulevard and Gate 2 provide access to the western and northern portion of the cantonment.

I-77 is used by most personnel, visitors, and incoming/outgoing basic training soldiers for access, as three of the four Access Control Points (ACP) are directly served via I-77. While this proximal location to I-77 provides immediate access to a major interstate, it also causes issues with congestion during peak commuter periods. Interstate 20 (I-20) parallels Fort Jackson’s northern boundary but does not directly

bound the Installation nor directly provide access to any ACP. Interstate 26 (I-26) forms the western side of the beltway around Columbia. The majority of personnel residing off-Post use Gate 2 for daily access. Various secondary roads provide access from the north, south, east, and west.

Due to the urban nature of the greater Columbia region, commuting affects traffic on all roadways, from the major interstates to the local highways and streets. The intersections exhibit heavy queuing and congestion during peak periods in both the morning and afternoon, due to daily trips of personnel and visitors. The influx of visitor traffic on Family Day (Wednesdays) and Graduation (Thursdays) further negatively impacts the roadway network.

4.9.1.2 On-Post Roadways and Gate Traffic

Internal transportation is provided via a network of paved primary, secondary, and tertiary roads, as well as a system of unpaved roads and fire breaks that is used extensively for training operations. Fort Jackson has more than 207 miles of roads, of which 133 miles are paved and 74 miles are unpaved. Paved roads have a bituminous surface and are in good condition. The unpaved roads are in the training and range areas.

Roadways within the cantonment area can be characterized as continuous two- or four-lane roads with 12-foot travel lanes, paved shoulders, and sidewalk. These roadways form a loose grid pattern. Primary east-west roadways include Boyden Arbor Road, Hampton Parkway, Strom Thurmond Boulevard, Semmes Road, and Washington Road. Primary north-south roadways include Jackson Boulevard, Lee Road, and Dixie Road. Several intersections along Strom Thurmond Boulevard, Semmes Road, and Forest Drive are congested during peak travel periods.

Fort Jackson can be accessed by four gates with ACPs per anti-terrorism/force protection (AT/FP) requirements in order to maximize security. They are located within the vicinity of the cantonment area and are the only right-of-entries with permanent and standardized facilities to safely screen vehicular movements. Gate 1 (Jackson Boulevard) and Gate 5 (Semmes Road) may only be used by personnel with a DoD identification card. Gate 2 (Main Gate to Strom Thurmond Boulevard) is the main entrance for unescorted visitors, and the only ACP that has continuous hours of operation. Gate 2 is also the main entrance for visitors on Family/Graduation days. Gate 4 (Boyden Arbor Road) serves some traffic on Family/ Graduation Days and must be used by all commercial and delivery vehicles. During peak commuter periods on normal weekdays, queuing and congestion occur at Gates 1, 2, and 4 causing substantial delays. Inbound traffic waiting to be processed can accumulate onto I-77.

Normal, daily traffic patterns are disrupted by two functions that are vital to the mission: physical training and graduation ceremonies. There are approximately five miles of sidewalk. A portion of the Palmetto Trail (a recreational trail that traverses the state) is located along the southern portion of the Installation with trailheads located at Gate 1 and Gate 5. Bicycle traffic is prevalent, although there are no dedicated bicycle lanes, which can be a safety hazard.

4.9.1.3 Public and Other Transportation

Fort Jackson does not operate any shuttles between the Installation and external destinations, nor does it have an internal, fixed-route shuttle bus to provide work-day transportation. The Logistics Readiness Center runs a shuttle bus for sick-call soldiers that provides service to/from troop areas and the hospital via a loop route throughout the cantonment area.

There are five helicopter landing zones within the cantonment area for emergency medical evacuation or transporting dignitaries, as well as several landing zones within the range area. There are no other active air, rail, port, or associated cargo facilities within the boundary.

The Columbia Metropolitan Airport is 10 miles west and is serviced by several major airlines. There are two military airfields located within 20 miles: McEntire National Guard Joint Air Base in Eastover, SC, 8 miles south; and Shaw Air Force Base in Sumter, SC, 20 miles east.

4.9.2 Environmental Consequences

4.9.2.1 Alternative 1- No Action

The No Action Alternative would not impact existing transportation and traffic within the cantonment area or the surrounding areas.

4.9.2.2 Alternative 2- Adoption of the RPMP

The adoption of the RPMP would have an adverse impact to existing transportation within the cantonment area and possibly the surrounding area during the demolition and construction activities and associated equipment. However, there would be a long-term beneficial impact from the improvements to the roads due to the improvement of vehicular and pedestrian circulation.

4.10 Utilities

This section describes existing utilities, classified as distribution and collection systems including water, wastewater, and energy sources. Communication systems and solid waste disposal are also discussed. The ROI is defined as the utility services located within the Fort Jackson cantonment area, including the associated public utility service providers.

The water and sanitary sewer systems, telecommunication systems, and electric and natural gas systems are privatized Installation-wide, including Residential Communities Initiative (RCI) housing. Water and wastewater systems are privatized through the Palmetto State Utility Service (PSUS) in accordance with a 50-year privatization contract. PSUS prepared a five year capital improvement plan, which recommended many capital improvement projects for both the water and wastewater systems from April 2020 through March 2024 (PSUS, 2020).

There is a risk having the majority of the water supply provided through only one connection. If a disruption occurs at the primary connection point, it is unknown if enough water can be provided through the other connection points.

4.10.1 Affected Environment

4.10.1.1 Potable Water

The primary water source for Fort Jackson is the City of Columbia. The water system connects to the City's water system at six points in the cantonment area and at one point outside of the Installation. In addition, there are 10 wells on post that provide drinking water. Six wells provide water to the ranges, three wells are located by Weston Lake, and one well is located in the Twin Lakes Recreation Area. Under the privatization arrangement, PSUS is responsible for supplying water and operating the potable water system. The City of Columbia performs chlorine-booster treatments and PSUS tests the water weekly. A Contracting Officer's Representative (COR) manages the coordination between the Installation and the supplier.

The water permit currently allows for the production of 6.5 million gallons per day (MGD). The water distribution system includes approximately 623,000 linear feet of pipe ranging from ¾" to 16" in diameter. Water is stored in a two million-gallon elevated storage tank to provide for peak demands and minimize supply fluctuation. The system has been converted from the original dual pressure zone system to a single zone pressure system due to improper connections and lack of planning. A single zone pressure configuration only allows the utilization of two of the six City connection points. Approximately 80-85% of the water enters through one of the connections. Pressure demands in some areas add stress to the system and cause leakage in some of the old piping. Having a majority of the water supply provided through only one connection poses a risk. Should there be a disruption to the primary connection point, it is unknown if enough water can be provided through the other service points.

There are two major pump stations on-Post: Magruder Booster Pump Station (BPS) (Building 3259) and Pickens BPS (Building 8550), which is the main pump station that draws water from the interconnection and feeds the water tank directly. One concern with the Magruder PS is that it has no Supervisory Control and Data Acquisition (SCADA) System. It runs on a timed and pressurized system, which does not allow for immediate notification should a failure occur.

4.10.1.2 Wastewater System

With the exception of the RCI housing area, the sanitary sewer system was privatized in 2008 by PSUS for a period of 50 years. The RCI housing area was added to the PSUS inventory in 2017. A COR manages the coordination between the Installation and the owner.

The sanitary sewer system dates back to 1917 and is comprised of over 350,000 linear feet of pipe with a majority of pipe being 8 inches in size, the largest pipe is 77 inches. There are seven lift stations. The collector system discharges sanitary sewage into Columbia's sanitary sewer system at a metering station and is treated by the City. The metering station is currently not functioning properly. As a result, wastewater discharge is calculated based upon water consumption. A project is in progress to replace the meter which will be located on-Post. A SCADA system may be incorporated into the design of the new meter. The sewer construction associated with the new barracks project will accommodate future growth as well.

4.10.1.3 Solid Waste

Solid waste is primarily municipal solid waste, special waste, and demolition debris. Municipal solid wastes generated on-Post are placed in dumpsters and collected, transported, and disposed of by a private contractor at an off-Post municipal solid waste landfill. There are no active sanitary landfills on the Installation. The DoD has directed continuous reduction in the quantity of non-hazardous solid waste generated, increased diversion of non-hazardous solid waste from disposal facilities, and increased the economic benefit of solid waste recycling. Fort Jackson has an active recycling program regulated by FJ Regulation 200-9. There are several drop-off sites for qualifying materials located throughout the Installation.

4.10.1.4 Stormwater Systems

Fort Jackson operates under a National Pollutant Discharge Elimination System (NPDES) Permit. DPW owns and operates the stormwater drainage system, which functions through a network of pipes (approximately 326,000 linear feet, with the largest pipe being 60" in diameter) and catch basins into a series of drainage swales and natural drainage ways as well as several lakes.

Stormwater drains from high points along the west and east sides of the cantonment area toward the center of the Post, into Semmes Lake and associated creeks, and along the I-77 corridor (western side) that drain directly off-post untreated. A *Storm Utilities Assessment Technical Report* analyzed problem areas including undersized pipes, deficient stormwater structures, lack of basic maintenance, sinkholes, or poor grading for drainage (PBS&J, 2010). These issues can create ponding, erosion, and safety concerns affecting the system's ability to function properly. The report also provides recommendations to rehabilitate problem areas.

Drainage facilities are regulated by DoD Unified Facilities Criteria (UFC 3-210-10, *Low Impact Development*) and by the SMS4 stormwater discharge permit (issued by SCDHEC). DPW is responsible for enforcing stormwater regulations on the Installation. Permits must be obtained through SCDHEC prior to any construction disturbing one or more acres.

4.10.1.5 Energy Sources

Electrical System: The electrical system was privatized in 2019 by Dominion Privatization South Carolina, LLC and provides power for approximately 800 buildings, including the 4 Central Energy Plants (CEPs), which consume the most electricity. The distribution system is approximately 30 years old and includes 64 miles of overhead and underground, primary, and secondary lines. Only 10% of the lines are underground, and there is currently no available funding to convert overhead distribution to underground.

Dominion is currently performing a large-scale project to replace old, out of compliance poles throughout Fort Jackson's distribution grid while simultaneously preparing the Post for a distribution voltage increase to 7.62/13.2 kilovolts (kV). This voltage level increase will require replacing all distribution transformers Post-wide. In addition to the distribution system improvements, Dominion plans to install one new 45 megavolt amperes (MVA) transformer at Moseby Substation and a new 45 MVA transformer at Hill Street substation for the distribution voltage conversion, increasing Fort Jackson's overall capacity to 90 MVA. Dominion will also balance the circuits and phases to provide increased switching reliability to improve Fort Jackson's resiliency.

Heating and Cooling Systems: The heating and cooling plants are located within four CEPs, and provide 70-80% of the heating and cooling. DPW conducts evaluations of the CEPs to determine the capability of the individual CEP systems and any required upgrades necessary to support all current and future construction, including projects designated to be supported by stand-alone systems.

Overall, the heating and cooling infrastructure is aging and needs rehabilitation. The Installation would like to interconnect the CEPs to minimize the number of boilers for energy saving purposes and move away from centralized heating systems for better efficiency. Currently there is no flexibility to backfeed.

Natural Gas: The natural gas system is privatized through Dominion Energy South Carolina (DESC), formerly South Carolina Electric and Gas. DESC supplies natural gas, primarily for heating and hot water generation through a regulator and meter station north of Gate 1. Approximately 567 million cubic feet of natural gas is delivered from DESC, making up approximately half of the overall energy consumption. The natural gas system is nearing maximum capacity. Improvements to the gas system have been limited to repairs only. Additionally, the single natural gas entry point creates a lack of redundancy within the system.

The distribution system consists of approximately 37 miles of underground pipe. There are 108 monitoring locations and most of the main buildings are metered. The major problem existing with the gas system is lack of maintenance. With the new privatization contract, the system will be upgraded and brought into compliance with existing regulations.

Geothermal: Geothermal heating and cooling systems are present in the Palmetto Lodge.

4.10.1.6 Communication System

The Network Enterprise Center is essentially the Army's defense network for its telephone and internet connection services to all buildings, except for the RCI housing area which has an independent system. The Installation Information Infrastructure Modernization Program is being implemented to upgrade switches and cables. Major duct systems will be installed to accommodate future development, a fiber loop was installed around all range areas, and two new communication shelters were constructed. There are still some areas, particularly in the ranges, where overhead lines exist. There are no plans to change all the overhead lines to underground; any new construction requires underground lines.

4.10.2 Environmental Consequences

4.10.2.1 Alternative 1- No Action

Alternative 1 would likely have a long-term negative impact on infrastructure due to a lack of needed repairs and upgrades. Utilities, potable water, wastewater, solid waste, stormwater systems, energy sources, and communications would be unlikely to receive needed upgrades for both efficiency and current standards under the No Action Alternative.

4.10.2.2 Alternative 2- Adoption of the RPMP

The proposed projects would include maintenance and infrastructure improvements. Long-term beneficial impacts to the existing infrastructure would result by providing expanded services to meet the increased needs. PSUS has implemented measures in accordance with its existing policies and applicable rules and regulations to minimize potential impacts including implementing BMPs for infrastructure projects.

Maintenance and improvement of infrastructure have a long-term beneficial impact on the human and natural environment through increased efficiency of operations, increase in green technologies, as well as decreased costs associated with improved systems. Privatization of electrical and heating and cooling systems and communications is on-going and not part of this PEA. This alternative would have no appreciable effect on off-Post roadways, air, rail, or public transportation.

4.10 Visual Resources

The Installation Planning Standards provide a clear set of guidelines to ensure the Installation's vision and planning objectives for development are achieved, even though drastic changes to mission or program occur. These standards were developed to: 1) meet sustainability and energy efficiency requirements; 2) promote visual order and architectural consistency; 3) enhance the natural and man-made environments through consistent architectural themes and standards; and 4) improve the functional aspects of the Installation. At a minimum, these include building standards, street standards, and landscape standards. The ROI is Fort Jackson.

4.10.1 Affected Environment

4.10.1.1 Building Envelope Standards

The building standards shape and detail public space that is safe, comfortable, and functional through placement and envelope controls for each building type. They aim for the minimum level of control necessary to meet the planning goals to include building standards, site-planning standards, and building-related force protection standards. Each Building Envelope Standard (BES) relates to existing environments where appropriate and feasible. Elements defined in each BES are massing, height, placement, allowed parking locations, materials, use, and a general description of the building type. Each BES is coded to the Regulating Plan for each applicable building type.

4.10.1.2 Street Envelope Standards

These illustrate typical configurations for all street types on an installation through Street Envelope Standards (SES). Each SES addresses vehicular traffic-lane widths, curb radii, sidewalk and tree planting area dimensions, and on-street parking configurations. An SES is required for every type of street specified on the installation. After a street is selected, the characteristics desired for that street section are documented in plan and section. The street types are coded to the Regulating Plan developed for each ADP and for the installation.

4.10.1.3 Landscape Standards

Landscape standards show the appropriate type and placement of landscape elements, which may include natural landscape features (trees, ground cover, etc.), man-made landscape features (street furniture, signage, lighting, etc.), and landscape-related force protection standards. They identify the installation's landscape theme(s), addressing design intent, allowable plant materials and site furnishing elements. At a minimum, these standards address street tree placement and type.

4.10.2 Environmental Consequences

4.10.2.1 Alternative 1- No Action

Alternative 1 – The No Action Alternative would result in the further decline of the aesthetic and visual appeal of existing facilities due to ongoing deterioration and lack of upgrades. The new standards for the building, street, and landscaping envelopes would not be met.

4.10.2.2 Alternative 2- Adoption of the RPMP

Minor short-term adverse and long-term beneficial effects to the visual and aesthetic quality would be expected. Short-term minor and localized adverse impacts would result from demolition and construction activities and associated equipment. Long-term beneficial impacts would result from the improvement in the aesthetic appeal of facilities. The proposed projects would result in the construction of new and the renovation/rehabilitation of facilities that would be consistent with the IDG for site planning; architectural character, color, and materials and meeting building envelope standards, vehicular and pedestrian circulation improved by the street standards being implemented; and maintain a positive visual image using the landscape standards.

4.11 Water Resources

Water resources include surface and groundwater resources. Surface waters include lakes, rivers, and streams and are important for a variety of reasons, including economic, ecological, recreational, and human health. Groundwater comprises the subsurface hydrogeological resources of the physical

environment. Stormwater and floodplains are also discussed. The ROI for water resources is Fort Jackson.

4.11.1 Affected Environment

4.11.1.1 Surface Water

Fort Jackson lies within the boundaries of the Congaree River and the Wateree River basins in the City of Columbia. Streams are typical of those found in the Coastal Plain Province. The surface pattern is linear branching and streams occupy relatively broad valleys with gentle regional gradients to the south and southeast. All streams leaving Fort Jackson flow into either the Wateree River or the Congaree River. The confluence of these rivers, approximately 16 miles southeast, forms the Santee River which continues in a south-easterly direction, eventually emptying into the Atlantic Ocean south of Georgetown, SC.

There are five surface water drainage systems. All the streams present on the eastern half of the reservation flow into Colonels Creek, a major tributary of the Wateree River, which flows south-eastward across the installation. The other major surface water drainage system, Gills Creek, flows slightly south-westerly across the north-western quarter of the installation. After leaving the installation, Gills Creek flows south through a series of lakes and is joined by Wildcat Creek prior to reaching the Congaree River. Wildcat Creek drains the major portion of the cantonment area. The southern part of the Installation is drained by the upper reaches of Cedar Creek and Mill Creek.

There are a total of 25 lakes, ponds, and impoundments located on Fort Jackson. Lakes and streams are primarily groundwater fed, since virtually no water drains onto Fort Jackson. These water bodies range in size from 0.5 acres to 173 acres, with most less than 35 acres in size. Together these waterbodies cover approximately 427 acres. Seven of these ponds are adequate for fisheries management (Old Heises Pond, Upper Legion Lake, Big Twin Lake, South Pond, Upper Barstow Pond, Lower Barstow Pond, and Odom Pond), while the remaining lakes and ponds are maintained for waterfowl habitat, recreation, aesthetics, and irrigation water supply for golf courses.

Weston Lake is located north of Leesburg Road and east of the cantonment area, with a surface area of approximately 173 acres. It is the largest lake, accounting for over one-third of the total surface impoundment acreage, and also serves as the primary waterside recreation lake with camping facilities, picnic shelters, community house, and beach pavilion.

Various activities may contribute sediment and other nonpoint source pollutants to nearby water bodies through stormwater runoff. Runoff from training areas may carry sediments, vehicle fluids, and metals (e.g., lead), as well as phosphorus and toxics contained within munitions. Runoff may also contain nonpoint source pollution, such as pesticides, fertilizers, animal waste, oil, and grease. Silvicultural activities may disturb the soil surface and can potentially affect surface water quality. Runoff from areas that have been harvested for timber may contain sediment and large organic debris.

4.11.1.2 Groundwater

Surface water is treated by the City of Columbia prior to its delivery to the Installation. According to SCDHEC, the water quality from the surface water and groundwater is fit for human consumption. Total dissolved solids are generally less than 50 milligrams per liter. Water standards are occasionally exceeded by slight concentrations of iron or manganese. Fort Jackson is not located within a recharge area for a sole-source aquifer.

4.11.1.3 Stormwater

The Stormwater Management and Sediment Reduction Act (Stormwater Act) is administered by SCDHEC, and requires a stormwater management and sediment reduction plan be prepared prior to conducting any land disturbing activities in accordance with the guidance presented, except for those activities described in SC Code Regulations, R.72-302A (1) and (2) *The Fort Jackson Land Disturbance Handbook* (Woolpert, 2017).

As a delegated authority, Fort Jackson complies with the NPDES Program General Permit for Stormwater Discharges from Construction Activities (Construction General Permit) establishes procedures and stormwater design standards for land disturbing activities.

SCDHEC identifies Fort Jackson as a small Municipal Storm Sewer System (MS4) that is required to comply with the NPDES General Permit for Stormwater Discharges from Regulated Small MS4s (SMS4 General Permit). This permit requires procedures that reduce stormwater pollution including defining stormwater design standards, reviewing construction documents for land disturbing activities, and conducting site inspections.

The Stormwater Management Plan serves as a guidance document for compliance with the six minimum control measures of the SMS4 permit. The protocols minimize adverse effects of stormwater due to construction and increased impervious surfaces through the implementation of BMPs. Construction sites must develop Stormwater Pollution Prevention Plans (SWPPP) for sites one acre or greater in disturbance to ensure compliance with guidelines set forth in the NPDES Construction General Permit.

The *Fort Jackson Land Disturbance Handbook* defines the procedures, minimum design standards, and specifications for compliance with the Stormwater Act and the Construction General Permit; assists in complying with the SMS4 General Permit; and assists engineers with developing plans and SWPPPs. Fort Jackson does not lie within an area controlled under a Coastal Zone Management Program.

4.11.1.4 Floodplains

One hundred-year floodplains have been designated along all of the major waterways on Fort Jackson. These include lands along Gills Creek, Mill Creek, Cedar Creek, Wildcat Creek and Colonels Creeks. These areas are shown on the Federal Emergency Management Agency (FEMA) Flood Maps for Richland County (FEMA, 2017). Development activities in regulatory floodplain areas are limited by EOs 11988 and 11990.

4.11.2 Environmental Consequences

4.11.2.1 Alternative 1- No Action

Under Alternative 1, there would be no change in impervious surfaces resulting from construction or expansion of new facilities, parking lots, or roadways. The No Action Alternative would not impact surface water, groundwater, stormwater, or floodplains.

4.11.2.2 Alternative 2- Adoption of the RPMP

The potential for limited long-term adverse impacts on water resources could occur during construction of all projects due to the potential increase in impervious surface area, including parking lots, sidewalks, driveways, and rooftops. Increased impervious surfaces may contribute to increased erosion, stormwater runoff, pollutants, and sediment loads. This could result in increased transport of dissolved solids, sediment, or waterborne pollutants to surface waters or groundwater through infiltration of

porous soils, or from stormwater retention ponds. Reduced groundwater absorption and infiltration of runoff may be experienced which would otherwise recharge groundwater aquifers. The dust and sediment impacts would be minimized by adherence to sediment and erosion control plans. Impacts associated with increased stormwater runoff would be reduced through the implementation of BMPs.

5. Cumulative Impacts

As defined in 40 CFR 1508.7, a cumulative effect is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." The scope of this analysis of cumulative effects includes the impact of the Proposed Action—implementing the RPMP— in combination with other past, present, and future actions occurring within the ROI. This EA considered present and reasonably foreseeable future actions as those that are under construction, are the subject of a plan or proposal, or have identified funding.

5.1 Identified Past, Present, and Reasonably Foreseeable Future Actions

The following past, present, and reasonably foreseeable future actions were considered as part of this cumulative impacts analysis.

5.1.1 Past Actions

No past actions have been identified to cumulatively affect the Proposed Action.

5.1.2 Present and Reasonably Foreseeable Future Actions

The followings action are ongoing or are considered reasonably foreseeable future actions.

Semmes Lake Repair Project

The Semmes Lake Repair Project, currently under construction, involves repairs to the Semmes Lake dam as a result of breaching of the embankment and loss of pool during a large storm event in October 2015. Adverse effects associated with the Semmes Lake repair consist of minor and temporary construction-related impacts. This project is located on Wildcat Creek.

Privatized Army Lodging Hotel and Associated Parking

A hotel and associated parking facilities are currently under construction at Fort Jackson. Construction of the hotel will likely lead to an increase in the amount of impervious surface within the Wildcat Creek watershed. These effects would be mitigated by providing measures to increase storage capacity for stormwater runoff.

BCT 4 Phase Two Project

Construction is ongoing and located between Hampton Parkway and Jenkins Road. Phase Two includes the construction of three Trainee Barracks. The project is located northeast of Semmes Lake and outside the Cedar Creek watershed. The project would result in a minor increase to impervious surface in the Gills Creek watershed that would be offset by stormwater management measures.

Reception Complex Renovations

Numerous buildings in the Reception Complex on Washington Road are being renovated and a Clothing Initial Issue Point (CIIP) facility will be constructed on the same site. The project is in the Wildcat Creek watershed. Impacts associated with this project are expected to be limited to temporary, minor, construction-related impacts.

Weston Lake Dam Repairs

Repairs to Weston Lake Dam and emergency spillway will occur in 2021. The project consists of constructing a short length toe berm over and below the existing embankment with a toe drain collection system. Repairs to the emergency spillway include installation of turf reinforcing mat and vegetation for approximately 600-800 feet of the emergency spillway, construction of a downstream riprap trench, and construction of a diversion berm on the left bank to direct water towards the natural streambed.

Future Road Improvement Projects

Road improvement projects currently under consideration include the widening of Boyden Arbor Road and Golden Arrow Road from two lanes to four lanes, and the construction of a new two-lane or four-lane road that will connect to Boyden Arbor Road and Golden Arrow Road. These projects are located north of Semmes Lake, in the Gills Creek watershed. Boyden Arbor Road crosses Gills Creek, northwest of its intersection with Dixie Road. Road widening and new road construction projects have the potential to adversely affect wetlands and other waters due to the nature and extent of these infrastructure improvements. While impacts to wetlands or other waters is unknown at this time, the projects would be expected to comply with all federal, and state regulations and avoid and minimize resource impacts to the maximum extent practicable. If resource impacts could not be avoided, mitigation would be required to offset loss.

Future Military Equipment Parking (MEP) Area

A new MEP for the 81st Readiness Division's New Equipment Fielding Facility (NEFF) located on a 14-acre track off Ewell Road is currently in the NEPA process. Construction of the proposed facility would require removal of existing forest stands, causing an increase of impervious surface in the Wildcat Creek watershed. Compliance with local stormwater management requirements, including 6 acres of stormwater features, is expected to offset any increase in stormwater runoff.

5.2 Cumulative Impacts to Resource Areas

5.2.1 Air Quality

The preferred alternative (Alternative 2), when combined with past, present, and reasonably foreseeable future actions within the ROI would not result in significant cumulative effects to air quality. The primary sources of air emissions would include construction, demolition, or renovation; operating emission-producing equipment; and vehicle traffic. There would only be short-term, adverse impacts on air quality as a result of these air emissions. Therefore, cumulative impacts from the combination of past, present, and future activities and the Proposed Action would be less than significant.

5.2.2 Biological Resources

Construction activities associated with the RPMP would have short-term impacts on biological resources, but would not cause substantial degradation of biological resources, such as vegetation communities, wetlands, fish and wildlife, and/or federally listed endangered or threatened species. Overall, the cumulative impacts on biological resources associated with the RPMP will be less than significant, because habitat would not be permanently converted or experience a net loss, and a species' population would not be lost or impaired.

5.2.3 Cultural Resources

Any present or reasonably foreseeable future projects, combined with Alternatives 1 and 2, would have less than significant cumulative impacts on cultural resources due to management of the resources under the PA and the ICRMP. In addition, construction activities associated with the RPMP would be in the cantonment area where there is low potential for archaeological resources due to previous ground disturbance, and no NRHP-eligible historic structures will be demolished.

5.2.4 Environmental Restoration and Compliance

Alternatives 1 and 2, when combined with past, present, and reasonably foreseeable future actions within the ROI would not result in significant cumulative effects. Cumulative effects would occur from the cumulative risk of inadvertent or unintentional spills or releases of hazardous substances or waste. That risk would be managed through compliance with applicable Federal, state, local, and Army regulations that guide the safe use, handling, storage, and disposal of regulated substances. The IRP, LUCs, PCBs, POL, munitions, pest management are current on-going activities. The proposed action has the potential to find new contamination resulting in a new SWMU, AOC, or MMRP site.

5.2.5 Geology and Soils

Cumulative impacts on soils and geology under both Alternative 1 and Alternative 2 would be less than significant. Construction activities associated with the RPMP and the construction of new projects would result in short-term impacts on soils but would not result in substantial degradation of soils, soil fertility, soil productivity, or geologic resources. All activities would be conducted in accordance with applicable Federal, state, and Army regulations.

5.2.6 Land Use

Long-term beneficial cumulative impacts on land use would be expected under Alternative 2. The RPMP will concentrate growth in the cantonment area to preserve valuable range and training lands. The planning process for on-post land use would account for previous development and would take into account future land uses to avoid conflicts or incompatibilities with existing/future land uses to the maximum extent practicable.

5.2.7 Noise

Any present or reasonably foreseeable future projects, combined with Alternatives 1 and 2, would have less than significant cumulative noise impacts. Short-term, adverse, temporary noise impacts would occur during construction, demolition, and renovation projects. These projects would generally occur at different times and be spaced out across the ROI, so that noise would not combine to produce significant impacts. It is not expected that these actions would result in noise levels that exceed the compatibility standards for noise zones or would produce occupational noise levels that exceed 75 dB for an 8-hour day.

5.2.8 Socioeconomic Resources

Beneficial cumulative economic effects would be expected over time from jobs created, income earned, and business sales in the ROI associated with on-post planning and development activities under Alternatives 1 and 2 and present and reasonably foreseeable future projects. Alternatives 1 and 2 would have no disproportionate impacts on low-income or minority populations, and would not contribute and cumulative effects on environmental justice. On-post projects would implement reasonable measures to avoid disproportionate risks to the safety and health of children. Therefore, cumulative impacts from

the combination of present and future activities, along with the impacts from Alternatives 1 and 2, would result in less than significant impacts to other socioeconomic resources.

5.2.9 Transportation and Traffic

Cumulative impacts on transportation and traffic occurring under Alternative 2 would be long-term and beneficial because street envelope standards would be applied to all new streets in the ADPs. These standards set the width of the streets to include parking, sidewalks, and landscaping requirements.

5.2.10 Utilities

Cumulative impacts on infrastructure under both Alternative 1 and Alternative 2 would be less than significant. Long-term beneficial impacts to the existing utilities would result by PSUS existing policies and applicable rules and regulations to minimize potential impacts on the environment. These include implementing stormwater management BMPs, applying for and obtaining a Fort Jackson dig permit, and any permits as required by law. There would be no changes to potable water, energy sources, or communications, therefore no impacts.

5.2.11 Visual Resources

The preferred alternative (Alternative 2), when combined with past, present, and reasonably foreseeable future actions within Fort Jackson would not result in significant cumulative effects to visual resources. Cumulative impacts on visual resources occurring under Alternative 2 would be long-term and beneficial because implementation of the RPMP would provide more integrated visual resources and aesthetics using a consistent approach throughout the installation.

5.2.12 Water Resources

Past, present, and reasonably foreseeable future on-post projects, combined with Alternatives 1 and 2, would have short- and long-term, less than significant impact on water resources. Impacts would include increases in stormwater runoff, increases in the demand for water, degradation of water quality, and lower rates of groundwater recharge. Over the long-term, the cumulative impacts on water resources associated with the RPMP would be less than significant, because surface and groundwater resources are protected by existing Federal, state, and Army regulations, and development would avoid floodplains and other hydrological sensitive areas to the extent practicable.

6. Conclusions and Recommendations

This PEA has been prepared to evaluate the potential effects on the natural and human environment associated with the implementation of the 2020 RPMP and related ongoing mission activities. This Section describes conclusions regarding the impact associated with Alternative 1 (No Action) and Alternative 2 (Adoption of the RPMP).

6.1 Alternative 1- No Action

Under Alternative 1, the 2012 RPMP would continue to guide land use and development; no new construction projects would occur, and ongoing mission activities would continue to occur at current baseline levels. Failure to implement the MP would result in the continued use of existing deteriorating, maintenance-intensive, and inefficient facilities that are approaching, or past, the end of their useful life. The continued use of deteriorated facilities and other operating limitations associated with Alternative 1 would have an adverse impact on the ability to meet current and projected mission requirements.

Alternative 1 would result in the continuation of mission activities at current baseline levels, which would result in adverse impacts for those facilities and activities that have been identified as being deficient if the Installation does not proceed with the implementation of the 2020 RPMP programs and projects.

Based on the analysis included in this PEA, it is apparent that if the RPMP proposed projects are not updated, the ability to meet current and future mission assignments will be severely compromised. These adverse impacts will occur, since required training, administrative, housing, utility and transportation infrastructure, and other support facilities would not be developed in response to critical current and projected needs that are identified throughout the master planning process.

Alternative 1 would greatly reduce the ability to improve the efficiency and safety of current and future operations and limit ongoing mission activities to current levels. Ongoing mission activities would not be expanded to support the future physical development and program activity recommendations presented in the RPMP in response to mission requirements. Therefore, Alternative 1 does not meet the defined purpose and need.

6.2 Alternative 2- Adoption of the RPMP

Under Alternative 2, several construction projects would be implemented over an extended period of time. This construction program would result in some minimal short- and long-term adverse impacts to the physical, water, and biological resources. Since these impacts are within the range of those normally expected with construction activities, no critical or unique sensitive resources would be impacted, and no significant adverse impacts would be expected to occur. The completion of these projects would have a substantial overall beneficial effect on the ability to meet current and future mission requirements. In addition, completion of these projects would provide a benefit to the local and regional economy.

Ongoing mission activities would continue to occur at their current level and would be expanded to meet the needs of all future RPMP elements and activities. Alternative 2, as it relates to ongoing mission activities, would result in both beneficial and adverse impacts.

Adverse impacts are generally associated with training, utility systems, maintenance of utility right of way and other cleared areas, or the construction of additional buildings and infrastructure as required to meet mission requirements and comply with current regulations, laws and standards. However, none of these impacts are expected to reach significant levels and these adverse impacts are offset by numerous beneficial impacts. Alternative 2 meets the defined purpose and need.

6.3 Conclusions

It is therefore concluded that Alternative 2 is the preferred action to be implemented and is also the environmentally preferred action. If, after public review, significant environmental impacts are not demonstrated or agreed upon, a FONSI is recommended.

Properly applied management directives and guidelines, compliance with applicable laws and regulations, proactive development and implementation of resource management plans, and ongoing development and operating permit requirements will collectively serve to prevent significant adverse effects on regional resources. Most of the proposed projects, current site plans, and future contributing plan actions are conceptual and subject to change. Therefore, this PEA cannot be used as a blanket document to cover all actions now and in the future. Accordingly, this PEA will assist in evaluating the environmental effects of future projects and actions that are not specifically addressed by this document.

Alternative 2 is the continued operation of the Installation in a manner that allows for addressing the current missions and some flexibility for improvements that increase efficiency and Fort Jackson's ability to meet the missions. This action and the associated effects on the quality of the human environment are not likely to be highly controversial. The decades of safe operation have shown that the possible effects on the human environment are relatively predictable and do not involve unique or unknown risks.

The actions do not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration. This action is not related to other actions with individually insignificant but cumulatively significant impacts.

The principal conclusions of this PEA include:

(1) Implementation of Alternative 2 would not result in significant environmental impacts, provided that BMPs to mitigate these potential environmental impacts are adhered to during construction and operation of the proposed projects;

(2) Implementation of Alternative 2 will provide infrastructural improvements, which will allow the Army to achieve their respective mission requirements;

(3) Construction and operation of proposed projects will provide necessary facilities to satisfy BCT and AIT training requirements;

(4) Implementation of Alternative 2 is consistent with the land use planning objectives;

(5) Implementation of Alternative 1 is not consistent with land use planning objectives; and

(6) Implementation of Alternative 1 would eliminate the negligible to minor environmental impacts associated with Alternative 2 but would also eliminate the beneficial impacts.

6.4 Mitigation Actions

Given the broad, programmatic nature of this PEA, project-specific mitigation measures have not been included. ENV staff will use this document as a starting point in identifying specific resource impacts as projects become more defined and document any mitigation actions that are required. The Army's preferred approach is to avoid significant impacts by stopping or modifying any proposed project that would be expected to have such impacts, thereby eliminating the need for any other forms of mitigation.

Based on the information evaluated during the preparation of this PEA, there are several BMPs and mitigation measures that should continue to be implemented or completed by the Installation. Actions that should be completed and considered in future environmental evaluations are detailed in Table 6-1. No project would proceed until all significant impacts are mitigated to non-significant levels through: 1) continued adherence to the review procedures established under the Fort Jackson REC process; 2) compliance with all applicable laws and regulations; and 3) a thorough ongoing coordination with the appropriate resource review agencies.

Table 6.1 Summary of BMPs and Mitigation Measures

Resource Area	BMPs/Mitigation Measures
Air Quality	• Consider low-emission options for all emissions-producing equipment (e.g., HVAC systems, generators, transformers, and refrigeration units). • To suppress dust during ground-disturbing activities, cover or apply water or soil stabilizers to soil. Limit or halt soil-disturbing activities during high-wind conditions when work is in soil classified as highly erodible. • Cover soil stockpiles and trucks transporting soil or other materials that could cause airborne dust. • Use electricity from established power sources rather than generators whenever possible. • Minimize vehicle and equipment idling times.
Biological Resources	• Compliance with applicable laws and regulations; permits; Army and installation programs, policies; and the INRMP. • Conduct informal or formal consultations with USFWS if any development or activities are planned in areas that support any federally listed threatened and endangered species or their habitat. • Avoid vegetation removal during the migratory bird breeding season. If vegetation must be removed, a Wildlife Biologist will inspect for nests before removal. • Promptly revegetate disturbed areas with native plant species from the Garrison's approved plant list. • For construction projects, implement an approved SWPPP and/or appropriate erosion and sedimentation control BMPs, such as silt fences, diversion ditches, limiting total area of disturbance, and sedimentation ponds. • Conduct surveys to confirm or delineate jurisdictional wetlands if development or activities are planned in areas identified to contain wetlands, and coordinate with appropriate agencies to ensure that no significant impacts would occur or that appropriate mitigation is provided.
Cultural Resources	• Compliance with applicable laws and regulations; permits; Army and installation programs, policies; the ICRMP, and the Programmatic Agreement with SC SHPO.

Resource Area	Best Management Practices/Mitigation Measures
Environmental Restoration & Compliance	• Compliance with applicable laws and regulations (including RCRA and CERCLA); permits; and Army and installation programs, policies, and plans, including the Fort Jackson Hazardous Substances Management Plan, Spill Prevention, Control, and Countermeasures Plan.
Infrastructure	• Compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.
Geology and Soils	• Compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans. • Minimize soil erosion that could result in sedimentation of surface water during ground-disturbing activities by implementing appropriate control measures, such as silt fences, inlet protection, and diversion ditches. Prepare a SWPPP when required for ground disturbing activities. • After finishing ground-disturbing activities, promptly establish permanent ground cover using native species from the Garrison's approved plant list, mulch, and/or other appropriate cover materials (e.g., rock, gravel).
Land Use	• Compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.
Noise	• Compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans. • In densely developed, mixed-use areas, incorporate appropriate levels of sound-dampening construction materials into the design of buildings where a quiet interior is important, such as homes, lodging, schools, childcare centers, offices, and classrooms. • For all construction activities, implement the industry standard practice of operation construction equipment in accordance with the manufacturer's specifications and with standard mufflers and other noise-reducing equipment in proper operating condition. • For construction activities within 800 feet of on- or off-post noise-sensitive receptors, use equipment mufflers and/or other sound-dampening devices, as appropriate. Shut down noise-generating equipment when not in use. If complaints about noise are received, increase sound-reducing measures appropriately. • Position HVAC systems, generators, and other noise-producing equipment away from areas where quiet is important, and shield it with walls or other enclosures, as appropriate, to reduce sound transmission.
Socioeconomic Resources	• Fence construction sites and post appropriate signage to deter unauthorized people, including children, from accessing them.
Transportation Systems	• Route and schedule construction vehicles to minimize conflicts with other traffic to the maximum extent practical. Submit a traffic plan to the Garrison Commander's Office for approval before beginning any road projects.
Visual Resources	• Compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.
Water Resources	• Compliance with applicable laws and regulations; permits; and Army and installation programs, policies, and plans.

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7. References

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