

ENVIRONMENTAL ASSESSMENT

1st Special Forces Group
Complex Master Plan Implementation at
Joint Base Lewis-McChord, Washington



Recommended for Approval by:

Michael R. Sierakowski
Lieutenaent Colonel, US Army
1st Special Forces Group (Airborne)

Date

Approved by:

Thomas H. Brittain
Colonel, US Army
Commanding

Date

This page was intentionally left blank

Table of Contents

INTRODUCTION..... 1

 Project Location 1

 Purpose and Need 1

 Scope of Environmental Review..... 2

 Interagency Coordination and Public Involvement..... 3

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES 3

 Proposed Action..... 3

 Goals and Objectives for the Proposed Action 3

 Major Installation Constraints..... 4

 Description of the Alternatives 4

 Alternative 1- Battalion Operations West (Preferred Alternative)..... 4

 Alternative 2- Battalion Operations East 7

 Alternative 3- No Action Alternative..... 8

 Alternatives Eliminated from Further Consideration..... 8

 Components Common to all Action Alternatives 8

 Roadway and Bridge Analysis..... 8

 Decision to be Made and Identification of the Preferred Alternative 9

AFFECTED ENVIRONMENT 10

 Resource Areas Excluded From Detailed Analysis 10

 Land Use 11

 Topography and Soils 11

 Air Quality 12

 Water Resources 12

 Surface Water - Murray Creek..... 12

 Groundwater 13

 Stormwater..... 13

 Wetlands 13

 Biological Resources 14

 Habitat and Vegetation..... 14

 Fish and Wildlife..... 14

 Special Status Species..... 15

 Cultural Resources 15

 Waste Management and Hazardous Materials..... 15

 Traffic and Transportation 16

Noise	16
ENVIRONMENTAL CONSEQUENCES	16
Land Use	17
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	17
Alternative 2- Battalion Operations East Alternative	18
Alternative 3- No Action Alternative.....	18
Topography and Soils	18
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	18
Alternative 2- Battalion Operations East Alternative	18
Alternative 3- No Action Alternative.....	18
Air Quality	19
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	19
Alternative 2- Battalion Operations East Alternative	19
Alternative 3- No Action Alternative.....	19
Water Resources	19
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	19
Alternative 2- Battalion Operations East Alternative	21
Alternative 3- No Action Alternative.....	21
Biological Resources	21
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	21
Alternative 2- Battalion Operations East Alternative	22
Alternative 3- No Action Alternative.....	22
Cultural Resources	23
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	23
Alternative 2- Battalion Operations East Alternative	23
Alternative 3- No Action Alternative.....	23
Waste Management and Hazardous Materials	23
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	23
Alternative 2- Battalion Operations East Alternative	23
Alternative 3- No Action Alternative.....	23
Traffic and Transportation	24
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	24
Alternative 2- Battalion Operations East Alternative	25
Alternative 3- No Action Alternative.....	25
Noise	25
Alternative 1- Battalion Operations West Alternative (Preferred Action).....	25

Alternative 2- Battalion Operations East Alternative	25
Alternative 3- No Action Alternative.....	25
CUMULATIVE IMPACTS	32
OTHER CONSIDERATIONS REQUIRED BY NEPA.....	32
LIST OF PREPARERS.....	33
APPENDIX A: INTERAGENCY AND PUBLIC REVIEW AND CORRESPONDENCE.....	34
APPENDIX B: 1ST SPECIAL FORCES GROUP MASTER PLAN	36
REFERENCES.....	37

List of Tables

Table 1: Proposed projects for 1 st SFG 2012-2019.....	6
Table 2: Environmental Issues Eliminated From Analysis.....	10

List of Figures

Figure 1: Proposed Action Area.....	2
Figure 2: Alternative 1, Battalion Operations West.....	5
Figure 3: Alternative 2, Battalion Operation East.....	7
Figure 4: Environmental Restoration and CERCLA Sites within the Project Area.....	12

Acronyms and Abbreviations

ADP	Area Development Plan
AR	Army Regulation
BMP	Best Management Practice
BN	Battalion
BOF	Battalion Operations Facility
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COF	Company Operations Facility
CRTF/THOR3	Combat Readiness Training Facility/Physical Training Fitness Training Facility
CWA	Clean Water Act
DA	Department Army
DFAC	Dining Facility
DoD	Department of Defense
DPW	Directorate of Public Works (JBLM)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significance Impact
ft	Foot
FSC/GSB	Forward Support Company/Group Special Battalion
FY	Fiscal Year
GIS	Geographic Information System
GFSR	Growth and Force Structure Realignment
GTA	Grow the Army
HQ	Headquarters
JBLM	Joint Base Lewis McChord
LBP	Lead Based Paint
LEED	Leadership in Energy and Environmental Design
MAMC	Madigan Army Medical Center
MILCON	Military Construction
NAAQS	National Ambient Air Quality

	Standards
NEPA	National Environmental Policy Act
POV	Privately Owned Vehicles
REC	Record of Environmental Consideration
ROD	Record of Decision
ROI	Region of Influence
RPMP	Real Property Management Plan
SFG	Special Forces Group
SHPO	Washington State Historical Preservation Officer
SOF	Special Operations Forces
SRTA	South Rainier Training Area
TEMF	Tactical Equipment Maintenance Facility
TCE	Trichloroethylene
USACE	United States Army Corp of Engineers
USASOC	United States Army Special Operations Command
USC	United States Code
USFWS	United States Fish and Wildlife Service
WDOE	Washington Department of Ecology
WDFW	Washington Department of Fish and Wildlife

INTRODUCTION

The 1st Special Forces Group (SFG), along with Joint Base Lewis-McChord (JBLM) has been experiencing dramatic growth. Current facilities within the 1st SFG are home to three battalions of Special Operations Forces (SOF) and include space for training and operations support, vehicles and equipment, administrative functions, barracks, and dining facilities. With the exception of recently completed projects, facilities are outdated and do not meet safety requirements. In addition to not meeting the necessities of the current Soldiers, the 1st SFG is anticipating the addition of a fourth battalion (approximately 600-800 Soldiers) and facilities within the SFG compound must be able to accommodate this anticipated growth.

Although contained within the same installation, the 1st SFG is a distinct and separate facility within JBLM, largely run under a separate command hierarchy (United States Army Special Operations Command [USASOC]). The USASOC has identified 21 new projects that the 1st SFG anticipates to receive funding for between fiscal years 2012 and 2019, with an additional 10 projects lined up through 2030. Because of the 1st SFG's distinction within JBLM and their need to address foreseeable development and growth within their current complex boundaries, the SFG proposed the development of a master planning document. The master plan would assist the 1st SFG with the identification of long-range land uses, with formulation of mission-essential construction requirements and related asset facilities, and provide recommendation priorities for capital improvements. Because the 1st SFG does not have the luxury of expanding beyond their fence line, extra planning is required to facilitate renovations and projected growth.

Project Location

The Special Forces Complex is comprised of two sections, the East and West Compounds, and lies within JBLM just south and east of Madigan Army Medical Center (MAMC) (see Figure 1). The total area of both the East and West compounds is approximately 150 acres. The West Compound is bordered by Transmission Line Road to the west, Murray Creek to the east and south, and Jackson Avenue to the north. The East Compound is bordered by Wilson Avenue and Murray Creek to the west, McKinley Avenue to the east, the Tank Trail to the north, and Hayes Street to the south.

Purpose and Need

The purpose of the Proposed Action is to employ a master plan that will guide the implementation and development within the already constrained 1st SFG Complex. The USASOC has identified 21 new projects that the 1st SFG anticipates to construct between FY 2012 and FY 2019. The proposed master plan will show how best to integrate and phase new construction, improve the security perimeter, and enhance functional relationships between buildings while meeting sustainable design mandates and reserving space for future growth.

The need of the Proposed Action is to meet current and future mission requirements. With the exception of recently completed projects, the 1st SFG facilities are outdated and many of them do not meet life/safety building requirements. In addition, a fourth battalion is being added to the existing 1st SFG, increasing their overall population and facilities are needed to address this increasing demand.



(1st Special Forces Master Plan, September 2011)

Figure 1: Proposed Action Area

Scope of Environmental Review

The scope of this document is to analyze the potential environmental effects of implementing the proposed 1st Special Forces Group Master Plan. This plan takes a look at the currently proposed construction and operational changes of the 1st SFG Complex through FY 2019 and any future modification or projects proposed through FY 2030 will follow the guidelines set forth in this plan. If the Master Plan is adopted, supplemental NEPA analysis will be completed on the different phases or specific facilities when sufficient design details and funding are available.

Interagency Coordination and Public Involvement

NEPA ensures that environmental information is made available to the public during the decision making process and prior to actions being taken. The premise of NEPA is that the quality of federal decisions will be enhanced if proponents provide information on their actions to state and local governments and the public and involve them in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require agencies to cooperate with and consider state and local views in implementing a federal proposal.

A draft of this EA will be distributed to relevant government agencies, including treaty tribes in the region of influence (ROI), and made available for public review as part of the development process. The distribution list and correspondence can be found in Appendix A.

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action

The Proposed Action would implement a long-term planning document to guide and carry out the goals and objectives of the 1st SFG. The document detailed in the 1st Special Forces Group Master Plan, September 2011 (Appendix B) will be used to provide recommendations to address projected growth and development that considers the military needs of the 1st SFG, as well as long-term sustainability of the community. The proposed planning document will also ensure compliance with all applicable federal, state, local, DoD, DA, and JBLM laws and regulations.

Goals and Objectives for the Proposed Action

In order to be successful, the site plan must:

- Take a long-term perspective. The site plan must be flexible, adaptable, and malleable without reworking roadways and utilities, and buildings must be planned to accommodate future uses.
- Provide room to grow. Site planning must promote compact development and reserves sites for future, as yet undefined needs.
- Be clear and “actionable”. The site plan aligns with standards and has buy-in from the installation and a phasing strategy for buildings and utilities that work.
- Represent a win-win strategy. The plan must support the needs of JBLM and the 1st SFG.

In addition, the proposed action must meet the specific needs of the SFG including:

- Provide a low-impact link across the wetland to and from the West and East compounds, satisfying the desire of the 1st SFG to be self-contained and self-sufficient;
- Minimize disruption by using existing major circulation;
- Respect the value of the Murray Creek wetland area;
- Create flexibility and identify opportunities for future growth;
- Align with planning, site, and building standards;
- Utilize sites that become available when buildings are demolished for development to limit impacts to existing trees; and
- Highlight Cramer Avenue as the primary spine through the West Compound.

Major Installation Constraints

Murray Creek is a planning, as well as an environmental, constraint for development of the Proposed Action. The flow of Murray Creek between the West and East compounds is a planning constraint as it disrupts continuity between the two areas. The SFG would like to be self-contained and have the ability to travel between the compounds in the event of a security lockdown. Murray Creek and adjacent wetlands also create an environmental constraint as they provide habitat and serve important ecological functions.

Description of the Alternatives

Reasonable alternatives for the Proposed Action are constrained by environmental laws and regulations, DoD and Army policies, the nature and extent of existing natural resources, and the specific purpose and needs of the 1st SFG. As a result of input from the 1st SFG, JBLM Directorate of Public Works (DPW), USACE, and other stakeholders, the project team developed seven alternatives for the West Compound and two alternatives for the East Compound (see Appendix B of the 1st SFG Master Plan for a description and plan designs for these alternatives).

After review of this initial set of alternatives, a refined set of alternatives were developed that addressed the vision, goals, and objectives of the Fort Lewis¹ Real Property Master Plan (RPMP), but that also addressed environmental concerns and the project's purpose and need. In addition to these alternatives, major projects such as the proposed bridge construction and the Madigan Bypass have several alternatives considered that vary the scope and the location of these projects (see page 42-48 of the 1st SFG Master Plan). In some cases, decisions from one project have implications to, or are dependent upon, other planned projects. In order to ensure the validity of the NEPA review for the Master Plan, all options were considered by looking at the footprint of the project, rather than the specific design details. Specific design details of proposed facilities or project revisions will be evaluated as they occur and will be reviewed to determine whether the actions are sufficiently covered in this NEPA analysis or whether further documentation is needed for the action.

Alternative 1- Battalion Operations West (Preferred Alternative)

Alternative 1 includes the adoption of the Master Plan with a preliminary list of projects and proposed locations which are listed in Table 1. Under this alternative, the future Battalion Operations (BnOps) complex is located on the West Compound, and the SOF Logistics Facility and the SOF Deployment Warehouse are sited on the East Compound (Figure 2). The site is constrained by the proximity of wetlands on its western edge. The size of hardstand serving the proposed Logistics Facility and the Deployment Warehouse may be restricted. After the adoption of the plan, these sites will continued to be carefully evaluated and closer to the time the two facilities come on-line for construction, more detailed analysis will be completed. Building sizes and configurations will be confirmed; setbacks and security fencing, impacts on open space and wetlands, required maneuvering of vehicles, and parking needs along with other issues will be considered. Some of the locations may change if the Madigan Barracks site does not become available for new development.

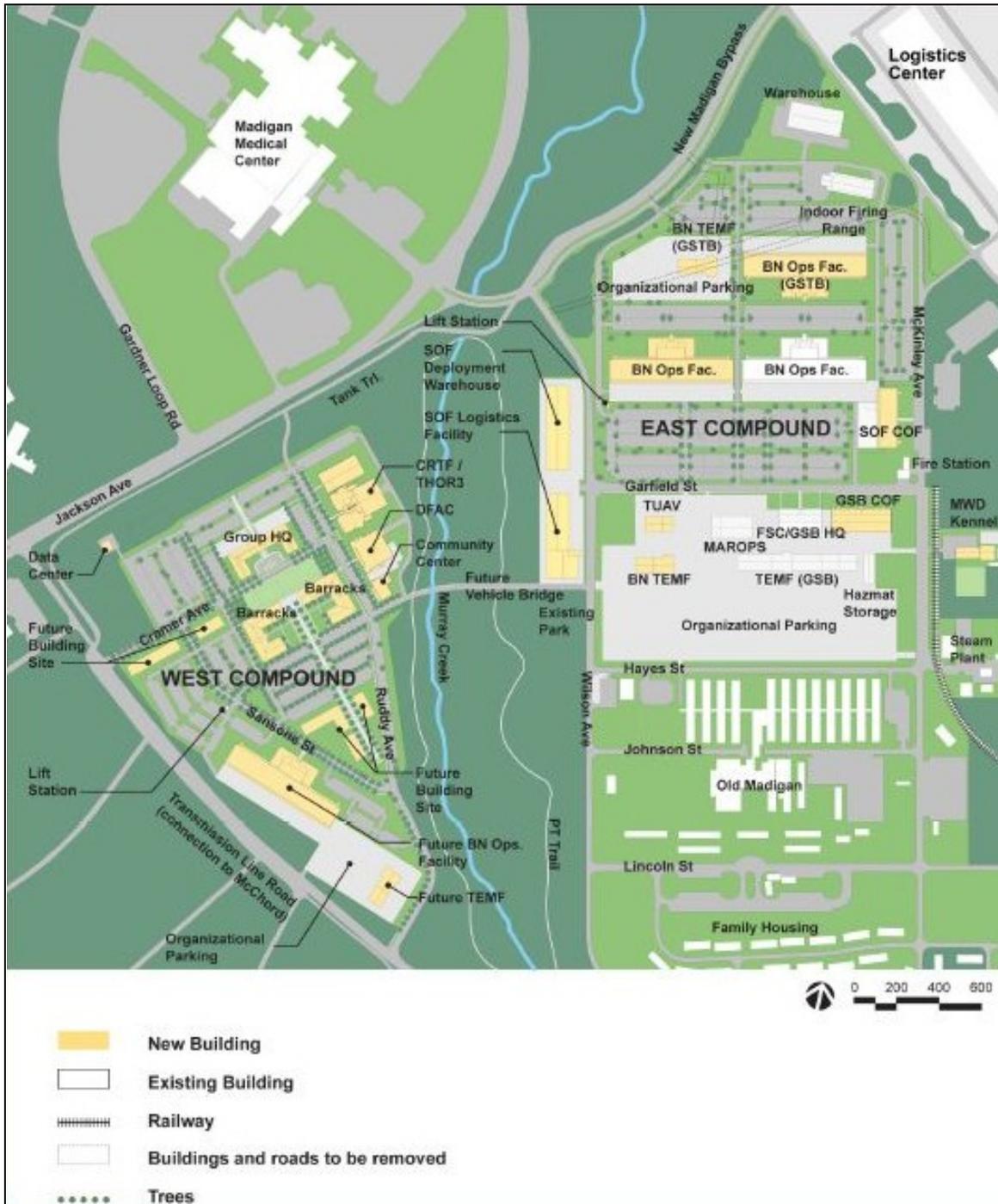
West Compound

The existing buildings on the West Compound will largely be replaced with new facilities. The Compound will include a campus open space faced by the Group HQ, CRTF/THOR3, and DFAC. The open space is intended to be used for close-in training, recreation, and ceremonies.

¹ This document contains references to "Fort Lewis" which are legacy references and will not change over time. Others are temporary and will change to Joint Base Lewis-McChord as revisions and updates occur to those references.

East Compound

With this alternative, the 1st SFG proposes to relocate the Madigan Bypass south of the existing Tank Trail to provide access from Wilson and the Jackson Avenue entrance to the north. Relocation of the Bypass will facilitate joining the northern and southern sectors of the East Compound and improve security. Relocation of the road would open a site for two major buildings north of the existing Bypass, which is being proposed for development of the BOF and TEMF. The development of bridge across Murray Creek is also included as part of this plan.



(1st Special Forces Master Plan, September 2011)

Figure 2: Alternative 1, Battalion Operations West

Proposed Projects

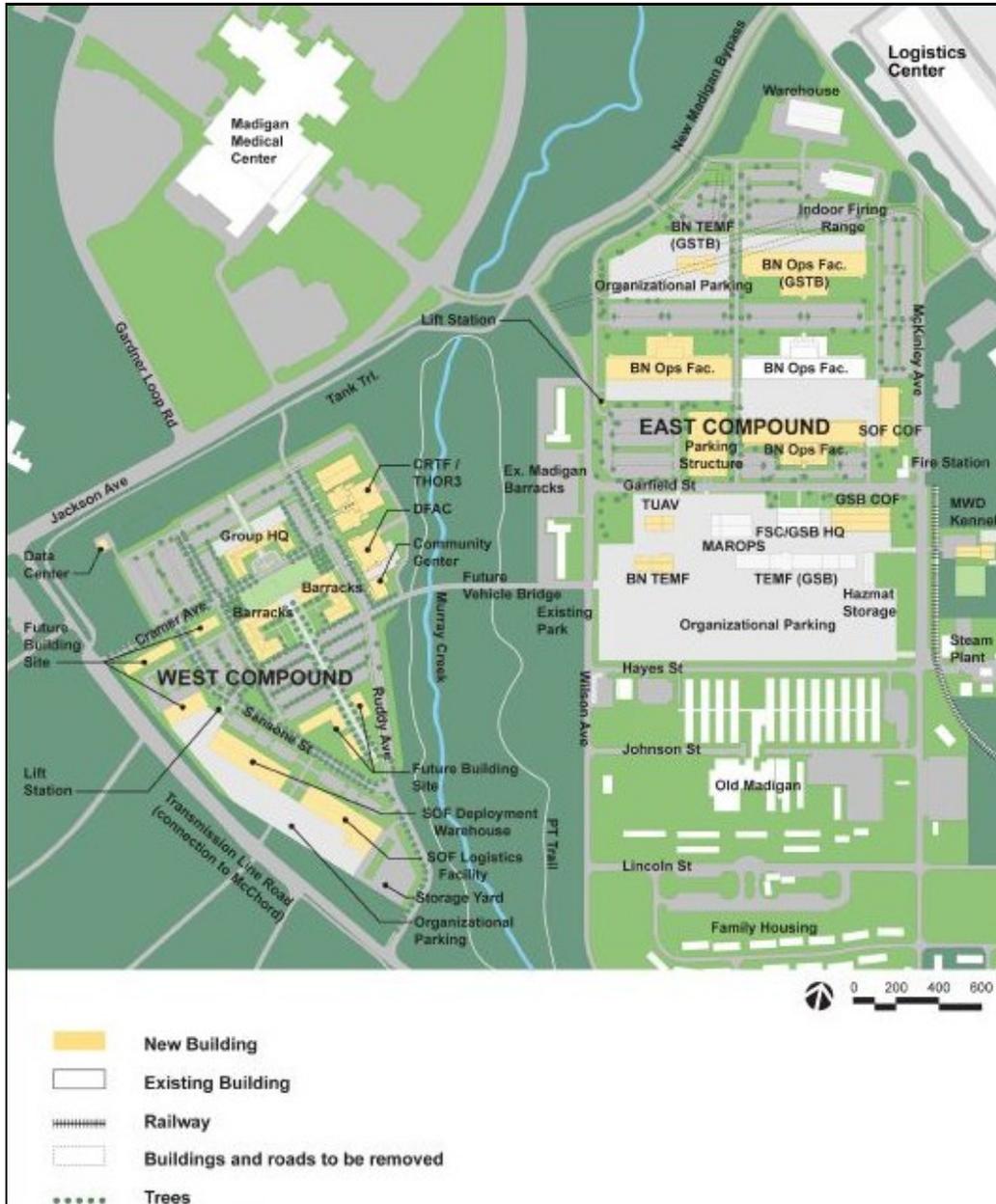
The following proposed projects have been proposed and designed to meet the goals and objectives listed for the 1st SFG.

Table 1: Proposed projects for 1st SFG 2012-2019

Project Title	Description	Phase
BN Ops Facility	New 120,000-SF facility will house 522 personnel. Project includes a 100 ft wide apron of hardstand and 470 parking spaces. 181 additional spaces are proposed to offset the East Compound parking deficit.	1
SOF COF	New 48,000-SF support facility for battalions housed on the East Compound. Project includes a 100 ft wide apron of hardstand and 24 new parking spaces off McKinley.	1
BN TEMF	New 12,500-SF facility is a support for battalions housed on the East Compound. Project includes a 100 ft wide apron of hardstand along west side of building and no new parking.	1
Military Working Dog Kennel (MWD Kennel)	New 9,300-SF facility to replace the current kennel on East Compound. Includes admin space, indoor/outdoor kennel area, outdoor storage, obedience course, and 18 parking stalls.	1
Data Center	New 1,600-SF communication facility will provide connectivity for all SOF facilities with Group HQ building.	1
Madigan Bypass	New roadway will replace the bypass that bisects the northern portion of the East Compound.	1
Tactical Unmanned Aerial Vehicle (TUAV)	New 9,200-SF support facility. No new parking will be provided.	1
Rigging Facility upgrades	Existing rigging tower will be upgraded and expanded to enable continued use of this facility.	1
PT Trail	New physical training trail along Murray Creek.	1
BN BOF	New 122,000-SF building will house 450 personnel. Project will include a 100 ft wide apron of hardstand and 405 additional parking spaces.	2
BN TEMF	New 12,500-SF support facility for the battalions housed on the East Compound. Project will include a 100 ft wide apron of hardstand on all sides of the building and no new parking spaces.	2
FSC/GSB BN COF	New 78,500-SF building will house 541 personnel and provides 342 additional parking spaces.	2
Group HQ	New 68,000-SF building will house 480 personnel. Project will include a drop-off area w/ landscaping on the south side of the building, 100 ft of hardstand along its north, and 516 parking spaces	3
CRTF/THOR3	New 57,000-SF building & landscaping will provide a training area for personnel. 94 parking spaces will be included.	3
Barracks	Two new barrack buildings are proposed at 70,500-SF each to house approximately 385 personnel. Design will include landscaped green to the north and courtyard to the south, as well as parking for 448 cars.	3
DFAC	New 17,500-SF building will provide meal service to personnel. Site includes an outdoor dining area, building service drives and 35 parking spaces.	3
Community Center	New 8,500-SF building for visiting families and supplemental dining space.	3
SOF Deployment Warehouse	New 50,000-SF support building. New hardstand area will be adjacent to Wilson Ave.	4
SOF Logistics Facility	New 54,000-SF support building. New hardstand area will be provided for load out adjacent to Wilson Ave and no new parking will be provided.	4
BOF/TEMF/ Admin Buildings	389 additional parking spaces	Future
Vehicle Bridge	Connection between West and East Compounds.	Future

Alternative 2- Battalion Operations East

Includes adoption of the Master Plan with the preliminary list of projects and proposed locations in Table 1 and locates the future BnOps complex on the East Compound near the existing FY 2008 BnOps, and the SOF Logistics Facility and the SOF Deployment Warehouse are sited on the West Compound (Figure 3). This alternative could become the preferred alternative if the Madigan Barracks site does not become available for new development. This alternative also includes the potential addition of a parking structure to meet the need for parking privately owned vehicles (POV). The parking structure site envelope illustrated east of Wilson Avenue could accommodate 1,020 cars at 3 levels, 1,360 at 4 levels, and 1,700 at 5 levels.



(1st Special Force Master Plan, September 2011)

Figure 3: Alternative 2, Battalion Operation East

Alternative 3- No Action Alternative

The No Action represents the status quo. With the No Action Alternative, the 1st SFG would propose projects without an approved plan for implementation. Individual projects would be assessed and executed, but there would not be a plan developed to ensure that individual projects are considerate of other development goals or upcoming actions.

Alternatives Eliminated from Further Consideration

In the development of the alternatives, seven design schemes were outlined for the West Compound, as well as two varying design schemes for the East Compound. These alternatives are outlined in the attached 1st SFG Master Plan (see Appendix B of the 1st SFG Master Plan, pages 5-14 for a description of these design schemes). As described in the 1st SFG Master Plan, these alternatives were eliminated because the design schemes did not meet one or more of the 1st SFG's goals and objectives for the project. Parking issues, phasing issues, location conflicts and/or concerns with layout design were included as reasons for alternative elimination.

Components Common to all Action Alternatives

Roadway and Bridge Analysis

In addition to developing long-term planning alternatives (Alternative 1, 2) for the developing compound, the proposed 1st SFG Master Plan outlines specific components that will be included in the action alternatives and are planned regarding roadway and infrastructure changes that may occur as part of development. These projects are discussed as part of the alternatives, but due to their complexity, the potential for environmental impact, as well as the lack of certainty regarding design and funding for these projects, the following additional information is provided.

Madigan Bypass

The existing Madigan Bypass is used by civilian and military traffic traveling between Jackson Avenue and the Logistics Center. Although the Madigan Bypass is considered a JBLM roadway, the relocation was considered in the 1st SFG Master Plan because the current design splits the northern end of the SFG compounds, creating a barrier between 1st SFG operations on either side of the roadway. Three alternative roadway alignments for a new Madigan Bypass were developed during the master planning process which can be reviewed in detail in the 1st SFG Master Plan (pages 42-46). All the alternatives include development of a roadway section composed of two 11 ft wide lanes in each direction, a 15 ft median between the east and west lanes, and a 4 ft planter strip with a 6 ft wide sidewalk on the east side only. The preferred roadway alternative shifts the existing location of the Madigan Bypass north along the south side of the existing tank trail. This alternative is used throughout the Master Plan and includes a T-intersection at Wilson Avenue. This alternative would require a slice of SFG's Mil Van yard for its entire length, and would demolish buildings along South "T" Street to connect to Perry Avenue. Other alternatives evaluated include an option similar to the preferred alternative, but includes a roundabout at Wilson Avenue, and movement of the existing Madigan Bypass south of the current position to provide a more direct alignment to McKinley Avenue and South "L" Street.

Connecting Bridge

The West and East Compounds are separated by Murray Creek, and presently the only access between them is by way of Jackson Avenue. As part of the master planning exercise, the analysis of a new and more direct route between the compounds was proposed. A vehicle bridge structure was viewed as the most direct and beneficial for movement of personnel and materials. Murray Creek, adjacent wetlands,

and their 50-meter buffer zones on both sides are environmental sensitive areas. Placement of structures (piers) or fill within wetlands would require Section 404 permits and likely require expensive measures to mitigate impacts from fill or structures placed in the wetlands. The goal of each bridge option was to clear span the wetlands and Murray Creek, minimizing the environmental impact. It is possible to place fill and structures within the buffer zone of the creek. The buffer zone is not regulated under Section 404 of the CWA.

A pedestrian bridge was proposed between the two compounds which would provide access between the two compounds at a reduced cost. Four options were developed which can be found in pages 53-55 of the 1st SFG Master Plan. All the alternatives would include an 8 ft wide prefabricated bridge superstructure consisting of weathering steel trusses and timber planks, and include concrete abutments and intermediate concrete piers. All bridge options include the placement of all fill material within the wetland buffer, just outside of the wetland boundary. The alternatives vary by their span and the number and placement of piers involved in the design.

The development of a vehicle bridge is preferred to a pedestrian bridge because it would allow mobility of personnel and equipment within the compound. However; a vehicle bridge has the most impact to the Murray Creek and adjacent wetlands. Four bridge options were developed and are outlined in detail in the proposed 1st SFG Master Plan (pages 56-58) which differ by pier location, the drive span length, and the amount of fill placed in the wetland buffer or wetland itself. All the bridge options include the design of a 41 ft wide bridge. The bridge would have a 6 ft wide sidewalk and two 12 ft wide travel lanes with 3 ft shoulders. The bridge superstructure would be constructed with precast concrete girders and a concrete deck. Concrete abutments and intermediate concrete piers would be supported by piers. All of the vehicle bridge options are in the same location, with the eastside landing being south of building 9998 and aligning with West Taft Street, and the west landing of the bridge connecting south of the existing building 9162, close to the proposed site of the community center. Although the vehicle bridge has been identified as the preferred option, a preference to the design or alternative has not been stated. Because of this, all four options are included in this EA.

Option 1: Would include three piers and the west abutment of the elevated bridge structure within the wetland buffer zone. The total length of the elevated structure would be approximately 405 feet and would consist of 3 spans, including an approximately 120 ft span over the wetland. The second abutment would be placed outside of the wetland buffer.

Option 2: Would place both the west and east abutment within the wetland buffer zone. The total length of the elevated structure would be reduced to 367 feet and only 2 piers would be required for the design.

Option 3: Is similar to Option 2, except that the eastern approach lies within the east buffer zone on fill rather than elevated on a structure. The overall length would be 235 ft.

Option 4: Would consist of a three-sided concrete box culvert over Murray Creek with an open span of 40 feet and an inside height of 16 ft. This option would require the placement of fill material in the Murray Creek wetlands.

Decision to be Made and Identification of the Preferred Alternative

This EA will analyze the environmental effects of the identified alternatives including Alternative 1- Battalion Operations West (the preferred alternative), Alternative 2- Battalion Operations East, and Alternative 3- No Action Alternative. Direct, indirect, and cumulative effects resulting from implementation of the alternatives will be addressed, and mitigation measures will be identified, if applicable. Mission activities on JBLM are subject to continuous change and evaluation. Changes may

occur in response to a variety of factors, including new mission assignments, new technologies or training methods, or national defense requirements. In order to address the possibility of changes to the design of specific buildings and projects, this EA focuses on the overall footprint of the projects, rather than individual projects themselves. Maintaining this broader scope, specific design changes within the project area will not affect the validity of the NEPA documentation addressing the master plan for the site. Nevertheless, if future changes result in changes to the footprint of the project area, specifically, if the project expands into protected areas or open space buffers, Army environmental staff will determine whether additional environmental documentation (supplemental EA or EIS is needed). This EA is intended to serve as a source document that can be supplemented with additional documentation when site specific details are completed. Any new or additional actions would be evaluated for compliance with federal, state, and local laws and regulations prior to implementation, and the public informed of any major federal actions that may be considered for implementation at JBLM as part of the NEPA compliance process.

In accordance with regulations implementing NEPA (40 CFR 1500-1508) and 32 CFR 651, the results of this analysis will form the basis for decisions regarding implementation of the Master Plan and the Battalion Operations West (preferred alternative), the Master Plan and the Battalion Operations East Alternative, or the No Action Alternative. Natural resources management issues such as land use; topography and soils; air quality; water resources; biological resources; cultural resources; waste management and hazardous materials; traffic and transportation; and noise were evaluated to determine their effect on the alternative options. Analysis in this EA will be used to determine whether a Finding of No Significant Impact (FONSI) is warranted or whether the implementation of the Master Plan under review will require an EIS due to significant environmental impacts.

AFFECTED ENVIRONMENT

Resource Areas Excluded From Detailed Analysis

In compliance with CEQ (Sec. 1500.1(b)) and 32 CFR 651.5(d), the evaluation of environmental impacts should focus on those resources and conditions potentially subject to effects and on potentially relevant environmental issues deserving of study, and deemphasizes irrelevant issues. Some environmental resources and conditions that are often analyzed in an EA have been omitted from detailed analysis in this assessment. Table 1 provides the basis for such omissions.

Table 2: Environmental Issues Eliminated From Analysis

Issue Eliminated	Reason for Dismissal
Socioeconomic Resources and Environmental Justice	<p>Implementation of the Proposed Action would have no effect to socioeconomic conditions, including off-installation minority and low-income populations. JBLM has been in a steady stream of growth over the last decade, with several MILCON projects being funded yearly at the installation. The proposed 1st SFG actions are in line with previous MILCON actions and will maintain the construction level that is accustomed at the installation. Because the actions will be consistent with ongoing construction activities, it will not have socioeconomic impacts associated with the need for added workforce (increased population, housing/school strains, income, etc).</p> <p>There are no environmental justice concerns associated with this Proposed Action. All project recommendations would only affect JBLM property and would not result in any negative effects to neighboring areas outside of the installation boundary.</p>

Land Use

The 1st SFG compound is located within the Old Madigan area development plan (ADP) within JBLM's RPMP. The current use of the compound is predominately a developed, mixed use area. With exception to small areas of tree buffers, the site is dominated by the built environment, including buildings, roads, parking areas, maintained grass, urban trees, and cleared building sites. The property buffers Murray Creek and wetland areas, which remain as a natural, open space. Although the 1st SFG is a separate organization residing on JBLM, the goal of the master plan was to develop it consistent with the Fort Lewis RPMP, ADP for Old Madigan. The two main components within the Old Madigan ADP is a call for an executable Special Operations Forces (SOF) campus and a new, high density housing area located south of the Old Madigan facilities, which is outside the scope of this project (Urban Collaborative, 2008). In addition to the component drivers of the ADP, the planning model of the RPMP focuses on compact, walkable development in identifiable neighborhood districts (Urban Collaborative, 2009). Current planning guidance does not address the housing and support building deficit that will occur from the addition of a fourth battalion within the 1st SFG compound.

Topography and Soils

The topography of the compounds is relatively flat. The northern end of the West Compound sits approximately 16 feet higher in elevation than the East Compound because of the higher bank on the west side of Murray Creek. This difference in elevation between the sites diminishes as one moves south along the creek bank. Due to the glacial history of the area, the soils within the 1st SFG compound are typically permeable and well drained. Any potential for soil erosion, vegetation removal, slope stability, hydric soil disturbance, and sedimentation will be addressed in the other sections.

Although soils within JBLM have been exposed to historic contamination, there is no known point-source contamination within the 1st SFG Compound. Much of the soils within the East Compound have been subjected to environmental restoration land use controls, including long term management and remedial action operations. This area is a former range site (Military Munitions Response Program Dud Site) that has been remediated and requires no further action.



Figure 4: Environmental Restoration and CERCLA Sites within the Project Area

Air Quality

The potential for impacts to air quality resulting from construction/demolition, as well as long-term building and vehicular operations were identified during scoping of this project. The Clean Air Act (CAA), as amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants that are considered harmful to public health and the environment. Under the General Conformity Rule of the CAA, Section 176(c), federal agencies must demonstrate conformity of the proposed activities with the regional NAAQS (Puget Sound Intrastate Air Quality Control Region). JBLM’s air quality is classified as good and is in attainment with the NAAQS (US Army, 2010). According to the most recent air quality report from the Puget Sound Clean Air Agency (2009), air quality has improved over the last two decades (declined pollutant levels and general improvement in air quality) in the region. Nevertheless, the Agency still cites on-road vehicle emissions as the greatest contributor to criteria pollutants and greenhouse gas emissions in the Puget Sound air shed. Other regional concerns include particulate matter (PM) emissions due to indoor/outdoor burning and elevated ozone levels which have not decreased as significantly as its precursor pollutants (the pollutants that form ozone) (PSCAA, 2009).

Water Resources

Surface Water - Murray Creek

Murray Creek runs south-north between the West and East compounds and is a natural drainage and the principal surface inflow of water for American Lake. Murray Creek is influenced by the low topography of JBLM and is characterized by low-gradients which are associated with low flow velocities. The flat topography, compounded with the low stream velocities, reduce the ability of the stream to recruit and transport sediment. Cover is provided by aquatic plants, woody debris, and shade from adjacent evergreen and deciduous trees, and associated riparian vegetation.

While Murray Creek is not included on the Washington State 303(d) list of impaired water bodies, previous studies have identified elevated temperature, elevated nutrient levels, and the presence of trichloroethylene (TCE) as water quality concerns (Herrera Environmental Consultants, 2007). Summer baseflow in Murray Creek has also become an issue in recent years due to decreased water levels in the shallow aquifer, potentially exacerbated by pumping from the shallow aquifer for use as cooling water at MAMC (Urban Collaborative, 2008). Historically a perennial stream, the reach of Murray Creek on JBLM adjacent to I-5 has gone dry during the summer periodically in the past two decades. Early in 2010, JBLM completed a project to direct treated deep aquifer groundwater from the Landfill 2 Remedial Action pump and treat system to the MAMC cooling system, which discharges the water back to the shallow aquifer. This reduced the amount water taken from the shallow aquifer for cooling and may have contributed to the sustained summer baseflows noted in 2010 and 2011 on Murray Creek.

Groundwater

Surface and groundwater at JBLM are closely linked because of the permeable soils and high ground water table. Within the Murray Watershed, the depth to the water table in the shallow unconfined upper aquifer ranges between 10 and 30 ft, with shallower depths near the surface (Herrera Environmental Consultants, 2007). Groundwater at JBLM is generally low in total dissolved solids, with a predominance of calcium and bicarbonate as major constituents (ENSR, 2000). Minor contamination of soil and ground water has been noted in connection with underground storage tanks and landfill areas within JBLM, but the greatest impact on ground water quality in the Murray Creek watershed is a contaminant plume originating east of the Logistics Center. There are three water treatment systems which contain the plume. These systems remove and treat contaminated groundwater and return clean water to the aquifer.

Stormwater

The East Compound has a Stormwater Facility and Oil Water Separator that conveys surface runoff from industrial sections of the cantonment area, but the majority of stormwater from buildings and paved surfaces on the East and West compounds drains to Murray Creek through the stormwater collection system through engineered outfall structures (see maps, pg. 50-51 of 1st SFG Master Plan).

Ecology's Stormwater Management Manual for Western Washington (stormwater manual), which has been adopted by JBLM, provides detailed guidance for handling stormwater runoff from development and redevelopment for water quality and quantity. JBLM implements requirements of the Energy Independence and Security Act (EISA) Section 438 in accordance with DoD and Army guidance. Redevelopment of the East and West compounds will require managing stormwater consistent with this guidance. In general, with any redevelopment, all stormwater must be retained on site and water quality and quantity controls must be provided. Some discharges may remain after development to address technological limitations to onsite stormwater management.

Wetlands

Wetlands within the project area consist of primarily forested wetlands located within the Murray Creek riparian zone. Wetlands have not been delineated as part of the master planning process, but existing GIS wetland boundary information from JBLM DPW was used to provide general guidance on the extent of wetlands along Murray Creek. These wetlands act as groundwater discharge or recharge areas, depending on seasonal changes in the water table and the direction of groundwater flow. Wetlands within the project area have likely been influenced by surrounding development and the effects of groundwater withdrawal within the installation.

Fort Lewis Regulation 200-1 (U.S. Army 2004) mandates a 50-meter protective buffer around wetlands, limiting vehicular travel to existing roads within this buffer zone. All activities that may impact wetlands with known populations of water howellia (*Howellia aquatilis*; a federal threatened species) are prohibited or require review to determine the potential impacts on this plant. Before any development (including bridges, structures, or trail systems) take place along Murray Creek, a wetland delineation and survey of wetland boundaries will need to be completed prior to approval of construction within the area.

Biological Resources

Habitat and Vegetation

The 1st SFG East Compound has relatively few trees, while there are several large groves of mature urban trees throughout the West Compound, including Oregon white oak (*Quercus garryana*). Oregon white oak has been identified as a special species and are scattered throughout the area. In addition to the stands of oaks within the urban area of the West Compound, oak habitat has been identified north of the current Madigan Bypass along the Tank Trail, and within the Murray Creek openspace between Murray Creek and the East Compound.

The Murray Creek openspace between the East and West compounds provides important terrestrial, wetland, and freshwater habitat and serves as a natural migration route through JBLM for a variety of species. The riparian habitat is dominated by Douglas fir (*Pseudotsuga menziesii*), but western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), red alder (*Alnus rubra*), black cottonwood (*Populus balsamifera*), big-leaf maple (*Acer macrophyllum*), salmonberry (*Rubus spectabilis*), red-osier dogwood (*Cornus stolonifera*) are also present. Developed areas, roads, and utility crossings extensively fragment the plant cover in the riparian areas of Murray Creek. In addition, urban land uses along locations of Murray Creek have encroached upon riparian vegetation buffers which function to regulate stream temperature and provide shade cover for aquatic organisms.

Fish and Wildlife

The Murray Creek subbasin and American Lake contains non-anadromous fish populations including rainbow trout (*Oncorhynchus mykiss*), cutthroat trout (*O. clarki*), and kokanee (*O. nerka*). Rainbow and cutthroat trout are expected to reside in Murray Creek throughout the entire year. Adult rainbow and cutthroat trout typically spawn in late winter (February to March) and the fry emerge in late summer. Kokanee is a form of landlocked sockeye salmon and are known to spawn along the shoreline of American Lake and the mouth of Murray Creek. Other fishes that may occur within Murray Creek include sculpin (*Cottus spp.*), three-spine stickleback (*Gasterosteus aculeatus*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), and yellow perch (*Perca flavescens*). Spawning has been documented in the upper and lower reaches of Murray Creek, but spawning gravels for fish are limited within the project area because the existing gravel is mostly embedded in fine sediments consisting of a sand and silt mixture. The dominant habitat within Murray Creek is glide habitat with a few riffles and scour pools. Wetlands provide habitat for several frog and salamander species.

The Murray Creek openspace provides habitat and a corridor for mammals including black tailed deer (*Odocoileus hemionus columbianus*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), and black bear (*Ursus americanus*). The riparian and wetland habitat provide important habitat for several bird species that can be found on the installation.

Special Status Species

Murray Creek provides suitable habitat for water howellia (*Howellia aquatilis*). There are no known occurrences of this species within the project area, but no surveys have been conducted to exclude it from the project area. At the time of this assessment, a wetland delineation had not been conducted. Species identification within the delineation will determine if this species is a concern for the proposed bridge project. If water howellia is found to be present in the project area, coordination and/or consultation will be initiated with the USFWS. There are no other federally listed or proposed species located within the project area.

Cultural Resources

A cultural resource is any definite location or object or past human activity, occupation, or use, identifiable through inventory, historical documentation, or oral evidence. Cultural resources may include archaeological; historical buildings, structures and/or districts; or traditional tribal resource sites. If eligible, cultural resources can be listed under the National Register of Historic Places (NRHP). In addition, some cultural and traditional tribal resources that may not be eligible under NRHP are protected under the National Historic Preservation Act (NHPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), or other federal or state laws.

No archaeological studies were conducted as part of the master planning process. One known archaeological site, a “Native American camp site,” is within the proposed project area and is located east of Wilson Avenue in the location of the proposed FY 2013 BOF in the East Compound. Data recovery excavation has been completed and a report is in development in order to catalogue and authorize the site for development through consultation with Washington State’s Historical Preservation Officer (SHPO). Development cannot occur in this area until a SHPO concurrence letter is received.

The 1st SFG East Compound is adjacent to the Old Madigan Hospital Historic District. Restrictions exist on projects that are allowed within the historic district. In addition, projects outside of the district which may create an adverse viewshed may be determined inconsistent with integrity of the Old Madigan Hospital Historic District. Murray Creek is a potential traditional tribal resource for the Nisqually Indian Tribe, Puyallup Tribe of Indians, and the Squaxin Indian Tribe. These tribes have shown recent and continued interest in the creek and associated watershed and proposals for the bridge and PT trail will require coordination with these tribes.

Waste Management and Hazardous Materials

Current guidelines for all construction activities at JBLM require the diversion of at least 60 percent of construction and demolition activities from the landfill. Waste material generated by the project may be recycled or reused on post in designated recycling and reuse areas. Materials not designated for on post recycling and/or reuse will be disposed off post at the contractor’s expense and diverted to the highest degree practicable in accordance with Army’s Net Zero Waste program.

The 1st SFG compound has a storage shed on the east campus that stores hazardous materials (weapon cleaning solvent, etc). Hazardous materials and wastes are managed by JBLM DPW Environmental Division under their standard operating procedures. This building is not part of proposed building renovations and/or demolitions. Several buildings on the East and West Compound that are scheduled for demolition and/or renovation likely contain hazardous waste including asbestos and lead-based paint (LBP). Without surveys conducted to prove otherwise, JBLM DPW assumes that asbestos is present in buildings constructed before 1985 and assumes the presence of LBP in buildings built prior to 1978.

Traffic and Transportation

Large volumes of vehicular traffic occur along Jackson Avenue which is a primary arterial through JBLM and funnels traffic into and out of Madigan Hospital. Wilson Avenue and McKinley Avenue are secondary roads which see less traffic and support the Old Madigan District. Transmission Line Road also sees less traffic and is also a secondary road (which leads to training areas). The Madigan Bypass likely supports traffic from the Logistics Center, the Madigan Hospital Annex, and access to facilities within the 1st SFG. The I-5 corridor just outside of the Madigan gate experiences significant congestion and was determined to be a significant issue in the GTA EIS (U.S. Army, 2010).

The baseline condition related to parking on the existing 1st SFG compounds has been determined inadequate. A substantial amount of parking will be required with the selection of either action alternative as transit and other non-automotive transportation options are limited at JBLM. The POV parking requirement for the master plan was based on current standards which require parking for 90 percent of building occupancy for SFG facilities, and 70 percent occupancy for barracks buildings.

Noise

Noise (unwanted sound) is generally characterized by its intensity, frequency, and duration. Although noise is typically measured using a logarithmic decibel (dB) scale, an A-weighted (dBA) correction factor is commonly employed for analyzing the effects of noise on humans and the surrounding environment. In the average human ear, the apparent increase in “loudness” doubles for every 10 dBA increase in noise (US Army, 2010). Because of mixed uses surrounding the 1st SFG (including industrial/working campus activities, traffic, and ongoing construction in the vicinity), recent noise measurements averaged 65 dBA with peak levels exceeding 80 dBA at 50 feet (CPSD, 2012).

ENVIRONMENTAL CONSEQUENCES

In consideration of potential environmental effects, resources areas were evaluated by assessing the projects potential impacts they may have on individual resource areas. Potential impacts associated with the implementation of the 1st SFG Master Plan, including the placement of related construction and operation of proposed projects, were analyzed, taking into account the possibility of immediate direct and indirect effects that the project may have, and those that would occur over the short or long-term. The intensity of impact of these effects was analyzed and it was determined whether the impact would result in a net beneficial or adverse effect to the resource. The cumulative impacts of the project are also discussed which analyze the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

- **Short-term or Long-term:** Short-term effects would be those that would occur only with respect to a particular activity for a finite period of time. Typically short-term effects are considered for the construction and installation of proposed projects. Long-term effects are those that are more likely to be persistent and chronic and address the lasting effects of an implemented action.
- **Direct or Indirect:** A direct effect is an environmental consequence that can be directly linked in time and location to the implementation of a project or action. An indirect effect is also caused by the action, but may be farther removed in distance from the action or may occur later in time, but is still a reasonably foreseeable outcome of the action.
- **Significant, Moderate, Minor, and No Effect:** These relative terms are used to characterize the impact levels of a project. To have a no effect determination, the project would have absolutely no effect to a resource area, or impacts would be so negligible where they are expected to be discountable or insignificant (effects would be unable to be reasonably measured, detected, or

evaluated). Minor effects are those that are slight, but detectable. Moderate effects are those that are readily apparent. Significant effects are those that, in their context and due to their magnitude (severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.7) and would warrant heightened attention and examination for potential means for mitigation.

- **Adverse, Beneficial, or Neutral:** An adverse effect is one having an unfavorable or undesirable outcome on the human or natural environment. A beneficial effect would have a beneficial or positive effect on the resource area. To have a beneficial effect, the action would have to result in a net-benefit or a significant improvement within the resource area, where the human or natural environment would be left in a better condition than it was prior to the start of the project due to mitigation or BMPs. You could not have a beneficial impact implementing projects within previously undisturbed areas. A neutral effect would be an effect that cannot be measured or defined as adverse or beneficial. Neutral effects are those that cannot be weighed as adverse or beneficial. A neutral effect would leave the resource area in more or less the same condition as it was found before the project was implemented and changes to the resource would be so negligible to where they could not be measured.

Land Use

Because of the scope of the project, impacts to land use were assessed based on the proposed master plans compatibility with existing land uses within the GTA EIS and RPMP. Regional land use was addressed in the GTA EIS which ensured consistency with local, regional, and tribal land uses, which is beyond the scope of this project. Land use was also evaluated to see if it addressed the vision, goals and objectives of the Fort Lewis RPMP, while also meeting the goals of the 1st SFG which include:

- Enhancement of mission capabilities
- Ensuring a sustainable compound
- Creation of a walkable campus
- Creation of an identifiable planning center
- Ensuring the campus is a great place to live, work, and train.

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Under the Battalion Operations West Alternative, moderate, long-term, beneficial impacts would be expected for land use. Under this alternative, the West Compound would be largely an administrative and living campus, while the East Compound will retain its status and further development as an industrial, service, and support compound. Murray Creek will remain as protected openspace. Openspace is also identified along the northern boundary of the West Compound where a large stand of trees buffers the compound from Jackson Avenue and the tank trail.

The proposed plan is consistent with the Fort Lewis RPMP and defines an identifiable center through the maintained greenspace which centers the Group HQ, barracks, and surrounding support/training buildings. This alternative is considered to have a moderate, beneficial effect to land use because it directly promotes compact development and the use of previously developed sites to facilitate goals of walkability and sustainability, in addition to meeting mission requirements. Over the long-term, this alternative ensures conservation of ecologically important natural areas and sets guidelines for sustainable development and is consistent with the Fort Lewis RPMP.

Alternative 2- Battalion Operations East Alternative

Long-term, moderate, direct, beneficial effects are also expected to occur with the Battalion Operations East Alternative, much like the above preferred alternative. Although much the same, this alternative does pose a deficit in parking spaces and would likely require the addition of a parking structure (a 3-5 level garage).

Alternative 3- No Action Alternative

The status quo will continue without the benefit of long range master planning. Long-term, minor to moderate, adverse impacts to land use can be expected with the No Action Alternative as future projects may experience unnecessary space constraints and a sprawled design. 1st SFG projects would follow guidance outlined in the Fort Lewis RPMP, but would not address SFG's specific long term goals or needs.

Topography and Soils

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Changes to the topography of the project area will not occur with any of the action alternatives. In general, construction activities can result in short-term, localized increases in sedimentation due to exposed soils. Nevertheless, with the exception of activities occurring within the Murray Creek riparian area, soil disturbance due to short-term construction activities is expected to be minor due to the use of previously disturbed construction sites where stormwater controls are in place and the implementation of BMPs. Short-term construction activities from the PT trail and the vehicle bridge may have minor to moderate, direct, adverse effects to soils due to erosion. Because of the low flow rate and the inability of Murray Creek to flush inputs and past degradation, accelerated input of soils due to human activity has the potential to have significant impacts on the creek bed and wetlands, as increased sediment can reduce their function and changes the habitat characteristics of these water bodies. The proposed bridge project would be placed in the buffer zone, potentially, right on top of the boundary of the wetland. Although this protects the wetland from fill material, the placement negates the function of the buffer which reduces impacts to wetlands by moderating the effects of runoff and stabilizing soils to prevent erosion. Under this alternative, construction would be controlled by the implementation of stormwater control designs and BMPs which implement erosion-control measures. Because of this, the project is expected to have minor to moderate, direct and indirect impacts which are not expected to become significant.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are the same as above.

Alternative 3- No Action Alternative

This alternative continues to maintain the current baseline conditions. Proposed development within the 1st SFG compound would be expected result in minor, short-term impacts due to previous disturbance. Activities within previously undisturbed areas, such as Murray Creek openspace, would be expected to have short-term, minor to moderate, direct, adverse impacts due to erosion related to the bridge and PT trail construction.

Air Quality

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Short-term, minor air quality impacts from construction/demolition of the proposed projects have the potential to occur with the implementation of the Battalion Operations West Alternative. Based on current baseline conditions at JBLM, it is expected that the total direct and indirect emissions from the proposed projects will be below the thresholds established in 40 CFR 51.853(b) and therefore considered regionally insignificant under 40 CFR 93.153(i). Despite this; federal agencies (including JBLM) must comply with Section 176(c) and demonstrate general conformity on a project-by-project basis. Individual MILCON projects that are proposed within the 1st SFG Master Plan will likely require supplemental NEPA and/or air quality conformity review when a project plan is developed and direct/indirect emissions expected from the project can be quantified. This general conformity review will also ensure that there has not been any change to the baseline air quality condition or any revision to the regional NAAQS which would have the potential to negate the validity of the general conformity review for projects proposed through FY 2019. Demolition of buildings require asbestos and lead-based paint surveys, as these substances are assumed present until a survey is performed showing otherwise. If these materials are found, demolition of these buildings will require proper containment, removal, and disposal of these substances, in accordance with the current laws and regulation.

Long-term beneficial impacts could be expected from this project as construction of sustainable buildings (LEED silver) will be replacing out-dated buildings and lowering some emissions associated with operation of facilities. The proposed project also focuses on creating walkable campus and planning designs that may minimize vehicular traffic and associated emissions.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are the same as above.

Alternative 3- No Action Alternative

The current baseline conditions will continue under Alternative 3. Proposed construction, implemented without a master plan, would be expected comply with Section 176(c) and demonstrate general conformity on a project-by-project basis. Demolition of buildings require asbestos and lead-based paint surveys, as these substances are assumed present until a survey is performed showing otherwise. If these materials are found, demolition of these buildings will require proper containment, removal, and disposal of these substances, in accordance with the current regulation and guidance. Short-term, minor air quality impacts would be expected from initial construction/demolition of the proposed projects, but long-term, minor beneficial effects would be expected due to the construction of sustainable (LEED) buildings that will reduce the emissions associated with daily operations of the facilities.

Water Resources

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Surface Water

Generally, construction activities can result in temporary increases in runoff and sedimentation which can affect surface water. Nevertheless, with the exception of projects occurring within the Murray Creek riparian area, activities within the 1st SFG compound are not expected to have an impact on water quality due to stormwater management designs and BMPs which serves as extra protection. Stormwater is not currently a concern for Murray Creek, but as with all new impervious surfaces there is a potential for

pollutants to be carried to the creek. Minimal increases in stormwater runoff from construction activities are expected due to the implemented BMPs. Long-term, minor, beneficial effects are anticipated for surface water due the implemented stormwater controls including on-site infiltration.

The proposed bridge construction and PT trail is expected to have a minor to moderate, adverse effect on surface water in Murray Creek and adjacent wetlands. Even with the best intentions, BMPs cannot negate all impacts development can have on surface water quality impacts. Although, the majority of the buffer zone will not be impacted, in the areas where pilings or abutments are needed there is little to be done to mitigate impacts of erosion within the Murray Creek riparian area and are expected to have an adverse impact on water quality in the short-term (due to increased sedimentation from erosion related to construction activities) and in the long-term due to inputs of hard metals and other pollutants from vehicle traffic across the bridge). There are more opportunities to mitigate impacts during the construction of the PT trail but there will be some adverse impacts. These impacts are not expected to meet the threshold criteria for water quality where they would become significant, but because of the low flow rate and previous degradation of the creek, the potential for impact is greater in water bodies such as Murray Creek, which are already exhibiting signs of impairment.

Groundwater

Projects implementing new impervious surface prevents rainwater from infiltrating, which can reduce groundwater recharge and affect base flows of nearby surface water. Nevertheless, the Battalion Operations West Alternative is expected to have a long-term, minor, beneficial effect to groundwater which has been a concern for Murray Creek. The use of bioswales and rain gardens infiltrate water on site, recharging the groundwater table near Murray Creek. In addition, LEED Silver building standards reduce the overall need of water through conservation, water collection and reuse, and the use of native, drought resistant plants for landscaping which reduces consumptions. There were no projects identified in this document that would have an adverse effect to groundwater. Several environmental monitoring wells are within the project area and will have to be protected during any construction activities.

Stormwater

Projects that construct new impervious surface may affect the quality and quantity of runoff originating from within the project area. Temporary BMPs during construction and permanent BMPs will be used to control and treat runoff generated by the project. Properly designed, constructed and maintained stormwater BMPs can provide important benefit, but do not eliminated all stormwater impacts. The Battalion Operations West Alternative is expected to have long-term, beneficial effects to stormwater at the 1st SFG compound. Currently, stormwater from construction built pre-2008 at the West and East compounds are collected into pipes and discharged to Murray Creek. Low-impact development techniques include bioswales, dry wells, permeable pavement, and other facilities that enhance the infiltration of stormwater into the ground and will eliminate high peak runoff from entering Murray Creek and create a more natural hydrological flow condition.

Wetlands

The Battalion Operations West Alternative is expected to have short-term, moderate, adverse effects to wetlands due to the proposed bridge construction across Murray Creek and the proposed PT trail.

Within the 1st SFG Master Plan, several designs of the vehicular bridge were proposed. One of the designs outlined proposed a culvert design which placed fill in the wetlands, but was abandoned as an option. The other three designs show varying bridge spans and variations of required piles and abatement locations, but restricts all fill material to be placed outside the wetland boundary. Proposed bridge designs have protected wetland areas from significant impacts due to the input of fill material by placing piers and abatements in the buffer zone (mitigating impact through avoidance). While impacts of the bridge will be reduced, the clearing of vegetation and the placement right outside of the wetland boundary

has the potential to create adverse effects to the wetland due increased runoff, sedimentation, and the introduction of invasive and exotic species (WDOE, 1992).

Wetlands are considered a “special aquatic site” and are afforded the strongest protection under the CWA. While federal law has not ruled on the protection of wetland buffers, wetland buffers reduce the adverse impacts of adjacent land uses to wetlands. In the absence of federal guidance, JBLM has implemented a 50 meter wetland buffer surrounding wetlands and other waterbodies located at JBLM.

The 1st SFG Master Plan incorrectly stated that due to placement of the bridge supports outside of the wetland boundary, no permits would be required for its construction. While the definition of activities regulated under Section 404 of the CWA has been subject to judicial review in recent years, final rule from USACE and EPA December 2008, states that the redeposit of dredged material, other than incidental fallback, into waters of the United States from excavation activities, including mechanized land clearing fall under the definition of discharge and dredged material (73 FR 79641). Activities such as mowing and chainsawing vegetation above the ground are not regulated and would not need a permit, but these activities would not be feasible for the proposed bridge project because of the dense vegetation, established evergreen trees, and the need to clear a span for the bridge and approaching roadway within the wetland and buffer area. Because of this, activities associated with the bridge construction will be further analyzed prior to construction to determine whether the activities fall within the requirements of CWA Section 404 and Section 401 permits and any other applicable permits.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are the same as above.

Alternative 3- No Action Alternative

The current baseline conditions will continue under Alternative 3. Proposed construction, implemented without a master plan would be expected to maintain the status quo for surface and stormwater within the 1st SFG compound, as all new development must apply with applicable guidance and regulation, including NPDES permitting. Surface and stormwater within the Murray Creek openspace would be expected to have a minor to moderate adverse impacts on surface water due to potential construction within the buffer zone. Long-term, minor, adverse effect to groundwater would be expected under this alternative because new construction would not include additional BMPs, beyond the minimal requirements. Impacts to wetlands may also have short-term, moderate, adverse effects due to the proposed bridge construction across and the PT trail construction along Murray Creek.

Biological Resources

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Habitat and Vegetation

The Battalion Operations West Alternative is expected to have minimal impacts to habitat and vegetation within the fenced 1st SFG compound and the Madigan Bypass area. The 1st SFG compound and the Madigan Bypass area has had previous development and ground disturbance. Minimal urban tree species and negative vegetation remain in these areas. Individual oak trees or stands that have the potential to conflict with development of the West Compound and the new Madigan Bypass will be avoided if possible and would be mitigated at a 6:1 ratio if removal is necessary.

Minor, short and long-term, adverse impacts are expected in the Murray Creek openspace due to the proposed vehicle bridge and the PT trail. The Murray Creek openspace is a densely vegetated forested

area that is largely composed of native species. Clearing for the bridge, roadway, and PT trail will likely cause changes in habitat and vegetation due to species loss and the potential edge effect. The expansion of edges, cutting boundary lines in the landscape, create changes in light and often allows for the introduction of invasive species or shade-intolerant plants in these previously undisturbed areas. The clearing of vegetation along Murray Creek may also reduce the shading functions the trees provide to the creek. This impact was also considered a minor, long-term adverse effect due to its important factor in maintaining cool waters that are necessary for salmon spawning.

Fish and Wildlife

The vegetated uplands adjacent to wetlands are considered to be one of the richest zones for aquatic organisms, mammals, and birds (Clark, 1977; Williams and Dodd, 1978). These wetland buffers and upland riparian areas provide essential habitat for species and provide an important openspace for animal movements. These areas provide important habitat for wildlife which used the area for essential feeding, nesting, breeding, rearing and resting. Waterfowl feed and nest within these areas and many amphibian species spend the majority of their lives in these forested areas and breed in wetlands. In addition to serving as important life history functions, openspace serves as an important corridor for mammals traversing through the urban areas of JBLM. Nevertheless, it is expected that there will be no impacts to terrestrial species with Alternative 1, due to the scope of this project and the proximity of suitable habitat in close range of the project.

Although spawning occurs within parts of Murray Creek, spawning habitat is not found within the project area, primarily due to sedimentation which limits habitats. The bridge project may result in minor to moderate, adverse effects to fish species. Short-term impacts due to run-off associated with the bridge construction and potential in-water work during vegetation removal for the bridge span. Long-term impacts from the loss of canopy that produces shade and the potential introduction of invasive species (reed canary grass) may impact spawning in the upper reaches of Murray Creek.

Special Status Species

Due to suitable habitat, the proposed bridge project will require a survey for federally listed, water howellia prior to project approval. There are no known occurrences of the species in the wetland area, but the project site has suitable habitat and recent surveys have not been conducted in order to exclude its presence along Murray Creek. This project will have no effect on water howellia if it can be excluded from the project area. If it is identified within the project area, coordination with United States Fish and Wildlife (USFWS) will have to occur prior to project approval.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are the same as above.

Alternative 3- No Action Alternative

Current baseline conditions for habitat and vegetation will continue under Alternative 3. Proposed development that would occur without a planning document is expected to have a minor, short and long-term, adverse effect to vegetation and habitat due to the removal of established vegetation and the likely introduction of invasive species associated to the edge effect of forests. Although terrestrial wildlife species will likely not be impacted by this alternative, fish and other aquatic animals may experience short and long-term, minor to moderate, adverse impacts due to aquatic habitat degradation associated with the bridge project and other construction activities within Murray Creek. There are no special status species known within the project area. Implementation of this alternative will maintain the status quo and all applicable laws and regulations will be required if a special status species is identified within the project area.

Cultural Resources

Alternative 1- Battalion Operations West Alternative (Preferred Action)

The proposed activities within the 1st SFG Compound will likely have no impact on archaeological or architectural resources. The only archaeological area within the 1st SFG boundary has been documented and removed from the site. Published reports of findings and SHPO concurrence are pending, but would be completed prior to project commencement. The proposed action has the potential to affect unknown archeological sites through ground disturbing activities associated with new construction. In the event that human remains, artifacts, or features of archaeological interest are inadvertently discovered, the activity in the vicinity of the discovery shall immediately cease, and the area should be stabilized and protected from further disturbance or public disclosure.

Construction within the Murray Creek openspace has the potential to impacts to traditional tribal resources. Murray Creek is a traditional tribal resource for the Nisqually Indian Tribe, Puyallup Tribe of Indians, and the Squaxin, whom have shown recent and continued interest in the Creek and associated watershed. Tribal coordination will be conducted with an offer of government to government consultation (see Appendix A).

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are the same as above.

Alternative 3- No Action Alternative

Current baseline conditions are expected and proposed construction (without a plan) will likely have no effect for cultural resources under Alternative 3. Traditional tribal resources will be a subject of coordination and government to government consultation with treaty tribes, specifically concerning projects within Murray Creek and before construction begins.

Waste Management and Hazardous Materials

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Implementation of the proposed action has the potential to produce a significant amount of waste due to construction and demolition activities. Current guidelines at JBLM require the diversion of at least 60 percent of waste produced from these construction and demolition activities from the landfill which will reduce these effects. Nevertheless, construction waste disposal may still have a short-term, minor effect on waste generation from materials that cannot be recycled or reused.

Demolition of buildings that may contain LBP and/or asbestos has the potential to encounter these hazardous wastes. Statutory procedures are in place for safe containment, removal and disposal of these materials. Despite the short term disturbance, removal of these elements will have minor, long-term beneficial effect to the health and safety of those who use these buildings.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are the same as above.

Alternative 3- No Action Alternative

Waste disposal and the removal of hazardous wastes will continue as it currently is managed for new construction associated with Alternative 3. Short-term, adverse impacts to waste management are expected from construction activities, but required waste reduction through recycling and deconstruction for re-useable materials will significantly reduce this impact. Demolition of buildings that have the potential for asbestos or lead-based paint will have to follow requirements for their removal.

Traffic and Transportation

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Implementation of the preferred alternative is not expected to create increased traffic along primary roadways including Jackson Avenue. The Fort Lewis' EIS for Growth and Force Structure Realignment discussed the impacts the addition Soldiers, and despite the anticipation of a fourth battalion (600-800 Soldiers) and the scope of this project is expected to have a minor impact roadways in and around the base.

The Madigan Bypass likely supports traffic from the Logistics Center, the Madigan Hospital Annex, and access to facilities within the 1st SFG. Movement of the roadway may have a short-term adverse effect on traffic if detours are required during the construction process. These effects are expected to be minimal to non-existent since the new roadway is at a new location and can be constructed without affecting traffic on the current road. The project is expected to have minor, long-term beneficial effects as the new bypass creates a more direct route to the Logistics Center and creates a safer, contained campus as thru-traffic will no longer be driving through the 1st SFG Compound.

The preferred alternative includes the development of a vehicular bridge to connect the East and West Compounds to provide improved movement between the two compounds and to create a completely contained campus in the case of a lock down. The proposed bridge would allow more fluid movement of the SFG within the East and West Compounds. Although it is not far, movement from one campus to the next requires vehicles to go through up to two lights, at Jackson Avenue and Transmission Line Road, and Jackson Avenue and Wilson Avenue which delays movement of personnel and materials, and interrupts connection between the campuses. A direct roadway has the potential to provide minor, beneficial effects for military mission as the 1st SFG will be able to get between campuses more efficiently than they are currently able to and will promote other means of transportation, as the distance between campuses will be reduced, and may promote walking between the campuses when appropriate.

In addition to connection and streamlining travel between the compounds, the proposed bridge was supposed to allow the SFG to have a secure barrier between the East and West Compound in the case of a lockdown where the perimeter fence line would need to be secure. This objective will continue to be worked during future design phases with the goal to create a 'secure' perimeter around the compounds without closing Wilson Avenue which is the primary roadway to Old Madigan and Family housing, located south of the East Compound. Because Wilson Avenue transects through the location of the eastern entrance of the proposed bridge, SOF Deployment Warehouse and SOF Logistics Facility, and the East Compound, even with the construction of a bridge, a secure perimeter will be difficult to design and may not be feasible. Access to Old Madigan and the Family housing can be accessed from Jackson Avenue by way of McKinnley Avenue, but proposing this will likely be highly contested and would not be consistent with the Fort Lewis' Master Plan.

A significant amount of parking will be required as part of this project as transit and other non-automotive transportation options are limited at JBLM, especially within the 1st SFG facilities. The POV parking requirement for the master plan was based on current standards which require parking for 90 percent of building occupancy for SFG facilities and 70 percent occupancy for barracks buildings. Despite the

increase of impervious surfaces, the increase of parking is not likely to adversely affect stormwater and groundwater recharge as BMPs including rain garden bio-filtration swales and other LEED approved building techniques will minimize these impact.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are largely the same as above, except implementation of the Battalion Operations East Alternative will likely create a shortfall of available parking for POV. The development of this alternative would require the development of a multi-level parking garage to address the shortfall of parking.

Alternative 3- No Action Alternative

The current baseline conditions including the current traffic congestion and parking constraints will continue under the No Action Alternative. New proposed roads may have a short-term, adverse affect on traffic during construction and a slight increase to congestion and traffic in and around JBLM with the potential increase of Soldiers. Nevertheless, roadway projects (including the proposed bridge) will likely have a long-term, minor, beneficial impact for traffic and transportation. The effort to connect the two compounds internally will not be accomplished as a bridge would not be built over Murray creek in accordance with the benefit of long term planning.

Noise

Alternative 1- Battalion Operations West Alternative (Preferred Action)

Short-term, minor noise associated with construction/demolition activities is expected within the 1st SFG boundaries under Alternative 1, but are not expected to attenuate beyond the compound to neighboring (potentially incompatible) land uses. Military use of the area, surrounding traffic, ongoing traffic, as well as other contributing factors contribute to the baseline noise levels averaging 65 dBA with peak levels exceeding 80 dBA. A typical construction site is 80 dBA with construction limited to the hours of 7:00 AM to 4:30 PM at JBLM, unless the contractor obtains special permission from the installation. The proposed project is expected to have no effect to individuals outside of the 1st SFG compound due to noise attenuation (the reduction in decibel level per doubling of distance from the source) to background/baseline noise levels within the project vicinity.

To note: the proposed 1st SFG Master Plan mentioned the use of the openspace in the West Compound for a helipad. This action has been excluded from this document because it was not a developed beyond a general concept within the Plan, as well as not being feasible action due to limited space, noise and safety concerns. If pursued, this action would need to be evaluated in a separate NEPA document.

Alternative 2- Battalion Operations East Alternative

Effects for the Battalion Operations East Alternative are largely the same as above, except implementation of the Battalion Operations East Alternative will likely create a shortfall of available parking for POV. The development of this alternative would require the development of a multi-level parking garage to address the shortfall of parking.

Alternative 3- No Action Alternative

The current baseline conditions including the current traffic congestion and parking constraints will continue under the No Action Alternative. Demolition and construction activities may have a short-term, minor impact on noise within the 1st SFG compound, but noise levels are not expected to attenuate beyond baseline/background levels to surrounding land uses.

Resource Area	Alternative 1 Battalion Operations East	Alternative 2 Battalion Operations West	Alternative 3: No Action
Land Use	Long-term, moderate, beneficial impacts to land use are expected with Alternative 1, due to sustainable planning design and the protection of openspace.	Same as alternative 1, except this proposed land use would need to address the shortfall of parking for POV.	Long-term, minor to moderate adverse impacts would be expected as proposed development and changes to land use would continue without the benefit of a long term Master Plan.
Topography & Soils	Alternative 1 is expected to have a short-term, minor, adverse impact on soils within the 1 st SFG campus due locating many of new facilities on previously disturbed project sites.	Same as Alternative 1.	Current baseline conditions will continue, and proposed development (without a plan) would be expected to have a short-term, minor, impact to soils due to previous disturbance within 1 st SFG compound.
	Construction activities within the previously undisturbed Murray Creek open space is expected to have a short-term, minor to moderate direct, adverse effect due to erosion related to the bridge, road, and PT trail construction.	Same as Alternative 1.	Current baseline conditions will continue under Alternative 3, and proposed development (without a plan) would be expected to have short-term, minor to moderate direct, adverse effect due to erosion related to the bridge, road, and PT trail construction in previously undisturbed area.
Air Quality	Alternative 1 is expected to have a short-term, minor adverse impact to air quality associated with initial demolition/construction activities, but long-term, minor beneficial impacts due to reduced day-to-day facility operating emissions due to sustainable design.	Same as Alternative 1.	Current baseline conditions will continue under Alternative 3, and proposed development (without a plan) would be expected to have a short-term, minor adverse impact to air quality associated with initial demolition/construction activities, but long-term, minor beneficial impacts due to reduced day-to-day facility operating emissions due to sustainable design.
Water Resources			
Surface	Activities within the 1 st SFG campus are expected to have a long-term, minor beneficial effect to surface water as stormwater controls (including on-site infiltration) may reduce existing inputs to Murray Creek occurring with the current stormwater collection system.	Same as Alternative 1.	Current baseline conditions will continue under Alternative 3, and proposed development (without a plan) would be expected to maintain the status quo as new construction would be required to manage water consistent with the applicable guidance, including the stormwater manual, but not include additional protective measures.
	The proposed bridge and PT trail are expected to have a minor to moderate adverse effect on surface water due to construction within the buffer zone. The bridge designs which place structures close to or on top of the wetland boundary, severely limit the BMPs and protections available to prevent inputs into the creek and wetland	Same as Alternative 1.	Current baseline conditions will continue, and proposed development (without a plan) would be expected to have a minor to moderate adverse impacts on surface water due to potential construction within the buffer zone.

		areas which could bring a moderate impact. Increased set backs from these resources and added buffers will likely make these impacts minor.		
Ground		Activities within the 1 st SFG campus are expected to have a long-term, minor beneficial effect to groundwater. Despite the increase of impervious surface, the increase use of BMPs and LEED designs focus water to the ground and will likely improve the groundwater recharge in the area.	Same as Alternative 1.	Under Alternative 3, projects would add impervious surface, but would not include designs and BMPs (other than those required by CWA) which infiltrate water to the ground. This would likely have a long-term, minor, adverse effect to groundwater.
Storm		Alternative 1 is expected to have long-term, beneficial effect to stormwater at the 1 st SFG compound due to increased use of BMPs and stormwater designs that enhance infiltration to the ground, minimize high peak run-off, and create a more natural hydrological flow. Projects would be compliant with the JBLM and EISA stormwater requirements either as part of the proposed overall plan or on a project by project basis.	Same as Alternative 1.	Current baseline conditions will continue under Alternative 3, and proposed development (without a plan) would be expected to maintain the status quo as new construction would be required to manage water consistent with the applicable guidance, including the stormwater manual, but not add additional protective measures.
Wetland		Alternative 1 is expected to have short-term, moderate, adverse effects to wetlands due to the proposed bridge construction across and the PT trail construction along Murray Creek.	Same as Alternative 1.	Current baseline conditions will continue under Alternative 3, and proposed development (without a plan) would be expected to have short-term, moderate, adverse effects to wetlands due to the proposed bridge construction across and the PT trail construction along Murray Creek.
Biological Resources				
Habitat & Vegetation		Under Alternative 1, Actions within the 1 st SFG Compound and Madigan Bypass will minimal, short-term impacts to urban habitat and vegetation due to previous disturbance in the area and the mitigation of white oak species, if individual species cannot be avoided. Projects within the Murray Creek openspace may have a minor, short and long-term, adverse effect to habitat due to the removal of established vegetation and the likely introduction of invasive species associated to the edge effect of forests.	Same as Alternative 1.	Current baseline conditions for habitat and vegetation will continue under Alternative 3. Proposed development (without a plan) is expected to have a minor, short and long-term, adverse effect to vegetation and habitat due to the removal of established vegetation and the likely introduction of invasive species associated to the edge effect of forests.
Fish & Wildlife		Alternative 1 is expected to have no impact on terrestrial species. Fish species may experience short and long-term, minor to moderate, adverse impacts due to habitat degradation associated with the bridge project and other	Same as Alternative 1.	Current baseline conditions for terrestrial species are expected with implementation of Alternative 3.

	construction activities within Murray Creek.		Short and long-term, minor to moderate, adverse impacts due to aquatic habitat degradation associated with the bridge project and other construction activities within Murray Creek.
Special Status Species	Alternative 1 will likely have no impact to water howellia, but a wetland delineation including species identification would have to exclude the species from the area prior to making this determination. If found, the bridge construction has the potential to have significant impact and consultation with USFWS would be required.	Same as Alternative 1.	Current baseline conditions are expected and proposed construction (without a plan) will likely have no effect for special status species under Alternative 3.
Cultural Resources	Alternative 1 will likely have no impact to archaeological or traditional tribal resources within the proposed project area. Traditional tribal resources will be subject to coordination and government to government consultation, specifically concerning projects within Murray Creek and before construction begins.	Same as Alternative 1.	Current baseline conditions are expected and proposed construction (without a plan) will likely have no effect for cultural resources under Alternative 3.
Hazardous Waste & Waste Management	Short-term, adverse impacts to waste management are expected from construction activities. Waste reduction through recycling and deconstruction for re-useable materials will significantly reduce this impact. Demolition of buildings that have the potential for asbestos or lead-based paint will have to follow requirements for their removal.	Same as Alternative 1.	Current baseline conditions are expected for proposed construction (without a plan). Short-term, adverse impacts to waste management are expected from construction activities, but required waste reduction through recycling and deconstruction for re-useable materials will significantly reduce this impact. Demolition of buildings that have the potential for asbestos or lead-based paint will have to follow requirements for their removal.
Traffic & Transportation	New roads proposed in Alternative 1 may have a short-term, adverse affect on traffic during construction and a slight increase to congestion and traffic in and around JBLM with the potential increase of Soldiers. Nevertheless, roadway projects (including the proposed bridge) will likely have a long-term, minor, beneficial impact for traffic and transportation.	Same as Alternative 1.	Alternative 3 will maintain baseline conditions, and it is expected that new proposed roads may have a short-term, adverse affect on traffic during construction and a slight increase to congestion and traffic in and around JBLM with the potential increase of soldiers. Nevertheless, roadway projects (including the proposed bridge) will likely have a long-term, minor, beneficial impact for traffic and transportation.

Noise	Short-term, minor noise associated with construction/demolition activities is expected within the 1 st SFG boundaries, but are not expected to attenuate beyond the compound boundaries.	Same as Alternative 1.	Alternative 3 will maintain baseline conditions, and it is expected that construction/demolition activities have the potential to create short-term, minor noise impacts that are expected within the 1 st SFG boundaries, but are not expected to attenuate to neighboring incompatible land uses.
-------	---	------------------------	--

CUMULATIVE IMPACTS

Cumulative effects on environmental resources result from incremental effects from the proposed action, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative effects can result from individually minor, but collectively substantial, actions undertaken over time and are an important consideration when assessing the environmental impact of a project.

Stationing and training activities within the 1st SFG that are related to this Master Plan are likely to occur. A NEPA assessment is being completed on the increase of 334 SFG Soldiers by FY 2015. In addition to this stationing, training activities will require infrastructure improvements and range realignments including:

- Realignment of Ranges 43-45
- Minor MILCON at Range 42
- Fast Rope Lanes for Rappel Tower
- Repair Solo Point Boat Launch
- Airspace Management
- Communications Upgrades in Remote Training Areas

Analysis is being completed to determine the appropriate level of NEPA documentation that will be required for these activities.

The DoA is pursuing several project within the vicinity of 1st SFG compound. At MAMC, several projects are in development including expansion of hospital facilities to include an operational medicine addition and a birthing center. MAMC is also currently repairing the drain field underneath one of the parking lots. The Logistics Center is also within the 1st SFG's vicinity and is proposing an expansion of their facilities. Current proposals would expand the north eastern corner of the Logistics Center for the construction of additional warehouses and operational facilities.

There are no projects associated with the proposed 1st SFG Master Plan that will have cumulative environmental impacts. Groundwater withdraws have been associated with Murray Creek's depleting surface water. The 1st SFG has acknowledged this problem and will be implementing BMPs that direct runoff into recharging areas. Future plans will need to also assess their impact on groundwater and water quality to ensure that cumulative impacts from past development do not become significant.

OTHER CONSIDERATIONS REQUIRED BY NEPA

Endangered Species Act

The Endangered Species Act (ESA) of 1973 provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered. Water howellia has the potential to be found in Murray Creek wetlands. A wetland delineation (which includes plant species identification) will be completed in order to exclude water howellia from the project area. If water howellia is found, consultation will be required with USFWS.

Clean Water Act and EO 11990

The proposed bridge project and the PT trail are located in the Murray Creek wetland buffer. Design options place fill structures very close to the wetland boundary, which has not yet been defined by a wetland delineation. In order to ensure compliance with Section 404 and Section 401 of the CWA, and

Executive Order 11990, Protection of Wetlands, a wetland delineation needs to be completed to define and mark the wetland boundary. Temporary markings of this boundary would need to be in place during construction activities to ensure that heavy equipment and fill material does not breach this boundary. A CWA Section 404 permit will be needed for work in-waters of the United States and the construction and operation of the proposed facilities will comply with any other applicable permit conditions. Projects will be required to comply with National Pollution Discharge Elimination System (NPDES) permits where applicable.

LIST OF PREPARERS

Stephanie Sparks
NEPA Specialist
Versar Inc.

Bill Van Hoesen
NEPA Program Manager
Public Works, Joint Base Lewis-McChord

APPENDIX A: INTERAGENCY AND PUBLIC REVIEW AND CORRESPONDENCE

Federal Agencies

Environmental Protection Agency
Office of Enforcement & Compliance Assurance
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

Tribal Governments

The Honorable Cynthia Iyall
Chair, Nisqually Indian Tribe
4820 She-Nah-Num Drive SE
Olympia, Washington 98513

The Honorable Herman Dillon, Sr.
Chair, Puyallup Tribal Council
3009 East Portland Avenue
Tacoma, Washington 98404

The Honorable David Lopeman
Chair, Squaxin Island Indian Tribe
10 SE Squaxin Lane
Shelton, Washington 98584

State Agencies/Regional Authorities

Puget Sound Clean Air Agency
Compliance Services
1904 Third Avenue, Suite 105
Seattle, Washington 98101

Washington Department of Ecology
Environmental Review Unit
P.O. Box 47703
Olympia, Washington 98504

Counties

Pierce County Planning and Land Services
2401 S. 35th Street
Tacoma, Washington 98409

Thurston County Development Services
Thurston County Courthouse
2000 Lakeridge Drive SW
Olympia, Washington 98502

Local Governments

City of DuPont
Planning Department
1700 Civic Drive
Dupont, Washington 98327

City of Fircrest
Planning and Building Department
115 Ramsdell Street
Fircrest, Washington 98466

City of Lakewood
Community Development
6000 Main Street SW
Lakewood, Washington 98499-5027

City of University Place
Planning and Development Services
3715 Bridgeport Way West
University Place, Washington 98466

Tacoma Planning Commission
747 Market Street, Room 1036
Tacoma, Washington 98402

Town of Steilacoom
1030 Roe Street
Steilacoom, Washington 98388

Libraries

Pierce County Library System
Processing and Administrative Center
3005 112th Street East
Tacoma, Washington 98446
(For Steilacoom and Lakewood libraries)

Timberland Regional Library System
Lacey Branch
500 College Street SE
Lacey, Washington 98503

Timberland Regional Library System
Olympia Branch
3313 8th Avenue SE
Olympia, Washington 98501

APPENDIX B: 1ST SPECIAL FORCES GROUP MASTER PLAN

REFERENCES

- Clover Park School District. 2012. Environmental Determination for the Replacement of Hillside Elementary School, located at Joint Base Lewis McChord.
- ENSR. 2000. Final Integrated Natural Resources Management Plan. Prepare for Department of the Army, Fort Lewis, Washington. ENSR Consulting and Engineering, Redmond, Washington.
- Herra Environmental Consultants. 2007. Final Watershed Management Plan Murray/Sequalitchew Watershed. Prepared for ENSR and U.S. Army Fort Lewis Garrison. Portland, Oregon.
- Muller, Karl and Mark Downen. 1999. 1997 American Lake Survey: The warmwater fish community before stocking smallmouth bass. Washington Department of Fish and Wildlife, Warmwater Enhancement Program, La Conner, Washington. Publication FPT 99-14.
- Puget Sound Clean Air Agency. 2009. Air Quality Data Summary.
http://www.pscleanair.org/news/library/reports/2009_AQDS_Report.pdf
- Shapiro and Associates, Inc. 1996. An Assessment of Murray Creek in Pierce County, Washington. Summary Report with Appendices. Shapiro and Associates, Inc., Seattle, Washington.
- Urban Collaborative. 2008. Fort Lewis Real Property Management Plan: Old Madigan. Contract W912DW-07-P-0228.
- Urban Collaborative. 2009. Fort Lewis Visioning Manual. Contract W912DW-07-P-0228.
- U.S. Army. 1997. Fort Lewis Real Property Master Plan. Department of Public Works, JBLM, Washington.
- U.S. Army. 2004. Fort Lewis Regulation 200-1, Environmental Protection and Enhancement.
- U.S. Army. 2007. Army Regulation (AR) 200-1, Environmental Protection and Enhancement.
- U.S. Army. 2010. Final Environmental Impact Statement for the Fort Lewis Army Growth and Forces Structure Realignment. Volume 1. Department of Public Works, JBLM, Washington.
- WDOE. 2005. Stormwater Management Manual for Western Washington. Washington Department of Ecology, Water Quality Program, Olympia, Washington.